Baseline Report

This document has been compiled in response to Question 6 of EPA Further Information Request, 23rd January 2020 for a licence review application, in relation to College Proteins Unlimited Company for an installation located at College Proteins Unlimited Company, College Road, Nobber, County Meath A82XT61, EPA licence Reg. No.: P0037-04.

"Provide a full Baseline Report having regard to European Commission Guidance concerning baseline reports under Article 22(2) of Directive 2010/75/EC on industrial emissions (2014/C136/03). This shall include soil and groundwater monitoring for parameters that are indicative of the existing relevant hazardous substances (RHS) on-site and also the future RHSs, that will support biodiesel manufacture, to establish a baseline for all potential contaminants that could result from the existing and proposed licensable activities [Regulation 9(2)(r)]".

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1. Introduction

This report has been prepared on behalf of College Proteins (P0037-03), an existing rendering facility at Nobber, Co. Meath for which a licence application review has been to the EPA for their Industrial Emissions (IE) Licence, for the extension of the facility to include a proposed 25,000 tonnes biodiesel manufacturing facility (Reference IE Register No. P0037-04).

Planning and subsequent EIAR were submitted to Meath County Council and planning has been granted for the development. This document presents the baseline report which has been prepared in accordance with European Guidance concerning baseline reports under Article 22(2) of Directive 2010/75/EU on Industrial Emissions and forms part of the IE Licence review application for P0037-04.

The guidance sets out a standard eight stage process that is required to complete the baselines report as outlined below.

- Stage 1: Identifying the Hazardous Substances that are Currently Used, Produced or Released at the Installation.
- Stage 2: Identifying the Relevant Hazardous Substances.
- Stage 3: Assessment of the Site-Specific Pollution Possibility.
- Stage 4: Site History.
- Stage 5: Environmental Setting.
- Stage 6: Site Characterisation.
- Stage 7: Site Investigations.
- Stage 8: Production of the Baseline Report.

1.1 Background

College Proteins operates an animal rendering plant at College Road, Nobber, Co. Meath since 1989. The company is one of Ireland's leading processors of animal by-products. The main raw materials are inputted into the existing plant and cooked and separated to produce tallow and meat and bone meal (MBM). These two products are renewable indigenous, carbon neutral fuel.

The facility currently operates under Industrial Emissions Licence number P0037-03, issued by the Environmental Protection Agency and has been operating under an EPA licence since May 2002. This proposed licence review is to allow the company to extend

its existing facility to produce 25,000 tonnes per annum of biodiesel.

The licence review will include two unit operations; the rendering process which is currently in existence and licenced under P0037-03 for 125,000 tonnes per annum and the proposed extension of the red line boundary to include the development of a biodiesel manufacturing plant to allow for the production of 25,000 tonnes of biodiesel per annum.

1.2 Requirement for Baseline Report

This document has been completed in response to *Question 6 of EPA Further Information Request, 23rd January 2020* in relation to College Proteins Unlimited Company.

"Provide a full Baseline Report having regard to European Commission Guidance concerning baseline reports under Article 22(2) of Directive 2010/75/EC on industrial emissions (2014/C136/03). This shall include soil and groundwater monitoring for parameters that are indicative of the existing relevant hazardous substances (RHS) on-site and also the future RHSs, that will support biodiesel manufacture, to establish a baseline for all potential contaminants that could result from the existing and proposed licensable activities [Regulation 9(2)(r)]".

This report follows the stages set out in the European Guidance concerning baseline reports under Article 22(2) of Directive 2010/75/EU on Industrial Emissions.

2 Stage 1 – Site Activities and Identification of Hazardous Substances

2.1 Guidance Requirements

The European Commission Guidance concerning baseline reports under Article 22(2) of Directive 2010/75/EU on industrial emissions require the following details for Stage 1:

> *Identify which hazardous substances are used, produced or released at the installation and produce a list of these hazardous substances.*

A "Hazardous substance" is defined in the Guidance as substances or mixtures as defined in Article 3 of Regulation (EC) No 1272/2008 of the European parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures.

Article 3 of Regulation (EC) No 1272/2008 defines hazardous substances and mixtures and specification of hazard classes as follows: -

*A substance or a mixture fulfilling the criteria relating to physical hazards, health hazards or environmental hazards laid down **in Parts 2 to 5 of Annex I** is hazardous and shall be classified in relation to the respective hazard classes provided for in that Annex. Where, in Annex I, hazard classes are differentiated on the basis of the route of exposure or the nature of the effects, the substance or mixture shall be classified in accordance with such differentiation.*

2.2 Applicant Details

A full list of all substances and mixtures used, produced or released at College Proteins has been compiled and is presented in the following sections along with details of the nature of the hazardous substances identified. The Commission Guidance states that substances must include raw materials, products, intermediaries, by-products, emissions or wastes at the facility.

The facility has no history of any incidents reported to the EPA in relation to soil, ground or groundwater under its current licence P0037-03.

2.3 Identification of Hazardous Substances Used, Produced or Released at the Installation

2.3.1 Substances Used

Table 1-1of this report details the nine hazardous substances which have been identified as

being used in the day to day operations of the activity of the current operations. Table 1-2 details chemicals which are proposed for use as part of the Biodiesel manufacturing process which has not yet been developed.

The client provided the safety data sheets (SDS) for the hazardous substances used on site. Only the substances classed as hazardous have been included. Due to the variability of the information presented in the SDS sheets the R phrase, S phrase and H phrase where available have been presented in Table 1-1 and Table 1-2 in accordance with S.I. No. 62 of 2004 European Communities (Classification, Packaging and Labelling of Dangerous Preparations) Regulations 2004. Schedule 10 of these regulations specifies the Risks Phrases and Schedule 11 specifies the Safety Phrases. Hazard statement codes are available for physical hazards, health hazards and environmental hazards. For the preparation of the baseline report the assessment has concentrated on the potential environmental hazards. A copy of the SDS sheets for the hazardous substances used on site have been obtained from the client and are contained in Appendix A.

Material/ Substance[2]	CAS Number	Danger Category[3]	Amount Stored (tonnes)	Annual Usage (tonnes)	Nature of Use	Hazard Statement [4]	Pollutants (Tick and specify Group/Family Number)				Controlled Substances REACH SVHC[6]	Relevant hazardous substance?[7] Yes/No
							EC EO (Surface Waters) Regulations 2009		EC EO (Groundwater) Regulations 2010			
							Specific pollutants	Priority (hazardous) substances	Hazardous[5]	Non-hazardous[5]		
Phosphoric acid (81.5%)	7664-38-2	C	1	6	WWTP	H314: Causes severe skin burns and eye damage	N/A	N/A	Non-Hazardous	Non-Hazardous	None	Yes
Nitric Acid (55-60%)	7697-37-2	C	1	0.005	Cleaning Chemicals	EUH071: Corrosive to the respiratory tract. H272: May intensify fire; oxidiser. H290: May be corrosive to metals. H314: Causes severe skin burns and eye damage.	N/A	N/A	Undetermined	Undetermined	01-2119487297-23	Yes
Sodium Hypochloride (bleach)	7681-52-9	C, I, N	0	0	Cleaning Chemicals	H271 May cause fire or explosion, stong oxidiser, H290: May be corrosive to metals, H314: Causes severe skin burns and eye damage, H318 Causes serious eye damage, H319 May cause eye irritation, H335: May cause respiratory irritation, H400 Very toxic to aquatic life, H401 Toxic to auquatic life with loong lasting effects, H302 harmful if swallowed			Non-Hazardous	Non-Hazardous	01-2119488154-34-0047	Yes
Hydrochloric acid	007647-01-0	C, I	0	0	Cleaning Chemicals	H314: Causes severe skin burns and eye damage, H335: May cause respiratory irritation, H290: May be corrosive to metals	N/A	N/A			01-2119484862-27	Yes
Osmodex (Bimodex)	68439-45-2, 7664-93-9, 7664-38-2, 7553-56-2	C	0.0025	0.01	Cleaning Chemicals	H302 Harmful if swallowed. H312 Harmful in contact with skin. H314 Causes severe skin burns and eye damage. H315 Causes skin irritation. H318 Causes serious eye damage. H319 Causes serious eye irritation. H332 Harmful if inhaled. H335 May cause respiratory irritation. H400 Very toxic to aquatic life			Undetermined	Undetermined	None	Yes
Hyperox	79-21-0, 7722-84-1 , 64-19-7, 28349-72-6	C, O		0.01	Cleaning Chemicals	H226 Flammable liquid and vapour. H242 Heating may cause a fire. H271 May cause fire or explosion; strong oxidiser. H302 Harmful if swallowed. H312 Harmful in contact with skin. H314 Causes severe skin burns and eye damage. H318 Causes serious eye damage. H332 Harmful if inhaled. H400 Very toxic to aquatic life.	Not applicable	Not applicable	Undetermined	Undetermined	Not Available	Yes
Antifoam Agitan DF6338 (Univar)	9016-45-9, 52-51-7, 55965-84-9	C	0.0025	0.005	WWTP	H301 Toxic if swallowed. H302 Harmful if swallowed. H311 Toxic in contact with skin. H312 Harmful in contact with skin. H314 Causes severe skin burns and eye damage. H315 Causes skin irritation. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H331 Toxic if inhaled. H335 May cause respiratory irritation. H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects. H411 Toxic to aquatic life with long lasting effects. H412 Harmful to aquatic life with long lasting effects	Not applicable	Not applicable	Undetermined	Undetermined	Not Available	Yes
Green diesel - Plant Diesel	68334-30-5, 91-20-3	O, N, I	2	17	Plant/ Machinery e.g. forktrucks for rendering & biodiesel	H302: Harmful if swallowed, H304: May be fatal if swallowed and enters airways H315: Causes skin irritation H332: Harmful if inhaled H351:Suspected of causing cancer H373: May cause damage to organs through prolonged or repeated exposure. H411: Toxic to aquatic life with long lasting effects.	Not applicable	Not applicable	Hazardous	Hazardous	01-2119484664-27-0006	Yes
White diesel - Road Diesel - DERV	68334-30-5	I, C, N	42	500	Transport Rendering & biodiesel	H304 -- Aspiration Hazard -- Category 1 H315 -- Skin corrosion/irritation -- Category 2 H332 -- Acute toxicity, Inhalation -- Category 4 H350 -- Carcinogenicity -- Category 1B H373 -- Specific target organ toxicity (repeated exposure) -- Category 2 H411 -- Hazardous to the aquatic environment, chronic toxicity -- Category 2 H304: May be fatal if swallowed and enters airways. H315: Causes skin irritation. H332: Harmful if inhaled. H351:Suspected of causing cancer. H373: May cause damage to organs through prolonged or repeated exposure. H411: Toxic to aquatic life with long lasting effects.	Not applicable	Not applicable	Hazardous Previously List 1 Substance (Subject to Review)	Hazardous Previously List 1 Substance (Subject to Review)	01-2119484664-27-0006	Yes

Table 1-1: Relevant Hazardous Substances Identified Current Use

Material/ Substance[2]	CAS Number	Danger Category[3]	Amount Stored (tonnes)	Annual Usage (tonnes)	Nature of Use	Hazard Statement [4]	Pollutants (Tick and specify Group/Family Number)				Controlled Substances REACH SVHC[6]	Relevant hazardous substance? [7]
							EC EO (Surface Waters) Regulations 2009		EC EO (Groundwater) Regulations 2010			
							Specific pollutants	Priority (hazardous) substances	Hazardous[5]	Non-hazardous[5]		Yes/No
Methanol (Proposed)	67-56-1	F, T, O	100	2,550	Biodiesel	Hazard Statement (2,3 and 1)	N/A	N/A	N/A	N/A	01-2119433307-44	Yes
Sulphuric acid (96%) Proposed	7664-93-9	C	10	250	Biodiesel	H314: Causes severe skin burns and eye damage	N/A	N/A	Undetermined	Undetermined	01-2119458838-20-0096	Yes
Sodium Hydroxide (caustic soda liquor) Proposed	001310-73-2	C	30	610	Biodiesel (Cleaning)	H314: Causes severe skin burns and eye damage, H290: May be corrosive to metals	N/A	N/A	Undetermined	Undetermined	01-2119457892-27-XXXX	Yes
Methene Sulphonic Acid (MSA)	75-75-2, 773	C, I	30	500	Biodiesel	H290 May be corrosive to metals. H312 Harmful in contact with skin. H302 Harmful if swallowed. H335 May cause respiratory irritation. H314 Causes severe skin burns and eye damage.	Not applicable	Not applicable	Not applicable	Not applicable	012119491166-34	Yes

Table 1-2: Relevant Hazardous Substances Identified Proposed Use in Biodiesel

2.4 Substances Produced

College Proteins Unlimited Company is one of Ireland's leading processors of animal by-products. The main raw materials are inputted into the existing plant and cooked and separated to produce tallow and meat and bone meal (MBM). These two products are renewable indigenous, carbon neutral fuel. The company will be producing biodiesel from these fuels on receipt of a licence review from the EPA.

2.5 Substances Released

College Proteins Unlimited Company have, within the schedules, of their existing licence have Emission Limit Values (ELV's) with regards to;

- Discharges to Atmosphere
- Discharges to Water
- Discharge to Land

In terms of emissions monitoring reports are forwarded to the EPA as per conditions of their existing licence P0037-03 and an Annual Environmental Report (AER) and associated reports are submitted to the EPA as required.

3 Stage 2 – Identification of Relevant Hazardous Substances

3.1 Guidance Requirements

The European Commission Guidance concerning baseline reports under Article 22(2) of Directive 2010/75/EU on industrial emissions require the following details for Stage 2 Identify which of the hazardous substances from Stage 1 are 'relevant hazardous substances. Discard those hazardous substances that are incapable of contaminating soil or groundwater. Justify and record the decisions taken to exclude certain hazardous substances.

3.2 Relevant Hazardous Substances

Relevant hazardous substances are those substances or mixtures defined within Article 3 of Regulation (EC) No 1272/2008 on the classification, labelling and packaging of substances and mixtures (CLP Regulation) which, as a result of their hazardousness, mobility, persistence and biodegradability (as well as other characteristics), are capable of contaminating soil or groundwater and are used, produced and/or released by the installation. A review of Article 3 of Regulation (EC) No 1272/2008 was undertaken and the substances listed in Table 1-1and Table 1-2have been brought forward from Stage 1 having been identified as relevant hazardous substances.

The substances listed as relevant hazardous substances that are used and proposed for use at the installation are in liquid form and have the potential to have an effect on soil or groundwater pollution if released into the environment either in small quantities over time or in large quantities. The likelihood of the release of these substances into the environment taking into account the volumes of each substance, potential environmental effects, location and the containment measures in place is discussed in section 4.

4 Stage 3 – Assessment of the site-specific pollution possibility

4.1 Guidance Requirements

The European Commission Guidance concerning baseline reports under Article 22(2) of Directive 2010/75/EU on industrial emissions require the following details for Stage 3. For each relevant hazardous substance brought forward from Stage 2, identify the actual possibility for soil or groundwater contamination at the site of the installation, including the probability of releases and their consequences, and taking particular account of: — the quantities of each hazardous substance or groups of similar hazardous substances concerned; — how and where hazardous substances are stored, used and to be transported around the installation; — where they pose a risk to be released; — In case of existing installations also the measures that have been adopted to ensure that it is impossible in practice that contamination of soil or groundwater takes place.

4.1 Storage, usage, containment measures and potential risks of release to the environment

All chemical substances currently used at the facility (Table 1-1) are stored in suitable containers, appropriately bunded, labelled and in secure location with adequate drainage provisions in place to ensure no runoff to surface or ground water. Conditions of the existing licence P0037-03 are adhered to in relation to containment and a bund register is in place to ensure regular integrity testing Is carried out as per conditions of the licence.

All operating surfaces at the facility are of impermeable hardstand which ensures there is no risk of impact to groundwater or soils. The proposed extension to include the biodiesel manufacturing plant will also be constructed to include an impermeable hardstand. All tanks are stored within bunded areas and integrity tests in pipelines and bund testing is carried out as per conditions of the EPA licence. This will remain the case with the proposed extension to include biodiesel manufacturing.

Spill kit suitable for the containment and clean-up of all hazardous substances are maintained on site with documented procedures and training in place for dealing with potential spills.

Storage of all chemicals is controlled to ensure minimal stock quantities are maintained on site as required by operations.

Table 1-1illustrates the quantity stored of all chemicals on site at any one time and the estimated annual consumption. A total of nine hazardous substances have been identified and are stored on site, only two of these would have quantities greater than 1 tonne stored at any one time.

These include plant and road diesel all of which are contained as per Health and Safety Guidance, Safety Data Sheets instructions and EPA licence requirements. There is no history of leakage or spillage and therefore no associated groundwater or soil contamination at the site.

Table 1-2 also illustrates the proposed additional four chemicals which are relevant hazardous substances for the proposed biodiesel manufacturing plant and details proposed quantity to be stored of these chemicals on site at any one time and the proposed estimated annual consumption.

4.2 Soil and groundwater contamination hazards

There have been no historical pollution causing incidents at the facility which have resulted in the release of the relevant hazardous substances to soil or groundwater.
EIAR Volume 2 Section 3.5 Water details baseline conditions relevant to the hydrological and hydrogeological environment within the site boundary and the local surrounding environment.

Concrete hard standing prevents any potential spills from reaching soil or groundwater. There were no identified emissions of hazardous substances to ground or groundwater on site. The current drainage network on site allows for the diversion of potentially contaminated water to the waste water treatment plant (WWTP) on site for treatment.

Due to the containment measures in place, the small volumes stored of hazardous substances (with the exception of diesels which have secondary containment measures in place on site) and use of each substance as well as the standard operating procedures in place at the facility, it is considered that very low risk of discharge of the substances listed to the environment and in particular to soil or groundwater exists during normal and routine operations.

It is also necessary to consider abnormal operating conditions which may give rise to pollution of soil or groundwater. Taking into account the design of the existing facility, accidents and incidents may include spillage during use of the substances in which case the containment measures and spill clean-up procedures will ensure that the risk of release of any hazardous substance to soil or groundwater is minimized or eliminated. The drainage network on site also has the provision to divert potentially contaminated waters to the WWTP, activation of which forms part of the emergency response procedures.

In the event of cessation of site activities, the site will be closed in accordance with the Closure, Restoration and Aftercare Management Plan (CRAMP) which has been submitted to the EPA as part of its existing licence compliance for P0037-03. The CRAMP and the Environmental

Liabilities Risk Assessment (ELRA) will be updated as required for the proposed development of the biodiesel manufacturing plant and will be reviewed as per conditions of the licence which will ensure that potentially polluting substances, if any, are removed from the site in a manner which does not pose significant risk of pollution to soil or groundwater.

The proposed biodiesel manufacturing plant will also be designed with adequate containment, impermeable hardstanding and adequate bunding for the storage of all chemicals which will be used in association with the activity.

5 Stage 4 – Site History

5.1 Guidance Requirements

The European Commission Guidance concerning baseline reports under Article 22(2) of Directive 2010/75/EU on industrial emissions require the following details for Stage 4. Provide a site history. Consider available data and information: — In relation to the present use of the site, and on emissions of hazardous substances which have occurred and which may give rise to pollution. In particular, consider accidents or incidents, drips or spills from routine operations, changes in operational practice, site surfacing, changes in the hazardous substances used. — Previous uses of the site that may have resulted in the release of hazardous substances, be they the same as those used, produced or released by the existing installation, or different ones. Review of previous investigation reports may assist in compiling this data.

5.2 Site History

College Proteins has been operating the animal rendering plant since 1989. The facility operates under Industrial Emissions Licence number P0037-03, issued by the Environmental Protection Agency and has been operating under an EPA licence since May 2002. Since its first establishment the company has gone through a number of developments all of which requiring planning, which has been submitted to Meath County Council or An Bord Pleanala in conjunction with required Environmental Impact Assessments (EIA) and corresponding Environmental Impact Statement (EIS).

P88/402 The construction of a meat and bone meal production facility (dated 11th May 1988)

P89/870 The retention of plant rooms and altered position of offices and ancillary services at the site (dated 12th July 1989)

P97/269 The retention and completion of factory facilities; erection of a new extension to factory; increase throughput of raw materials to 75,000 tonnes and the retention of 18 hectares for land-spreading (dated 7th March 1997)

01/1361 The increase in capacity of the meat rendering plant up to 125,000 tonnes per annum, construction of four silos and retention of works (dated 14th November 2001).

KA/20256 The provision of a new Class 1 and Class 2 processing line (dated 6th August 2002)

KA/70425 The retention of 4 no. existing structures on site. These structures are all single-storey and are used in connection with the on-going meat rendering operation (dated 13th June 2007)

17.PA005 Strategic Infrastructure Application to obtain permission for a biomass CHP Plant and associated ash landfill as lodged with An Bord Pleanála on 7TH May 2008. Following an Oral Hearing in October 2008, this application was subsequently withdrawn, and development did

not take place.

17.PA0013 A Strategic Infrastructure Application was made to An Bord Pleanála (ABP) on 8th May 2009 for the provision of a Biomass Combined Heat and Power (CHP) Plant and associated ash landfill adjacent to the existing meat rendering plant. The Biomass CHP plant when fully operational will be capable of processing 105,000 tonnes of biomass per year (52,500 tonnes per year of Meat and Bone Meal (MBM) and 52,500 tonnes per year of waste organic liquids (derived from the agriculture and food and drink industries). An Bord Pleanála granted permission for the Strategic Infrastructure Application on 28th February 2013 subject to 12 No. conditions, including Condition No. 4(a) which omitted Cell 4 from the proposed landfill. This permitted development is currently subject to an Extension of Duration of Time Application to Meath County Council (Reg. Ref. KA18/0183). (Dated An Bord Pleanála on 8TH May 2009).

KA/160786 Permission for the construction of a biodiesel manufacturing plant producing up to 25,000 tonnes of biodiesel per annum. The facility comprises: a process building (maximum height of c. 23m) of c. 3,284 sqm Gross Floor Area (GFA) and associated tank farm (consisting of 12 No. external storage tanks, cooling unit, fertiliser silo, loading/unloading station); weigh bridge; security building (c. 33 sqm GFA); 22 No. car parking spaces; 5 No. HGV parking spaces; over ground pipe racks linking to the existing rendering plant and wastewater treatment plant; a pipe bridge linking the process building and tank farm; and all ancillary site development, landscaping and boundary treatment works above and below ground. The maximum height of the proposed development is the c. 25 m stack adjoining the column tower of the process building. (Dated 21st July 2016)

KA180354 This planning application has been approved for amendments to the above-mentioned permission (KA/160786) to allow for the production of biodiesel. The proposed amendments do not result in an increase in the overall permitted production of 25,000 tonnes of biodiesel per annum. A final grant has been given for the development by Meath County Council.

The facility is designed to incorporate Best Available Techniques (BAT) and BAT assessment have been carried out as part of this licence review process.

All operating surfaces at the facility are of impermeable hardstand and as such ensures there is no risk of impact to groundwater or soils. The proposed extension to include the biodiesel manufacturing plant will also be constructed to include an impermeable hardstand.

All tanks are stored within bunded areas and integrity testing in pipelines and bunds is carried out as per conditions of the existing licence. The current bund register will be amended to include the proposed extension to include biodiesel manufacturing.

5.3 Site Process

5.3.1 Existing Rendering Process

Raw material is received into the factory and off-loaded in the Raw material building. From there it is fed through crushers to reduce the particle size. The crushed material is fed via a lamella pump to a preheating system. Waste water from the raw material area and crushing area is collected in an isolated sump and fed into the pre-heating system. All areas in the factory are kept under negative pressure at all times and the malodorous air is treated in the bio filters.

The material is pressed after pre-heating, the solids go to the driers and the liquid is decanted. The oil is cleaned in a filter system and sterilised before it is sent to tallow storage tanks. The waste liquid (stick water) is sent to a waste heat evaporation plant to be evaporated and the solids are conveyed to the drier. The evaporated / concentrated liquid is then sent to the drier for further processing. Once in the drier the material is heated according to Department of Agriculture and EC regulations (1069/2009).

After drying, the material now called meal is discharged and goes on to be sterilised, cooled, milled and stored for dispatch. Vapours which are driven off at the drying stage are drawn by a fan to a waste heat evaporator, while excess vapours go to the thermal oxidiser. There is backup alternative abatement in the form of air cooled condensers, boilers and biofilters which will be used in the event of a thermal oxidiser malfunction. The condensate liquid generated in the evaporation plant condenser is directed to the WWTP.

The process area where these processes take place is ventilated by the bio filter system and thus kept under negative pressure. All waste waters arising from this area as a result of washing and cleaning are directed to the Waste Water Treatment Plant (WWTP).

5.3.2 Proposed Biodiesel Manufacturing Facility

The proposed development consists of the construction of a biodiesel production plant adjacent to the existing College Proteins' meat rendering plant at College Road, Nobber, Co. Meath.

The biodiesel plant will be capable of producing 25,000 tonnes per annum of high quality biodiesel from tallow and other oily feedstock. The proposed plant consists of a process building, loading/unloading stations and a tank farm. In addition, the proposed development will also provide for a new Security Building and additional car parking area adjoining the entrance to the site.

5.3.3 Biodiesel Process

(a) Acid esterification and acid transesterification

The esterification of fatty acids or the transesterification of triglycerides with methanol is carried out according to the reaction equations listed below. This is an acid-catalysed equilibrium reaction.

Esterification: fatty acid + methanol $\overset{H^+}{\rightleftharpoons}$ FAME + water

Transesterification: triglycerides + 3 methanol $\overset{H^+}{\rightleftharpoons}$ 3 FAME + glycerine

The reaction is catalysed by H+ ions so that any acid can be used as a catalyst. However, it is important to select the correct acid in terms of corrosion (HCl), contamination (H_3PO_4) or side reactions (H_2SO_4). This avoids problems in the evaporation units of glycerine/water as well as

sulphates or sulphonates of methyl esters.

Methane sulfonic acid (H_4CSO_3, MSA) is used as a catalyst to minimize the above-mentioned problems. This biodegradable catalyst prevents the formation of methyl ester sulfonate and the biodiesel produced in this way is free of sulphur.

The esterification reaction is an equilibrium reaction, so that the reaction water, which is formed during the reaction, must be continuously removed to achieve an almost complete conversion of the fatty acids by shifting the equilibrium and to reduce the necessary methanol surplus.

Depending on the starting product, different operating modes with different operating parameters are required to produce crude methyl ester from the fatty acids or triglycerides, which must be distilled in the subsequent step.
In all operating modes, the crude fatty acid or oil mixture is preheated via the heat exchanger and the reactors are filled.

The reactors also have internal heat coils, which can be passed through with process steam and serve to heat the reaction mixture to the reaction temperature.

During the filling of the reactor, the catalyst is added once via the pump. Methanol, on the other hand, is continuously metered into the reactor.

During the entire reaction, intensive mixing of the reactants is ensured by the agitators, circulation pumps and the dynamic mixers.

The esterification reaction or pre-esterification reaction is carried out.

Methanol is evaporated, condenses and is collected in a tank.

The methanol/water mixture is collected in a buffer tank in tank farm.

The methanol/water mixture is then processed further in the methanol rectification process. There, the methanol is freed from the water and transported to the tank farm with a purity of > 99.5 w%.

After esterification and transesterification, the crude ester is pumped out of the reactors into the sedimentation tanks by means of circulation pumps.

Due to the difference in density between methyl ester and glycerol/water, this is deposited as a heavy phase at the bottom of the sedimentation tank. The methyl ester (raw ester) then lies as a light phase above the heavy phase.

The phase boundary is determined by means of a conductivity monitor and after pumping off the heavy phase, the raw ester is pumped into a buffer tank in the tank farm.

The crude ester is then further processed in methyl ester fractionation system where it is distilled at different temperatures and separated into various C fractions.

(b) **Fractional Distillation**

The methyl ester mixture is pumped over a preheater and dryer into the C16 fractionation column.

In the column there are structured packings and the feed is distributed evenly over the packing via a special distributor.

Methyl ester mixture from the sump of the fractionation column circulates through the pump and the thermal oil-heated falling film evaporator.

The system operates at a vacuum of approx. 10-35 mbar and a temperature in the circulating sump product of approx. 220-230°C.

Evaporated methyl esters rise through the structured packings to the top of the column.

The methyl ester enriched with C18 is discharged from the C16 fractionation column and fed to the C18 distillation column.

The methyl ester enriched with C18 is discharged from the C16 fractionation column and fed to the C18 distillation column.

The methyl ester mixture from the sump of the column circulates through the thermal oil-heated falling film evaporator.

The system operates at a vacuum of approx. 25-30 mbar and a temperature in the circulating sump product of approx. 220-230°C.

C18 methyl esters evaporate and are thus separated from non-distillable components.

The ascending methyl ester vapours pass through a highly effective structured packing to reach the main condenser.

The methyl ester vapours are condensed in the C18 condenser and collected in a storage tank. The non- distillable components also known as the bio heating oil (BHO). Is collected from the tank bottoms and sent to the tank farm before dispatch as a by-product.

(c) **Methanol-Rectification**

The methanol/water mixture produced during esterification and transesterification is continuously fed into the methanol rectification process.

In this thermal process, the methanol/water mixture is separated. Pure methanol (>99.5%) and a nearly methanol-free water are obtained.

5.4 Incident History

The only known use of the existing site, which now contains the rendering activity with no pollution incidents in relation to soil or ground, was agricultural. The proposed biodiesel manufacturing plant will be developed on a greenfield site also known previous use agricultural.

There is no evidence of previous industrial activities on the site. The facility has no history of any incidents reported to the EPA in relation to soil, ground or groundwater under its current licence and there are no known pollution incidents (historical or current, on or under the site) or groundwater contamination, prosecutions relating to site condition.

5.5 Previous Monitoring

Monitoring is carried out as per conditions of EPA Licence P0037-03 and subsequent reports are forwarded to the EPA as per conditions of the existing licence.

6 Stage 5 – Environmental Setting

6.1 Guidance Requirements

The European Commission Guidance concerning baseline reports under Article 22(2) of Directive 2010/75/EU on industrial emissions require the following details for Stage 5. Identify the site's environmental setting including: — Topography; — Geology; — Direction of groundwater flow; — Other potential migration pathways such as drains and service channels; — Environmental aspects (e.g. particular habitats, species, protected areas etc.); and — Surrounding land use.

6.2 Site Location and Surrounding Landuse

The subject site is College Proteins Unlimited Company, at College Road, Nobber, Co. Meath. The site incorporates an existing animal rendering plant and a proposed biodiesel manufacturing plant.

The site is bordered to the west, south and north by agricultural lands and can be accessed by a road named locally as College Road which immediately borders to the eastern site boundary.
A site location is shown in Figure 1.

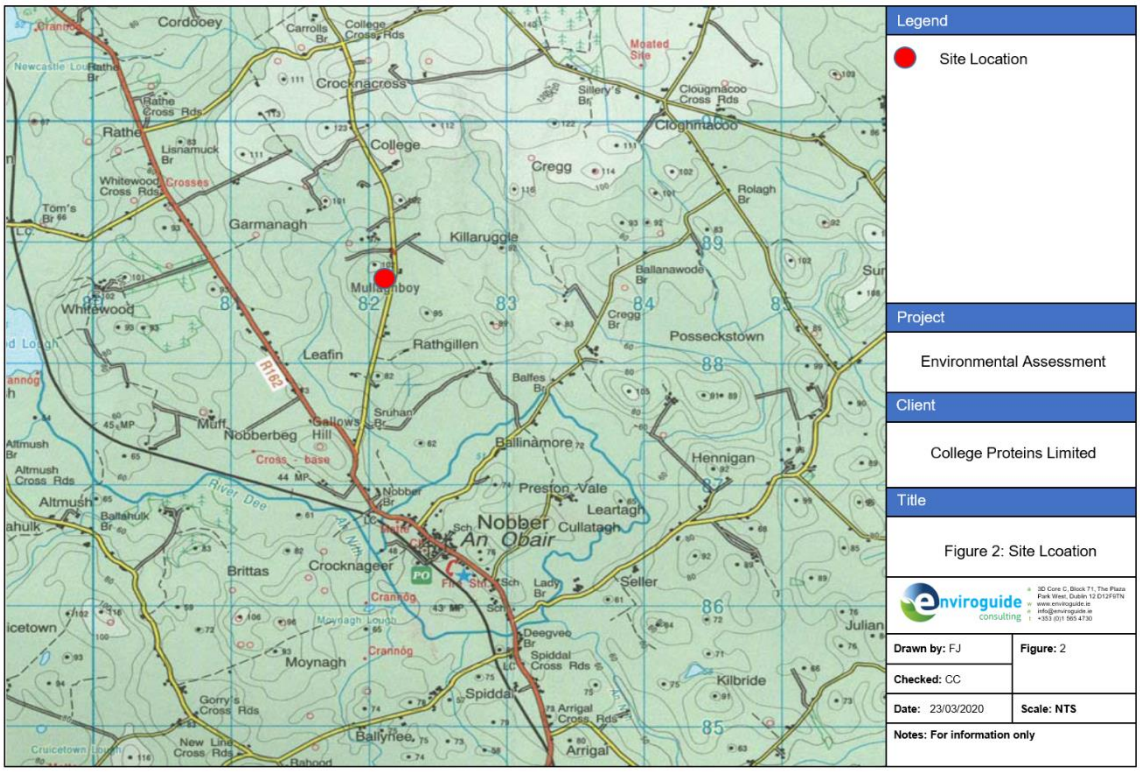

Figure 1: Site Location

The surrounding landuse for the site is mainly rural but there are also residential properties located in the vicinity of the site.

Residential developments are located approximately 0.68km south, 1.06km to the south-west, 1.64km to the south-east, 0.32km to the 1.5km east and southeast of the site, 0.55km southwest, 0.8km northwest of the site and the closest residential site is located approximately 0.02km to the south of the site.

There are no other EPA, IPC, IE or waste licensed facilities located within a 2km radius of the site other than those granted to College Proteins Unlimited Company. The closest facility has been identified on the EPA Database as Saint-Gobain Construction Products (Ireland) Limited which is located approximately 3.9km to the south of the site (EPA, 2020).

6.3 Environmental Site Setting

6.3.1 Topography

The site is positioned at an elevation of 87-92 mOD. The area is undulating, with numerous hummocks surrounding the site reaching 100 mOD. These hummocks are drumlin and drumlin tails appear to be elongated along a southeasterly orientation, but this can vary. At the site itself natural topography falls from the local road on the eastern boundary towards the western boundary of ownership which is characterised by a minor local valley. Site works have altered natural topography within the site boundary.

6.3.2 Soil and Quaternary Subsoil

The soil beneath the Site has been mapped by the GSI (GSI, 2020) as “Mineral poorly drained (Mainly acidic)” (AminPD) which is derived from mainly non-calcareous parent materials. A figure depicting the soils mapped beneath the site is presented in Figure 2.

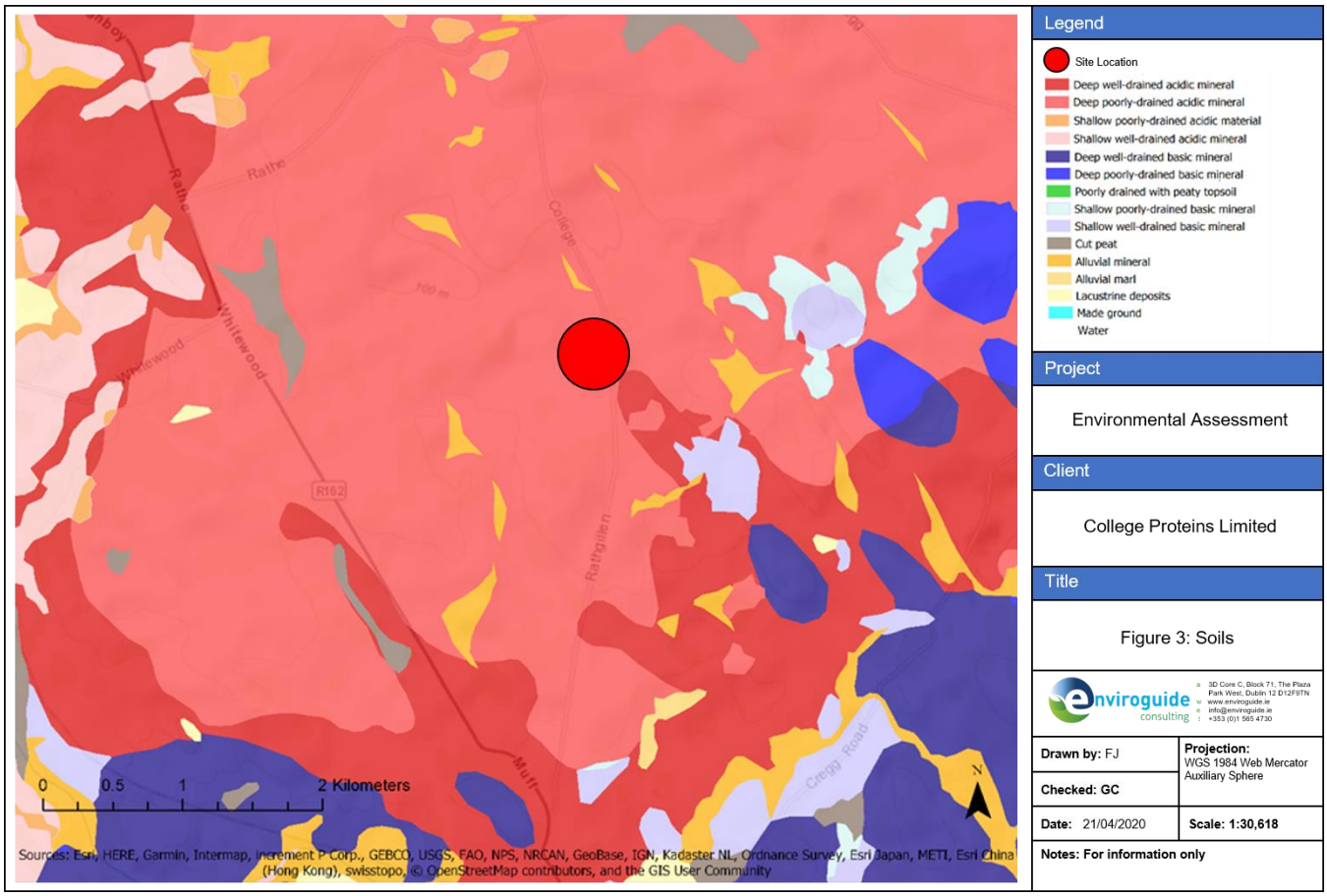

Figure 2: Soils

The quaternary sediments beneath the Site are mapped by the GSI (GSI, 2020) as “Till derived from Namurian sandstones and shales” (TNSSs). The quaternary geology is presented in Figure 3.

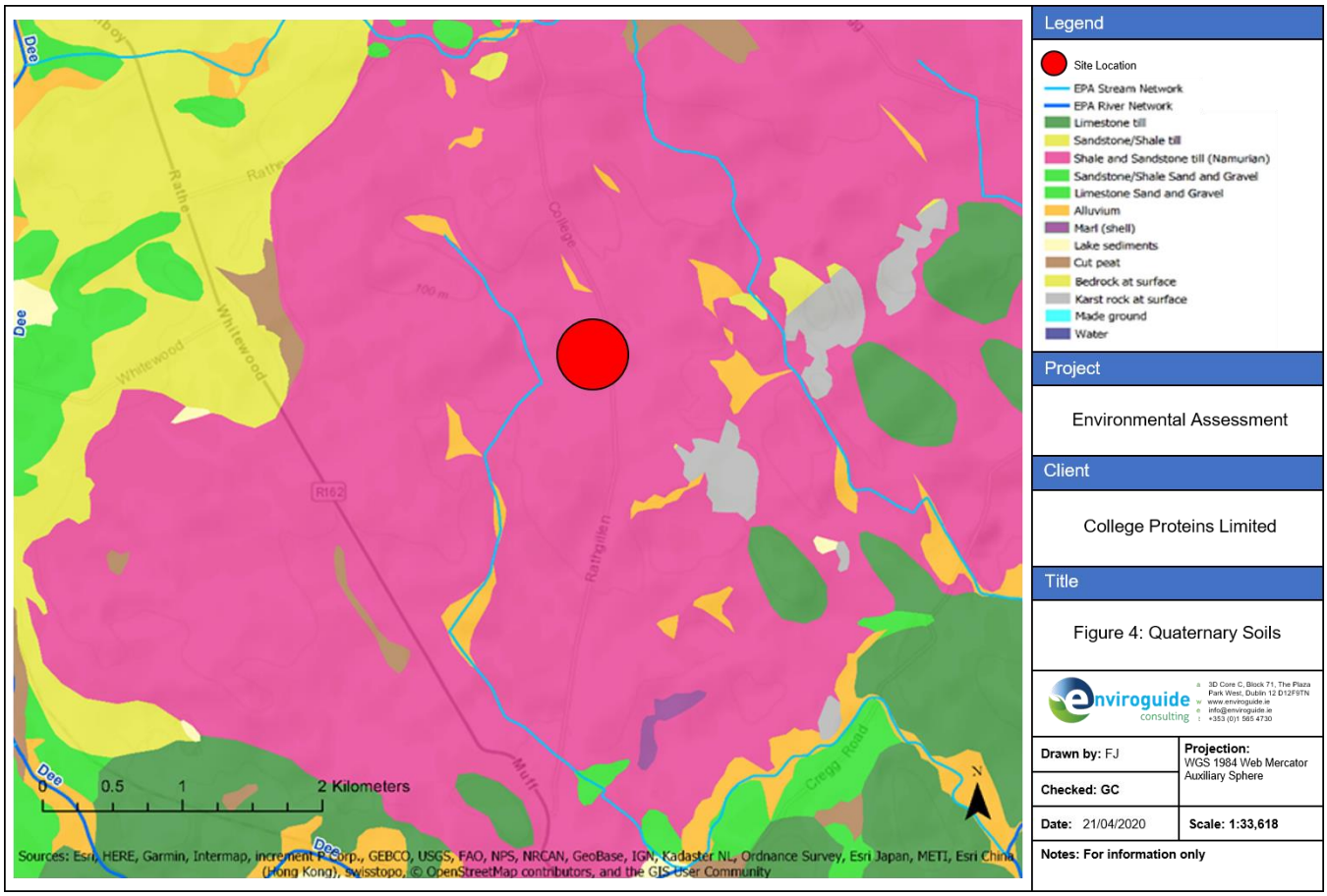

Figure 3: Quaternary Sediments

The soils underlying the Site are described in the borehole log as of Dunnes Drilling completed at the western portion of the Site on the 5th of February 2020 (Dunnes, 2020) and include clay to a depth of 12metres below ground level (mBGL) and Stoney clay to 22mBGL.

6.3.3 Bedrock Geology

Based on the GSI database (GSI, 2020) the bedrock beneath the majority of the Site is mapped as the Fingal Group (Stratigraphic Code: FNG; New Code: CDFNG) which is comprised of dark limestone, shale and micrite. The bedrock beneath the north-western portion of the Site has been classified by the GSI as the Ardagh Shale Formation (Stratigraphic Code: AD; New Code: CNADHS) which is comprised of black shale (GSI, 2020). The bedrock geology is presented in Figure 4.

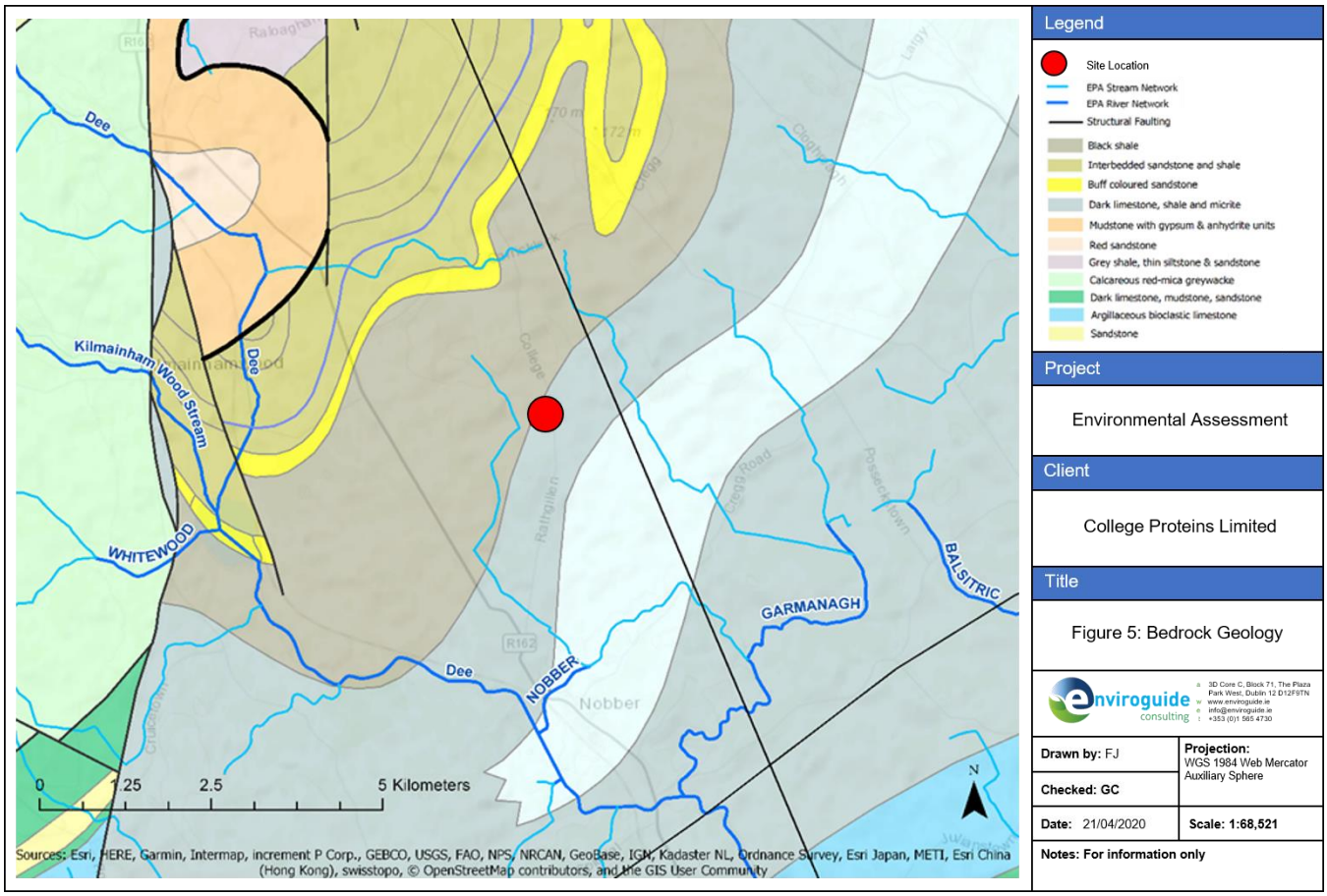

Figure 4: Bedrock Geology

Bedrock was encountered during borehole drilling completed at groundwater well GW4 by Dunnes Drilling at the Site on the 5th of February 2020 at a depth of 22mBGL (Dunnes, 2020).

6.3.4 Aquifer Classification and Vulnerability Rating

The Geological Survey of Ireland (2020) has classified the bedrock of the Wicklow Head Formation beneath the majority of the Site and surrounding area as a Locally Important Aquifer (LI) (i.e. Bedrock which is moderately productive only in Local Zones). The bedrock beneath the north-western portion of the Site has been classified by the GSI as a Poor Aquifer (Pu) (i.e. Bedrock which is generally unproductive) (GSI, 2020). The Bedrock Aquifer Map is presented in Figure 5.

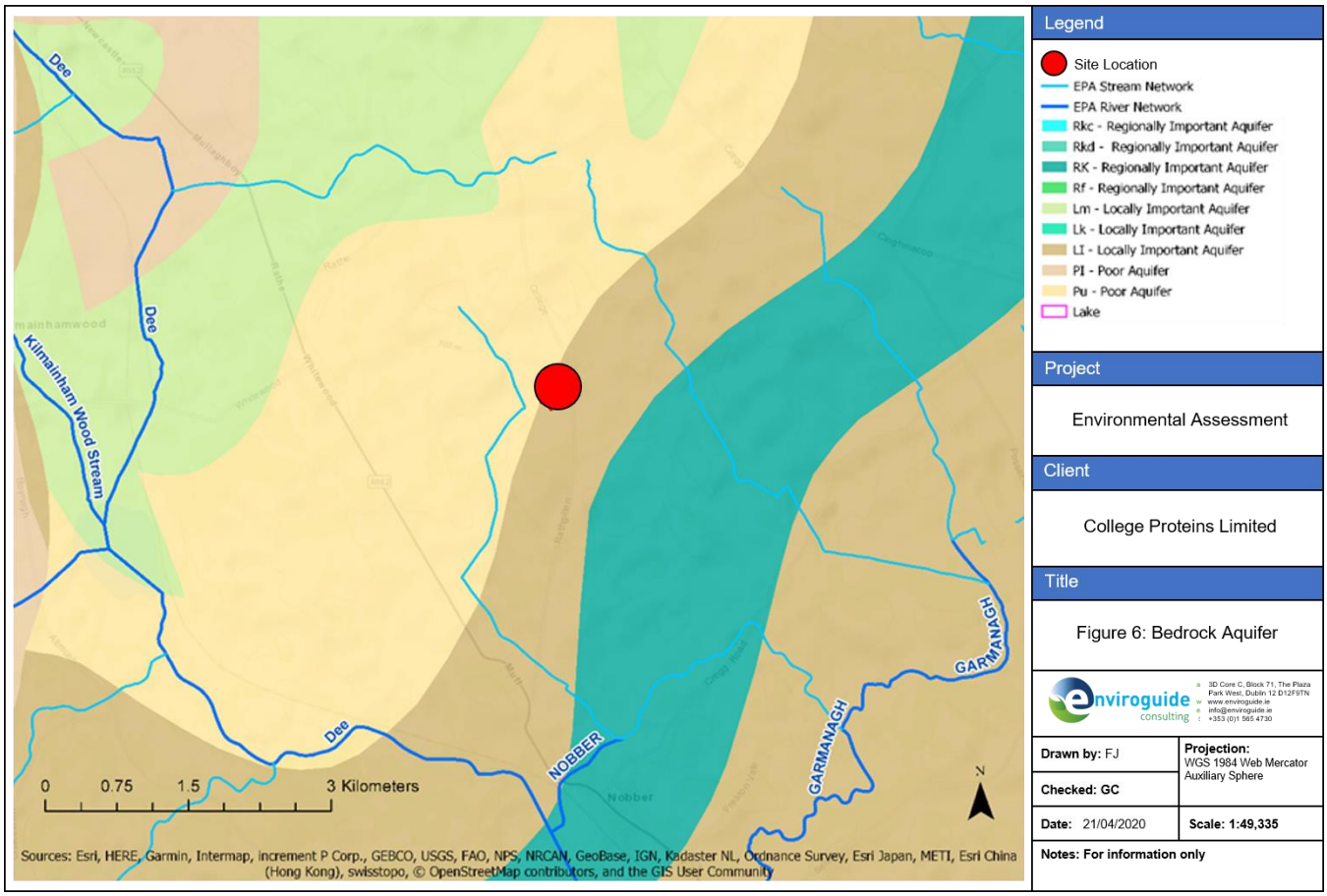

Figure 5: Bedrock Aquifers

The groundwater vulnerability rating assigned to bedrock aquifers beneath the Site is Low (L) which is attributed to the low permeability and thickness of the boulder clay overburden. The Groundwater Vulnerability Map is presented in Figure 6.

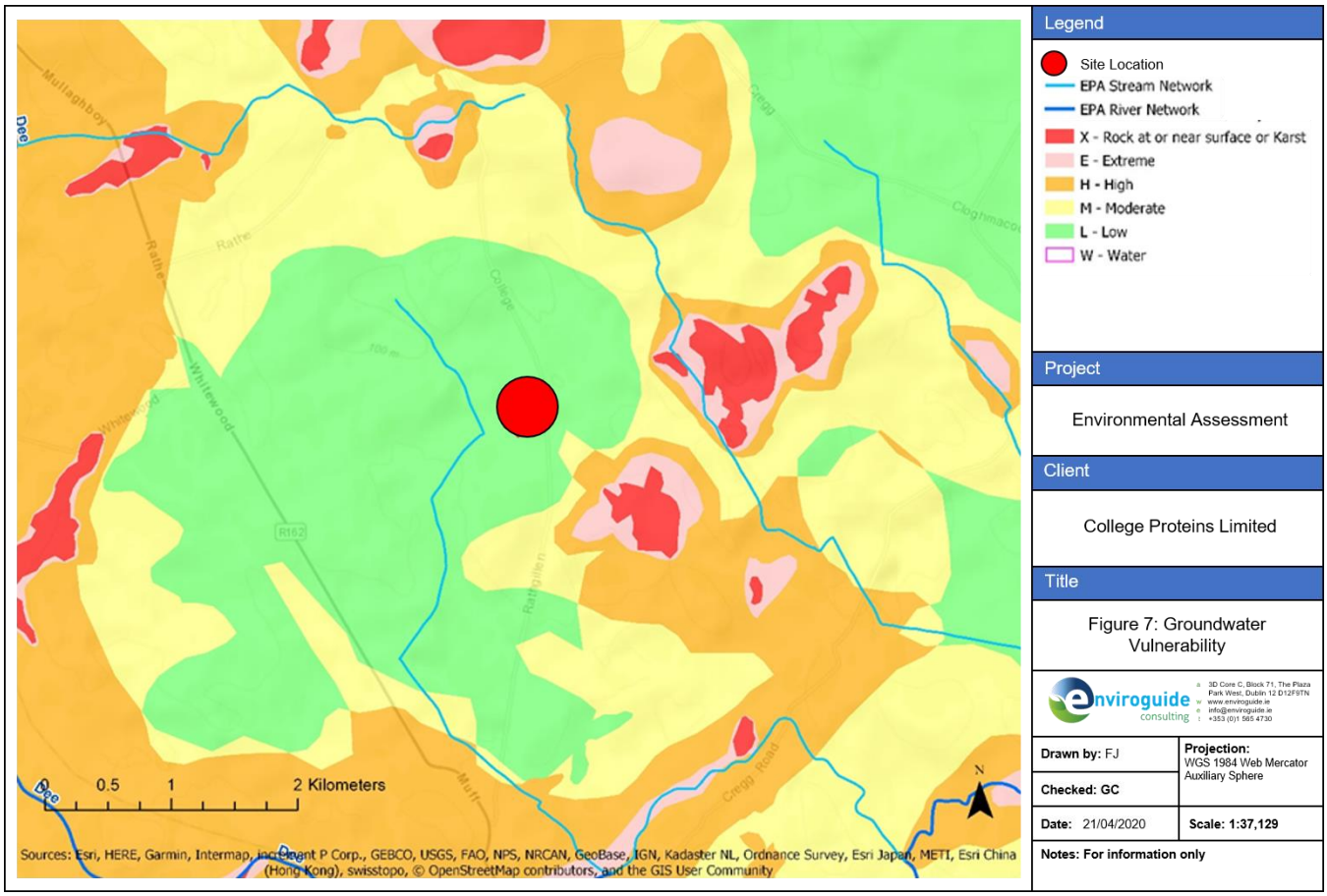

Figure 6: Groundwater Vulnerability

6.3.5 Groundwater Flow Regimes

The two bedrock aquifers beneath the Site are within the Ardee Groundwater Body (GWB) (IE_NB_G_018) and the Louth GWB (IEGBNI_NB_G_019) in which the main recharge comes from diffuse recharge from water percolating through the overlying subsoils and outcrops and into the aquifer, the main discharge occurs to the rivers and streams across the GWB, through seepages and springs in the watercourses and some groundwater may also discharge to adjacent permeable groundwater bodies (GSI, 2020). Groundwater flow beneath the site is inferred to follow local topography and flow to the southwest.

6.3.6 Groundwater Use and Source Protection

A search of the GSI groundwater well database was conducted to identify registered wells and groundwater sources in the surrounding area. There are a total of 21 groundwater sources recorded within a 2km radius of the Site, two of which the GSI identifies as being located on the Site (GSI Name: 2627NEW042 & 2627NEW067) (GSI, 2020), and are detailed in *Table 6-1*.

Table 6-1: Groundwater Sources within 2km of the site.

Well Use	Location	Distance (km)	Total Number of Wells	Yield (m^3/d)
Industrial Use	On site	Not applicable	1	268
Domestic Use	North	0.3	11	14
	North	1.57		Unknown
	North-east	1.53		16
	South	0.64		27.3
	South-west	1.03		Unknown
	West	1.58		Unknown
	West	1.47		Unknown
	West	1.24		Unknown
	West	0.94		Unknown
	North-west	1.79		Unknown
	On site	Not applicable		268
Public Supply (Co. Co)	South-east	1.55	4	Unknown
	East	1.95		1636
	West	1.34		7.6
	West	1.92		6.5
Unknown Use	South	0.37	5	Unknown
	South	0.7		Unknown
	South	0.09		Unknown
	East	1.75		Unknown
	South-west	0.46		Unknown

There is one well listed in the GSI database as being an industrial use well and one well listed in the GSI database as being a domestic use well, which are located on the site. However, there are currently two production wells in use at the site (GW1 and GW2), a supply well has recently been drilled at the biodiesel manufacturing facility (GW5) that will be commissioned when the facility is operational, a monitoring well is located at the eastern site boundary (GW3) and additional newly install supply wells at the east of the facility lands as standby supply well (GW4) which was installed as a standby well and is not yet commissioned.

The location of the groundwater wells in the vicinity of the site are presented in

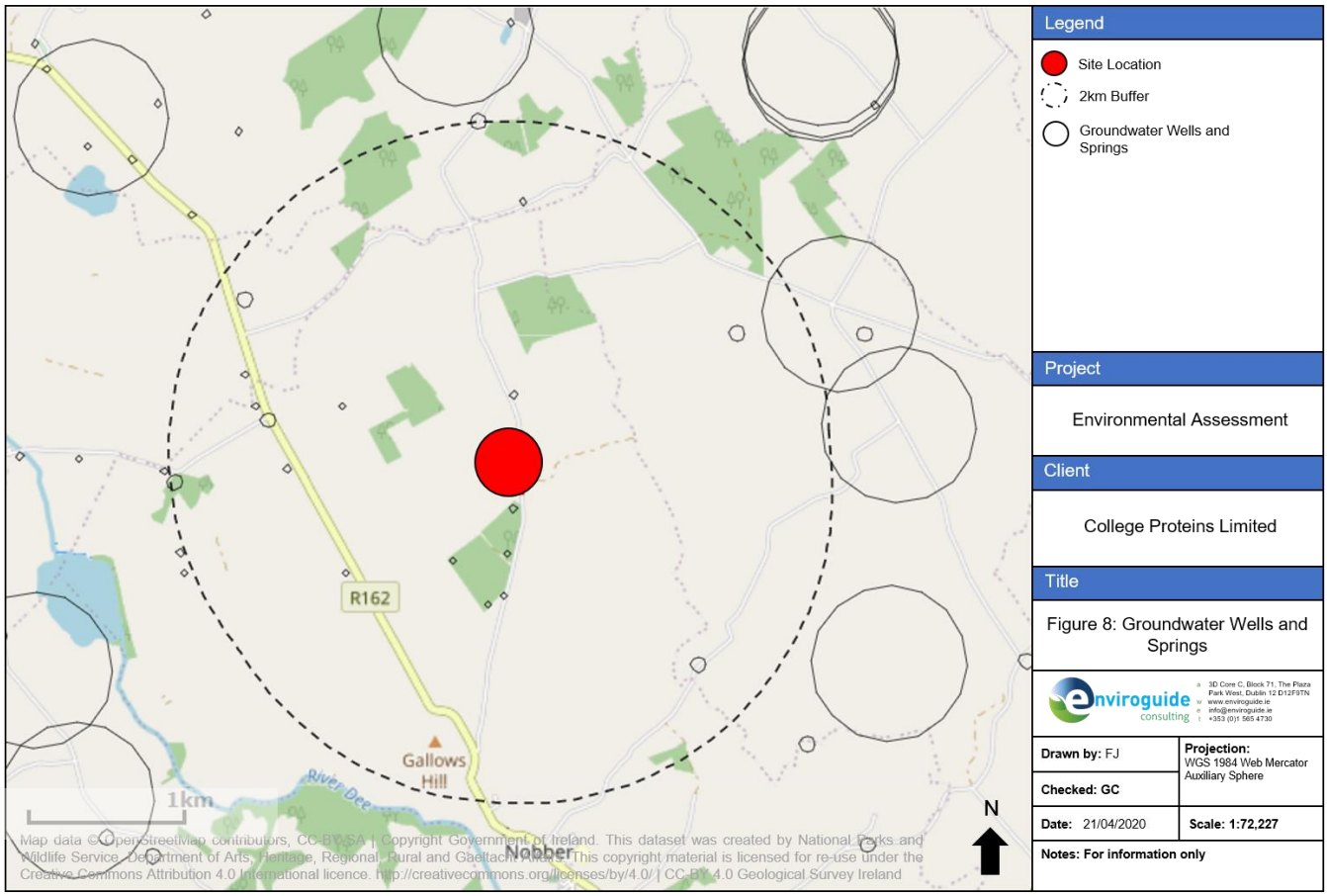
Legend
Site Location
2km Buffer
Groundwater Wells and Springs
Project
Environmental Assessment
Client
College Proteins Limited
Title
Figure 8: Groundwater Wells and Springs
enviroguide consulting
3D Core C, Block 71, The Plaza Park West, Dublin 12 D12F97N
www.enviroguide.ie
info@enviroguide.ie
+353 (0)1 565 4730
Drawn by: FJ
Projection: WGS 1984 Web Mercator Auxiliary Sphere
Checked: GC
Date: 21/04/2020
Scale: 1:72,227
Notes: For information only
R162
Gallows Hill
River Dee
Nobber
1km
N
Map data © OpenStreetMap contributors, CC-BY-SA | Copyright Government of Ireland. This dataset was created by National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs. This copyright material is licensed for re-use under the Creative Commons Attribution 4.0 International licence. http://creativecommons.org/licenses/by/4.0/ | CC-BY 4.0 Geological Survey Ireland

Figure 7.

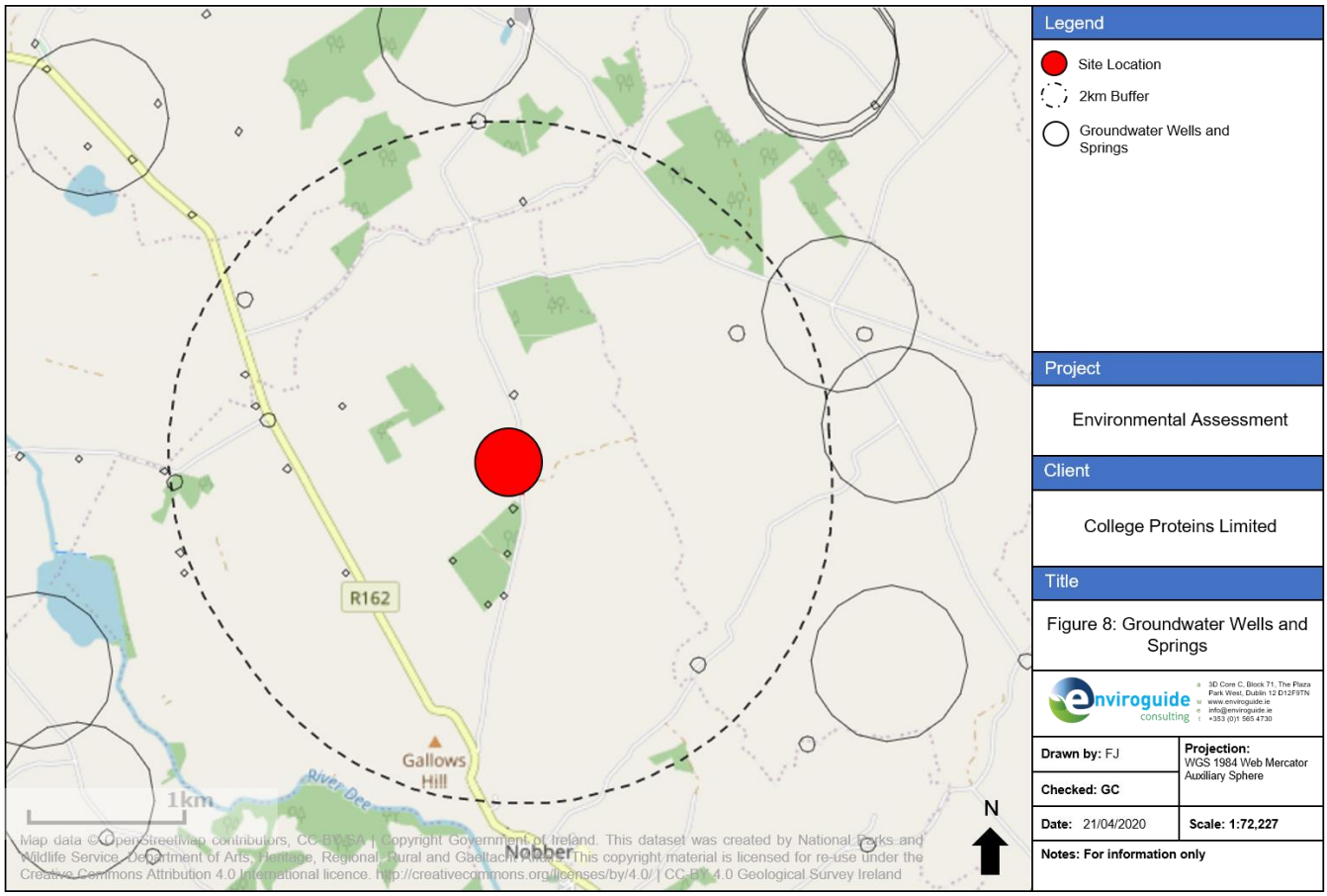

Figure 7: Groundwater Wells and Springs

There are no Groundwater Source Protection Areas (SPAs) located within a 2km radius of the site and the closest is the Nobber Water Supply (GSI No.: 2627NEW055) Groundwater Source Protection Area which at the closest point is located 2.5km south from the site (GSI, 2020).

6.3.7 Groundwater Quality and Management Status

Annual monitoring of nutrient and microbiological levels in groundwater is carried out at the onsite well by College Proteins. Historical fluctuations have been recorded of concentrations of Ammonia at this sample location and show some exceedances of the relevant groundwater GAC between 2011 and 2013 as well as 2018 and 2019.

The groundwater body quality status for the Ardee and Louth GWB (IE_NB_G_018 and IEGBNI_NB_G_019) has been classified by the EPA (EPA, 2020) as having an overall 'good' water quality status (for the period 2013-2018) and has been assigned a 'Review' status.

6.3.8 Hydrology and Site Drainage

The Site is mapped by the EPA (EPA, 2020) as within the Catchment of the River Dee (Newry, Fane, Glyde and Dee WFD Catchment; Code: 06), and the Newry, Fane, Glyde and Dee Sub-catchment (Dee_SC_010 Sub-catchment code: 06_3).

The majority of the Site lies within the Moynagh_040 WFD River Sub Basin (IE_NB_06M460800) and the south-eastern portion of the Site lies within the Dee_040 WFD River Sub Basin (IE_NB_06D010360) (EPA, 2020).

Stormwater and surface runoff from the existing rendering plant drains to a manhole at SW1, and subsequently to the Cregg Stream (EPA Name: Garmanagh Stream; River Water body Code: IE_NB_06D010360).

Stormwater and surface runoff from roof and non-process areas and to the left of the proposed biodiesel manufacturing plant will pass through a silt trap and oil interceptor before discharge to the existing manhole at SW1.

Stormwater and surface drainage from the proposed biodiesel manufacturing plant will be discharged via silt trap and an interceptor to the receiving emission point at SW8 to an unnamed stream that joins the Moynagh River (EPA Name: Nobber Stream; River Waterbody Code: IE_NB_06M460800) which joins the River Dee upstream of Balfes Bridge to the north of Nobber.

An inspection of the local watercourses previously undertaken (Enviroguide, 2018) confirmed that the Cregg Stream (EPA Name: Nobber Stream) takes a slightly different route to that shown on the EPA maps, likely due to arterial drainage works. The stream flows east through Posseckstown before joining the Dee northeast of Nobber.

6.3.9 Surface Water Quality and Catchment Management Status

The Nobber Stream and Moynagh River (Segment Code: 06_253) are classified with a “Poor” River Waterbody Status and the Cregg Stream and Dee River segment 06_564 are classified with a “Good” River Waterbody Status (for the periods of 2013-2018), (EPA, 2020).

The Nobber Stream, Moynagh River, Cregg Stream and the Dee River have all been assigned an “At Risk” Risk Status. The Dee River has been assigned a River Waterbody Quality Score of 1a while the Nobber Stream, Moynagh River and Cregg Stream have not yet been assigned a River Waterbody Quality Score (EPA, 2020).

6.3.10 Existing Surface Water Quality Data

The River Dee is sampled for biological water quality at several locations upgradient and downgradient of Nobber, Q-ratings downgradient of Nobber are broadly equivalent to those upgradient of Nobber. River water quality has remained relatively stable at each monitoring point during the period 2006 - 2016.

There is no published biological water quality data available for the Moynagh River (EPA Name: Nobber Stream) and the Cregg Stream (EPA Name: Garmanagh Stream). College Proteins monitor surface water quality at several locations on the local surface water network on a monthly basis and in particular the following points provide baseline environmental data relevant to this assessment are as follows:

- SW1 – existing stormwater outlet from site which discharges to the Cregg Stream (EPA Name: Garmanagh Stream); and

- SW8 – New emission point from proposed biodiesel manufacturing plant and will discharge to an unnamed stream and join the Moynagh River (EPA Name: Nobber Stream)

Data for 2019-2020 confirms that in terms of BOD, ortho-phosphate and ammonia, water quality at SW1 have been reported as below the respective EPA agreed limit values. Baseline results have been submitted to the Agency in a letter dated 11th December 2019) for sampled at SW8 prior to commencement of activities indicated that ammonia levels were in excess of the Surface Water Regulation EQS which is representative of baseline conditions in the stream. Surface water trigger levels for emission limit values (ELV's) will be agreed with the EPA on grant of the proposed licence for new emission point SW8.

6.3.11 Designated and Protected Sites

There are no Special Areas of Conservation (S.A.C.), Special Protection Areas (S.P.A.) or Natural Heritage Areas (N.H.A.) located within a 2km radius of the Site, however five sites have been identified within 10km of the site are presented below in *Table 6-2*. The designated and protected areas are presented in Figure 8.

Table 6-2: Designated Sites of Conservation Importance Located within 10km of the site.

Designated Site	Site Code	Distance from Site
Corstown Loughs pNHA	000552	7.7km ENE
Breakey Loughs pNHA	001558	9km NW
Ballyhoe Lough pNHA	001594	7.5km NNE
Mentrim Lough pNHA	001587	9.5km E
Reaghstown Marsh pNHA	001828	9.6km NE

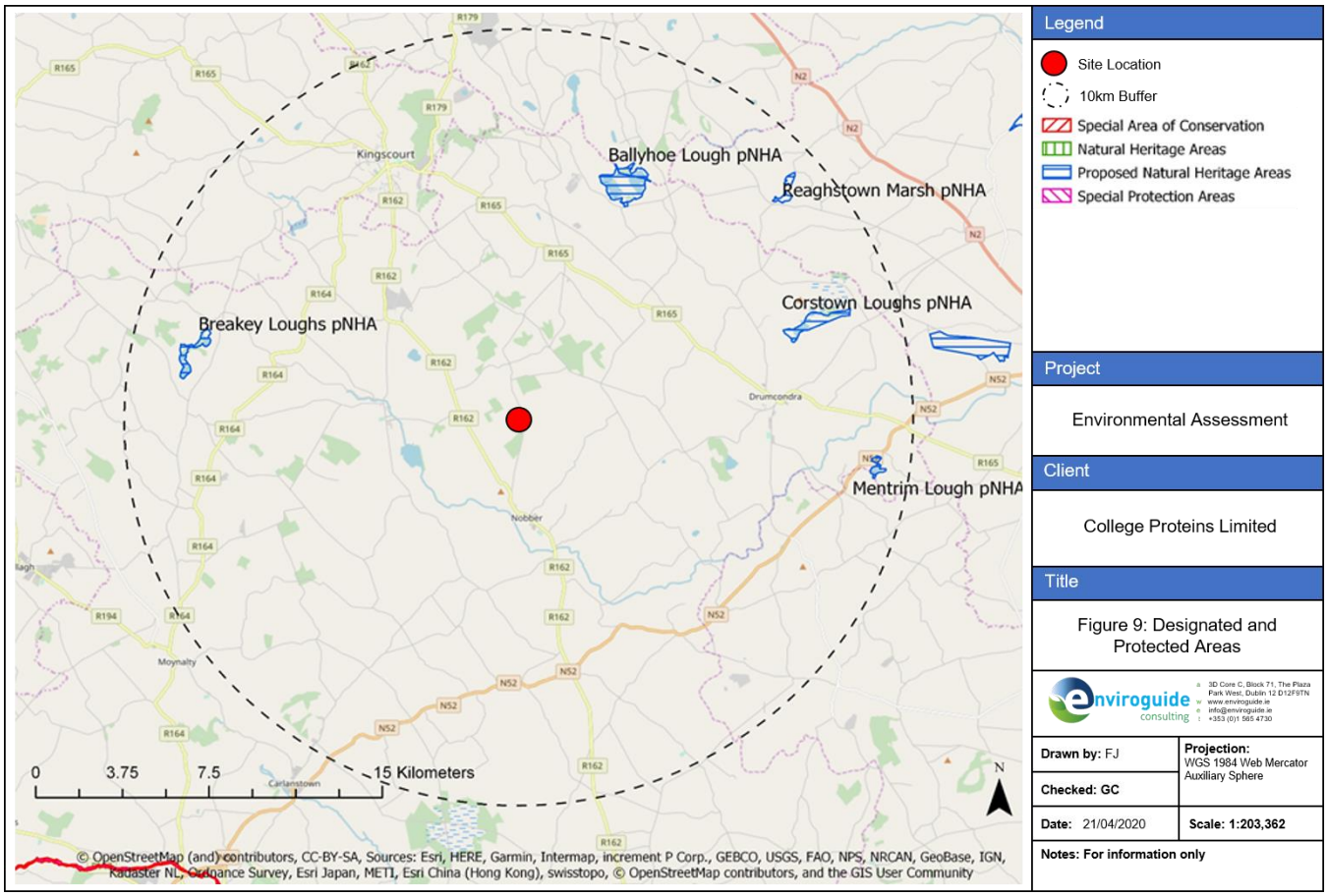

Figure 8: Designated and Protected Areas

It was concluded in the EIA prepared for the Biodiesel Plant that no significant adverse impacts ensuing from the construction phase of the proposal on these sites are reasonably foreseeable.

6.3.12 Preliminary Conceptual Site Model and Environmental Receptors

The site is underlain by poorly drained mineral soil Till derived from Namurian sandstones and shales and borehole logs for onsite supply well indicate that overburden extended to 22mbGL where top of rock was encountered.

The bedrock aquifer within limestone and shale of the Fingal Group is classified as a Locally Important Aquifer (LI) and groundwater beneath the site has been assigned a Low (L) groundwater vulnerability rating due to the low permeability and thickness of the overlying soils. There are a number of groundwater sources abstracting from the bedrock aquifer in the vicinity of the site including groundwater supply wells at the site and the Nobber Water Supply (GSI No.: 2627NEW055) PWS source which is located 2.5km south of the site.

Storm water from the site is discharged to local streams including the Cregg Stream via SW1 to the unnamed stream (Nobber Stream) at SW8. There are no direct hydrological connections with any of the identified designated or protected sites within 10km of the site.

The key receptors associated with the site are:

- the nearby surface water courses including the Cregg Stream and the Nobber Stream/Moynagh River;
- downgradient rivers potentially receiving groundwater discharges;
- the underlying locally important bedrock aquifer; and
- groundwater users including private and public supply sources.

The Storm Water from the proposed biodiesel manufacturing plant will be discharged at new emission point SW8.

7 Stage 6 – Site Characterisation

7.1 Guidance Requirements

The Baseline Report Guidelines specify the following details are required for Stage 6. *Use the results of Stages 3 to 5 to describe the site, in particular demonstrating the location, type, extent and quantity of historic pollution and potential future emissions sources noting the strata and groundwater likely to be affected by those emissions – making links between sources of emissions, the pathways by which pollution may move and the receptors likely to be affected.*

7.2 Applicant Details

The results of Stages 2 to 5 have been collated and a preliminary Conceptual Site Model (CSM) for the site identifying the Source-Pathway-Receptor components of the CSM model to establish the potential pollutant linkages, if any, for the relevant hazardous substances identified to cause or having caused ground (soil) or groundwater contamination.

7.3 Source Details

The following potential sources of contamination of soils and groundwater by hazardous substances have been reviewed based on the "relevant hazardous substances" identified in Stage 2:

- Above ground bulk storage tanks (loss of material from tanks or bunds).
- Spills from site machinery or process works on areas of hard standing resulting in contamination of runoff leading to contamination of soil / groundwater.
- Wastewater Treatment System.
- Fire on site leading to production of contaminated fire water / firewater retention ponds.
- Leakage of drains or underground pipelines.
- Chemical storage areas (loss of materials from drum, IBCs or bunds).
- Loading of chemicals on site.

Table 1-1 and 1-2 of this report detail all relevant hazardous substances which are used and proposed for use at College Proteins.

Appendix B attached, details corresponding EPA Attachment 4-6-2 for the licence review application, which details all raw materials, intermediates and products, the quantities stored on site at any one time in tonnes, the proposed consumption annually and the nature of use of all chemicals concerned and whether these materials are considered relevant hazardous substances.

A chemicals are stored on site in a "Need for Use/Just In Time" procurement basis i.e. less than one tonne is stored on site for all chemicals including relevant hazardous substance with the exception of Road diesel (42 Tonnes), Plant diesel (2 Tonnes) and proposed chemicals which will be used in the Biodiesel process;

Methanol (100 Tonnes), Sulphuric Acid (10 Tonnes), Sodium Hydroxide (30 Tonnes), Methane Sulphonic Acid (30 tonnes).

All chemicals used on site are storage in appropriate containers with adequate bunding as per the conditions of the existing licence P0037-03. All storage locations have double containment (double skinned and / or tanks and bunds) which are integrity tested in accordance with the existing licence. In addition, all storage areas are located on hardstanding areas (concrete or tarmac) which provide an additional barrier to groundwater contamination and adequate drainage systems.

There have been no incidents reported to the EPA with regards the spillage of any chemicals under the existing licence.

7.4 Pathways Details

The identified pathways associated with the "relevant hazardous substances" have been outlined previously in Stage 5 of this report. None of the potential pathways identified for any of the "relevant hazardous substances" allowed a pathway to ground or groundwater. The pathways which were identified can be summarised as follows:

- Uncontrolled release / spillage of substances to hardstanding area during loading and unloading operations or transport of materials around the site.
- Runoff of spilled material on hardstanding area to the surface water / stormwater collection system.
- Loss of primary or secondary containment bunds.

Several mitigation measures are in place to ensure that no pathway to ground or groundwater is present at the facility. The measures that have been implemented are as follows:

- Construction of bund structures to comply with 110% rule for tanks/bunds.
- Integrity testing of bund structures every 3 years. All tanks and bunds are regularly inspected, and bund testing is carried out in accordance with the licence requirements with maintenance carried out as required.
- Integrity testing of drainage system every 3 years.
- Regular visual inspection of hardstanding areas is undertaken to monitor the condition of hardstanding areas with maintenance and repairs being undertaken as necessary.
- Emergency Response Procedure including containment and cleanup of all spills.
- Manual shutoff valves installed on the storm drainage upstream of SW1 and SW8 emission points.
- Procedures in place for the use, handling and storage of all chemicals on site to ensure that the risk of spills is minimised.
- Training is provided to staff in relation to emergency response and the handling and storage of all chemicals on site to ensure the risk of spills is minimised.

- Regular routine maintenance programmes are in place for the process equipment, environmental process equipment, continuous monitors, laboratory equipment and sampling equipment.

7.5 Receptor Details

The key receptors associated with the site are:

- the nearby surface water courses including the Cregg Stream and the Nobber Stream/Moynagh River;
- downgradient rivers potentially receiving groundwater discharges;
- the underlying locally important bedrock aquifer; and
- groundwater users including private and public supply sources.
-

The bedrock aquifer within limestone and shale of the Fingal Group is classed as the Locally Important Aquifer (LI) and Poor aquifer (Pu) and groundwater beneath the site has been assigned a Low (L) groundwater vulnerability rating due to the low permeability and thickness of the overlying boulder clay soils. There are a number of groundwater sources abstracting from the bedrock aquifer including the Nobber Water Supply (GSI No.: 2627NEW055) source, locals farm / domestic supplies and groundwater sources on site used for process water and the canteen.

Taking account of the identified pathways and mitigation measures in place the overall risk to identified receptors in particular ground (soil) and groundwater is considered to be low

8 Stage 7 – Site Investigation

8.1 Guidance Requirements

The European Commission Guidance concerning baseline reports under Article 22(2) of Directive 2010/75/EU on industrial emissions require the following details for Stage 7. If there is sufficient information to quantify the state of soil and groundwater pollution by relevant hazardous substances on the basis of Stages (1) to (6) then go directly to Stage 8. If insufficient information exists, then intrusive investigation of the site will be required in order to gather such information. The details of such investigation should be clarified with the competent authority.

8.2 Applicant Details

8.3 Scope of Works and Methodology

All works were carried out in accordance with the Enviroguide standard operating procedures and taking cognisance of relevant industry standards including BS 10175: 2011+A2: 2017 Investigation of Potentially Contaminated Sites and BS ISO 5667 Water Quality – Sampling and EPA Guidance On The Management of Contaminated Land And Groundwater At EPA Licensed Sites (EPA, 2013).

8.3.1 Underground Utility Identification

Prior to conducting intrusive investigation works on the site all investigation locations for the presence of services by College Proteins.

8.3.2 Trial Pit Excavation

Six trial pits (6No.) (TP01- TP06 inclusive) were excavated at the site on the 19th February 2020 using a tracked excavator provided by College Proteins and observed by Enviroguide for the purposes of the environmental assessment. Soil samples were collected for environmental laboratory analysis as directed by Enviroguide.

Trial pits were excavated to depths ranging from 1.5mbGL to 2.0mbGL and logged by the onsite Enviroguide scientist.

Samples were collected for field testing and laboratory analysis. All soil samples were collected using best practice methods including the decontamination of sampling equipment between sample locations in accordance Enviroguide Standard Operating Procedures. A total of five (5No.) samples were collected and sealed in appropriate laboratory supplied containers; samples were stored in cool dark conditions for transfer to Exova Jones Environmental Ltd. (UK), a UKAS accredited laboratory for analysis. Samples were transported to the laboratory under chain of custody. Sample details including location and depth of samples were recorded on chain of custody records, copies of which are included in Appendix G.

The trial pit locations are presented in Figure 10 and the trial pit logs are presented in Appendix C.

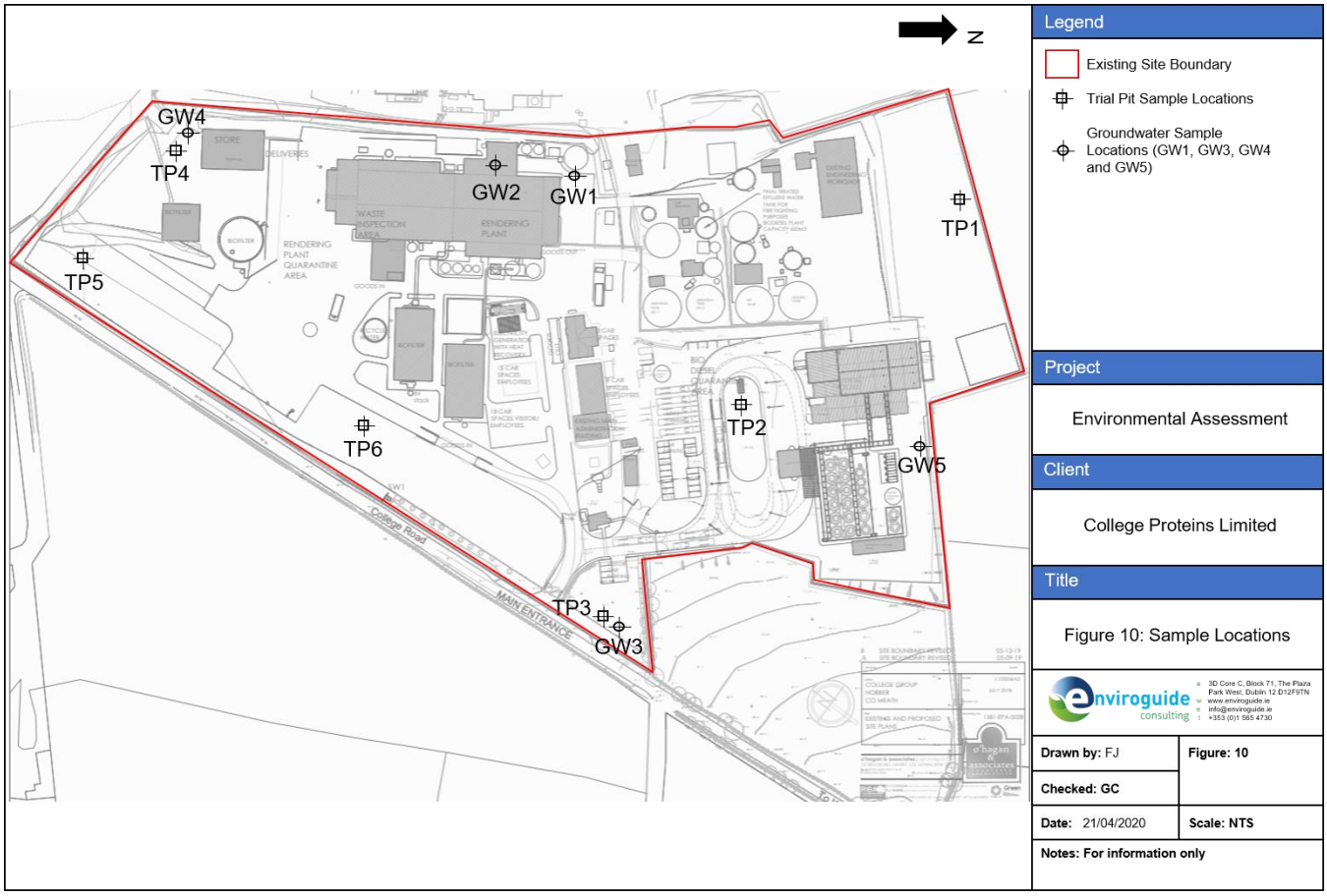

Figure 9: Sample Locations

8.3.3 Groundwater Monitoring Sampling

Gauging of groundwater levels in the monitoring wells GW1, GW2, GW3, GW4 and GW5 (refer Figure 9) was completed on the 19th February 2020 using a Hydrotechnik water level meter. Data from these groundwater level monitoring events are included in Appendix D. All measurements were taken relative to affixed reference datum; the top of the well casing. The top of well casing was surveyed relative to ordnance datum in order to enable calculation of relative groundwater levels and determine the piezometric groundwater surface beneath the site.

Groundwater monitoring and sampling was undertaken on the 19th February 2020 in accordance with Enviroguide Standard Operating Procedures and BS 5930:2015. Groundwater samples were collected from monitoring wells GW1, GW3, GW4 and GW5 on the 19th February 2020. Groundwater sample locations are identified in Figure 12.

In order to ensure extraction of samples representative of formation water, each well was purged prior to sample collection in accordance with standard best practice methods and using dedicated equipment. During purging, water quality measurements of pH, electrical conductivity (EC), temperature, dissolved oxygen (DO) and oxidation reduction potential (ORP) were taken using a calibrated YSI Professional Plus

(Pro Plus) Multiparameter probe. Observations on the physical appearance and odour of the purged water was recorded.

After purging, the groundwater samples were decanted into labelled containers supplied by the laboratory. Due to the use of dedicated or disposable sampling equipment at each well, cross contamination was avoided.

The sample containers were kept cool and in darkness and were sent to Exova Jones Environmental Ltd. for analysis. In order to maintain sample integrity, a chain of custody record was completed to track sample possession from time of collection to time of analysis.

8.3.4 Laboratory Analysis

Five soil samples and four groundwater samples were submitted for a comprehensive analytical suite based on the identified hazardous substances in Table 1-1and Table 1-2. There are some substances for which there are no commercially available test (. For other substances, there was no direct analytical test for including substances Phosphoric Acid, Nitric Acid and Sodium Hypochlorite, therefore analysis for specific indicator parameters that could indicate the presence of those substances were included in the analytical suite.

- Petroleum Hydrocarbons including TPH-CWG, and MTBE;
- Volatile organic compounds (VOCs) including: BTEX (Benzene, Toluene, Ethylbenzene, m/p-Xylene, o-Xylene);
- Volatile organic compounds (VOCs);
- Semi-volatile organic compounds (SVOCs);
- Alcohols and acetates;
- Volatile Fatty Acids (VFAs);
- Iodine;
- Hydrogen Peroxide ;
- pH;
- Soil Organic Matter (SOM) – soil only;
- Total Alkalinity as H_2SO_4;
- Chloride; sodium;
- Nitrate, Nitrite as NO_2, Ammonium as NH_4 and Ammoniacal Nitrogen as N; and
- Ortho Phosphate as P.

8.3.5 Screening Criteria for Groundwater

The groundwater analytical results were screened against the following assessment criteria:

- Groundwater Regulations 2010 (S.I. No. 9 of 2010) and amendment S.I. No. 366/2016 (GTVs);
- S.I. No. 272/2009 - European Communities Environmental Objectives (Surface Waters) Regulations 2009 including amendments SI No. 327/2012, 386/2015 and 77/2019; and
- SI. No. 122/2015 - European Union (Drinking water) Regulations s 2014 and amendment S.I. No. 464 of 2017 (Parametric Values).

8.4 Results

8.4.1 Geology and Subsurface Conditions.

The soil profile was logged during excavation of trial pits and is provided in the logs included in Appendix C and is summarised as follows:

- Made Ground: primarily comprising of reworked CLAY with varying silt, sand and gravel content was encountered to maximum depth of 0.8m was encountered at all locations and associated with construction of the facility.
- Firm to stiff, brown to orange brown, slightly silty, slightly gravelly CLAY with some assorted cobbles and boulders was encountered beneath made ground at all trial pit locations to the maximum trial pit depth of excavation of 2mBGL.
- Grey GRAVEL containing cobbles and boulders was encountered beneath made ground at trial pit location TP02 to a maximum depth of 1.6mBGL and the CLAY was encountered beneath this gravel horizon.
- Bedrock was not encountered during trial pit excavation.

Shallow groundwater seepages were encountered at 0.4mBGL at TP01 and at 1.9mBGL at TP05.

8.4.2 Groundwater Elevation Measurements and Flow Direction

Groundwater level measurements recorded from monitoring locations (GW1, GW2, GW3, GW4 and GW5) were used to determine groundwater elevations and the inferred groundwater flow direction was interpreted to be broadly toward west / south-west, however it is important to note that local groundwater flow regime at the site is considered to be influenced by the abstraction of groundwater from production wells at the site. Groundwater level measurements are presented of Appendix D (Table 1-1) and the groundwater flow direction is presented on Figure 11.

8.4.3 Soil and Groundwater Analytical Results

A total of five soil samples (5 No.) and four (4No.) groundwater samples were collected during site investigation to evaluate the existing ground (soil) and groundwater conditions at the site. The certified analytical results are presented in Appendix E and summarised tables of results are included in Appendix F.

Metals (sodium)

- Detectable concentrations of sodium were reported between 195mg/kg and 542mg/kg and are considered representative of baseline soil conditions.

Chloride

- Concentrations of Chloride were reported between 4mg/kg (TP02 1.6-2m and TP06 0.2-0.8m) and 8mg/kg (TP01 1.0-1.5m) and are considered representative of baseline soil conditions.

Nitrogen Compounds

- Reported results for Nitrite, Nitrate and Ammoniacal Nitrogen were reported below the laboratory limits of detection for all soil samples.

- Reported results for Nitrite and Nitrate in groundwater samples were reported below the applicable laboratory limits of detection for all groundwater samples. Reported concentrations of ammonium were below the applicable groundwater GAC for three samples (GW2, GW3 and GW4) with a slight exceedance of the GW GTV of 0.175mg/l reported for GW1 (0.18mg/l) located near the rendering plant. While the reported result of 0.15mg/l for the sample collected at the upgradient location GW5, it is considered to be indicative of potential offsite sources of ammonia. In additional historical data for groundwater monitoring at the site indicates seasonal variations in ammonium concentrations in groundwater at the site. Therefore, it is considered that the reported groundwater ammonium concentrations are indicative of current baseline groundwater conditions at the site.

Orthophosphate

- Concentrations of Ortho Phosphate as P were reported below the laboratory limits of detection for all soil and groundwater samples.

Volatile Organic Compounds (VOC) and Semi-Volatile Organic Compounds (SVOCs)

- Reported concentrations of all VOC and SVOC parameters relevant to the identified hazardous substances in Table 1-1and Table 1-2were reported as below the applicable laboratory limit of detection for all soil and groundwater samples.
- It is noted that a trace concentration of 42 ug/kg for Dichloromethane (DCM) was reported for soil sample collected at location TP03 0.4-1.0m however this does not relate to any of the listed hazardous compounds in use on site. Importantly, DCM was not detected in groundwater samples collected from the site and is therefore considered to be an anomalous occurrence potentially associated with the former use of the area as a temporary compound and car park during construction works at the site and is not considered further in this assessment.

Volatile Fatty Acids (VFAs)

- Concentrations of all VFAs were reported as being below the laboratory limits of detection for all soil and groundwater samples.

Acidity

- The reported Acidity as H_2SO_4 was above laboratory detection limits for all soil samples and ranged between 153mg/kg (TP03 0.4-1.0m) to 216mg/kg (TP06 0.2-0.8m) including the offsite location TP01. The reported acidity as H_2SO_4 was reported as lower than the laboratory limit of detection at sample locations GW4 and GW5 and was reported at 21.6mg/l at sample location GW3 and at 27.6mg/l at GW1, both GW3 and GW5 are located hydraulically upgradient of the site. Accordingly, these results are considered to be baseline conditions for the ground (soil) and groundwater at the site.

Hydrogen Peroxide

- Hydrogen Peroxide was reported as below the laboratory limits of detection for all soil and groundwater samples.

8.5 Revised Conceptual Site Model

The findings of the site investigation confirmed that the site is overlain by low permeability clay and overburden was confirmed to extend to a depth of 22mbGL during water supply well drilling at the site. Therefore, the groundwater vulnerability rating of low assigned by the GSI was verified.

There are currently a number of mitigating measures in place at the site to remove any potential pathway between the onsite sources of the potentially 'relevant hazardous substances' and the identified sensitive receptors associated with the site as outlined at Stage 6.

The results the assessments undertaken at Stage 7 (Site Investigation) established the baseline conditions at the site and together with the findings of Stage4, Stage 5 verify that there has been no impact associated with the current operations and 'relevant hazardous substances' to the receiving soil or groundwater at the site.

9 Stage 8 – Baseline Report Conclusions

9.1 Guidance Requirements

The European Commission Guidance concerning baseline reports under Article 22(2) of Directive 2010/75/EU on industrial emissions require the following details for Stage 7. Produce a baseline report for the installation that quantifies the state of soil and groundwater pollution by relevant hazardous substances.

9.2 Applicant Details/ Conclusion

The assessment of the Conceptual Site Model (CSM) and potential Source-Pathway-Receptor linkages concludes that there is no pathway present to ground (soil) or groundwater associated with the current or proposed site operations.

There is no indication of pollution of soil, consistent with the current land use and historic land use as an agricultural site.

The existing facility is designed to ensure the protection of soil and groundwater. All materials handling is undertaken indoors and therefore there is a relatively low risk of soil or groundwater pollution arising during normal operations. The proposed biodiesel manufacturing plant will be designed also to ensure the protection of soil and groundwater and will consist of impermeable hardstanding, appropriate bunding and containment measures.

The design of the existing and proposed facility combined with good environmental management practices (ISO14001:2015 Certified) on-site as well as a robust safety management system to include emergency response procedures will ensure that the risk of any unplanned events will be minimised.

An assessment in relation to Conclusion on BAT from emissions on Storage has been completed as part of this licence review application. Full details in relation to BAT employed at the facility are discussed within this document to include storage of chemicals and liquids at the facility. Provisions in place include staff training, deviations from process conditions with alarms and warning signals on control panels. Storage tanks are bunded and fitted with high level alarms, continuous level monitoring is in place on tanks, bund and sump registers, integrity programmes are all an integral part of operations controls at the site and will be integrated into the proposed biodiesel manufacturing plant as part of the development.

It is apparent due to the quantities of the relevant hazardous substances storage at any one time at the existing installation combined with the measures taken at the existing facility and its historical compliance to ensure that contamination of soil (ground) and groundwater do not occur including containment measures, indoor activities, concrete hard standing and an environmental management system that the likelihood of, or potential for, contamination of ground (soil) or groundwater is low.

The storage of the relevant hazardous substances at the proposed biodiesel manufacturing plant will be in line with best practice and will ensure that the likelihood of, or potential for, contamination of ground

(soil) or groundwater is low.

An evaluation of the Conceptual Site Model identifying the potential Source-Pathway-Receptor pollutant linkages associated with the relevant hazardous substances, concludes that as no pathway to ground or groundwater is present at the site and that there are no pollutant linkages based on the current site infrastructure and activities. Taking account of the Conceptual Site Model including the environmental site setting it is considered that the potential risk of current and proposed future activities to impact on the receiving soil (ground) and groundwater is low. Furthermore, the findings of the baseline site investigation have identified that have been no impacts to soil (ground) or groundwater associated previous and ongoing activities at the facility.

It is recommended that the current surface water and groundwater monitoring programme be continued to enable verification of the identified baseline conditions at the site.

Appendix A

SAFETY DATA SHEET

METHANOL

Compilation date: 03/02/2016

Revision No: 1

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name: METHANOL

REACH registered number(s): 01-2119433307-44

CAS number: 67-56-1

EINECS number: 200-659-6

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.3. Details of the supplier of the safety data sheet

Company name: Central Chemical Supplies Ltd

44 Hall Road

Donaghcloney

Co Armagh

BT66 7LJ

United Kingdom

Tel: 02838 881936

Email: frances@ccsni.co.uk

1.4. Emergency telephone number

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification under CLP: Acute Tox. 3: H301+311; STOT SE 1: H370; Acute Tox. 2: H330; Flam. Liq. 2: H225

Most important adverse effects: Highly flammable liquid and vapour. Toxic if swallowed or in contact with skin. Fatal if inhaled. Causes damage to organs [gastrointestinal] [oral].

2.2. Label elements

Label elements:

Hazard statements: H225: Highly flammable liquid and vapour.

H301+311: Toxic if swallowed or in contact with skin.

H330: Fatal if inhaled.

H370: Causes damage to organs [gastrointestinal] [oral].

Hazard pictograms: GHS02: Flame

GHS06: Skull and crossbones

GHS08: Health hazard

[cont...]

Signal words: Danger

Precautionary statements: P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P241: Use explosion-proof electrical/ventilating/lighting/.. equipment.
P260: Do not breathe dust/fumes/gas/mist/vapours/spray.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P284: [In case of inadequate ventilation] wear respiratory protection.
P301+310: IF SWALLOWED: Immediately call a POISON CENTER/doctor.

2.3. Other hazards

PBT: This product is not identified as a PBT/vPvB substance.

Section 3: Composition/information on ingredients

3.1. Substances

Chemical identity: METHANOL

CAS number: 67-56-1

EINECS number: 200-659-6

REACH registered number(s): 01-2119433307-44

Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: Remove all contaminated clothes and footwear immediately unless stuck to skin. Wash immediately with plenty of soap and water. Consult a doctor.

Eye contact: Bathe the eye with running water for 15 minutes. Consult a doctor.

Ingestion: Wash out mouth with water. Do not induce vomiting. If conscious, give half a litre of water to drink immediately. If unconscious, check for breathing and apply artificial respiration if necessary. If unconscious and breathing is OK, place in the recovery position. Transfer to hospital as soon as possible.

Inhalation: Remove casualty from exposure ensuring one's own safety whilst doing so. If unconscious and breathing is OK, place in the recovery position. If breathing becomes bubbly, have the casualty sit and provide oxygen if available. Transfer to hospital as soon as possible.

4.2. Most important symptoms and effects, both acute and delayed

Skin contact: There may be mild irritation at the site of contact.

Eye contact: There may be irritation and redness.

Ingestion: There may be soreness and redness of the mouth and throat. Inhalation of fumes from the stomach may cause symptoms similar to direct inhalation.

Inhalation: There may be shortness of breath with a burning sensation in the throat. Exposure may cause coughing or wheezing. Drowsiness or mental confusion may occur. Convulsions may occur. There may be loss of consciousness.

[cont...]

Delayed / immediate effects: Immediate effects can be expected after short-term exposure.

4.3. Indication of any immediate medical attention and special treatment needed

Immediate / special treatment: Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: Suitable extinguishing media for the surrounding fire should be used. Use water spray to cool containers.

5.2. Special hazards arising from the substance or mixture

Exposure hazards: Toxic. In combustion emits toxic fumes.

5.3. Advice for fire-fighters

Advice for fire-fighters: Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Notify the police and fire brigade immediately. If outside keep bystanders upwind and away from danger point. Mark out the contaminated area with signs and prevent access to unauthorised personnel. Do not attempt to take action without suitable protective clothing - see section 8 of SDS. Turn leaking containers leak-side up to prevent the escape of liquid.

6.2. Environmental precautions

Environmental precautions: Do not discharge into drains or rivers. Alert the neighbourhood to the presence of fumes or gas.

6.3. Methods and material for containment and cleaning up

Clean-up procedures: Clean-up should be dealt with only by qualified personnel familiar with the specific substance. Absorb into dry earth or sand. Transfer to a closable, labelled salvage container for disposal by an appropriate method.

6.4. Reference to other sections

Reference to other sections: Refer to section 8 of SDS.

Section 7: Handling and storage

7.1. Precautions for safe handling

Handling requirements: Ensure there is exhaust ventilation of the area. Do not handle in a confined space.

[cont...]

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in a cool, well ventilated area. Keep container tightly closed.

7.3. Specific end use(s)

Specific end use(s): No data available.

Section 8: Exposure controls/personal protection

8.1. Control parameters

Hazardous ingredients:

METHANOL

Workplace exposure limits: **Respirable dust**

State	8 hour TWA	15 min. STEL	8 hour TWA	15 min. STEL
UK	266 mg/m3	333 mg/m3	-	-

DNEL/PNEC Values

METHANOL

Type	Exposure	Value	Population	Effect
DNEL	Dermal	40 mg/kg	Workers	-
DNEL	Inhalation	260 mg/m3	Workers	-
DNEL	Dermal	8 mg/kg	Consumers	-
DNEL	Inhalation	50 mg/m3	Consumers	-
PNEC	Sediment	570.4 mg/kg	-	-
PNEC	Soil (agricultural)	23.5 mg/kg	-	-
PNEC	STP	100 mg/L	-	-
PNEC	Fresh water	154 mg/L	-	-
PNEC	Marine water	15.4 mg/L	-	-

Hazardous ingredients:

METHANOL

Type	Exposure	Value	Population	Effect
DNEL	Dermal	40 mg/kg	Workers	-
DNEL	Inhalation	260 mg/m3	Workers	-
DNEL	Dermal	8 mg/kg	Consumers	-
DNEL	Inhalation	50 mg/m3	Consumers	-
PNEC	Sediment	570.4 mg/kg	-	-
PNEC	Soil (agricultural)	23.5 mg/kg	-	-

[cont...]

PNEC	STP	100 mg/L	-	-
PNEC	Fresh water	154 mg/L	-	-
PNEC	Marine water	15.4 mg/L	-	-

8.2. Exposure controls

Engineering measures: Ensure there is exhaust ventilation of the area.

Respiratory protection: Self-contained breathing apparatus must be used in handling.

Hand protection: Protective gloves.

Eye protection: Safety glasses. Ensure eye bath is to hand.

Skin protection: Protective clothing.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Liquid

Colour: Colourless

Odour: Characteristic odour

Solubility in water: Miscible

Boiling point/range°C: 64.7

Melting point/range°C: -97.8

Flash point°C: 11

Autoflammability°C: 455

Vapour pressure: 169.27 hPa

Relative density: 0.792 g/cm3

9.2. Other information

Other information: No data available.

Section 10: Stability and reactivity

10.1. Reactivity

Reactivity: Stable under recommended transport or storage conditions.

10.2. Chemical stability

Chemical stability: Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions: Hazardous reactions will not occur under normal transport or storage conditions.

Decomposition may occur on exposure to conditions or materials listed below.

10.4. Conditions to avoid

Conditions to avoid: Heat. Hot surfaces. Flames.

10.5. Incompatible materials

Materials to avoid: Strong oxidising agents. Strong acids.

[cont...]

10.6. Hazardous decomposition products

Haz. decomp. products: In combustion emits toxic fumes.

Section 11: Toxicological information

11.1. Information on toxicological effects

Hazardous ingredients:

METHANOL

IVN	RAT	LD50	2131	mg/kg
ORL	MUS	LD50	7300	mg/kg
ORL	RAT	LD50	5628	mg/kg

Relevant hazards for product:

Hazard	Route	Basis
Acute toxicity (ac. tox. 3)	DRM ING	Hazardous: calculated
Acute toxicity (ac. tox. 2)	INH	Hazardous: calculated
STOT-single exposure	-	Hazardous: calculated

Symptoms / routes of exposure

Skin contact: There may be mild irritation at the site of contact.

Eye contact: There may be irritation and redness.

Ingestion: There may be soreness and redness of the mouth and throat. Inhalation of fumes from the stomach may cause symptoms similar to direct inhalation.

Inhalation: There may be shortness of breath with a burning sensation in the throat. Exposure may cause coughing or wheezing. Drowsiness or mental confusion may occur. Convulsions may occur. There may be loss of consciousness.

Delayed / immediate effects: Immediate effects can be expected after short-term exposure.

Section 12: Ecological information

12.1. Toxicity

Ecotoxicity values: No data available.

12.2. Persistence and degradability

Persistence and degradability: Biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential: No bioaccumulation potential.

12.4. Mobility in soil

Mobility: Readily absorbed into soil.

[cont...]

12.5. Results of PBT and vPvB assessment

PBT identification: This product is not identified as a PBT/vPvB substance.

12.6. Other adverse effects

Other adverse effects: Negligible ecotoxicity.

Section 13: Disposal considerations

13.1. Waste treatment methods

Disposal operations: Transfer to a suitable container and arrange for collection by specialised disposal company.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

Section 14: Transport information

14.1. UN number

UN number: UN1230

14.2. UN proper shipping name

Shipping name: METHANOL

14.3. Transport hazard class(es)

Transport class: 3 (6.1)

14.4. Packing group

Packing group: II

14.5. Environmental hazards

Environmentally hazardous: No **Marine pollutant:** No

14.6. Special precautions for user

Special precautions: No special precautions.

Tunnel code: D/E

Transport category: 2

Section 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Specific regulations: Not applicable.

15.2. Chemical Safety Assessment

Section 16: Other information

[cont...]

Other information

Other information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 2015/830.

* indicates text in the SDS which has changed since the last revision.

Phrases used in s.2 and s.3: H225: Highly flammable liquid and vapour.

H301+311: Toxic if swallowed or in contact with skin.

H330: Fatal if inhaled.

H370: Causes damage to organs <or state all organs affected, if known> <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.

Legal disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.

SAFETY DATA SHEET

PHOSPHORIC ACID 81.5%

Compilation date: 24/11/2015

Revision No: 1

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name: PHOSPHORIC ACID 81.5%

CAS number: 7664-38-2

EINECS number: 231-633-2

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.3. Details of the supplier of the safety data sheet

Company name: Central Chemical Supplies Ltd

44 Hall Road

Donaghcloney

Co Armagh

BT66 7LJ

United Kingdom

Tel: 02838 881936

Email: frances@ccsni.co.uk

1.4. Emergency telephone number

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification under CLP: Skin Corr. 1B: H314

Most important adverse effects: Causes severe skin burns and eye damage.

2.2. Label elements

Label elements:

Hazard statements: H314: Causes severe skin burns and eye damage.

Hazard pictograms: GHS05: Corrosion

Signal words: Danger

Precautionary statements: P260: Do not breathe dust/fumes/gas/mist/vapours/spray.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P301+330+331: IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

P303+361+353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

[cont...]

P304+340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3. Other hazards

PBT: This product is not identified as a PBT/vPvB substance.

Section 3: Composition/information on ingredients

3.2. Mixtures

Hazardous ingredients:

ORTHOPHOSPHORIC ACID

EINECS	CAS	PBT / WEL	CLP Classification	Percent
231-633-2	7664-38-2	-	Skin Corr. 1B: H314	70-90%

Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: Remove all contaminated clothes and footwear immediately unless stuck to skin. Drench the affected skin with running water for 10 minutes or longer if substance is still on skin. Transfer to hospital if there are burns or symptoms of poisoning.

Eye contact: Bathe the eye with running water for 15 minutes. Transfer to hospital for specialist examination.

Ingestion: Wash out mouth with water. Do not induce vomiting. Give 1 cup of water to drink every 10 minutes. If unconscious, check for breathing and apply artificial respiration if necessary. If unconscious and breathing is OK, place in the recovery position. Transfer to hospital as soon as possible.

Inhalation: Remove casualty from exposure ensuring one's own safety whilst doing so. If unconscious and breathing is OK, place in the recovery position. If conscious, ensure the casualty sits or lies down. If breathing becomes bubbly, have the casualty sit and provide oxygen if available. Transfer to hospital as soon as possible.

4.2. Most important symptoms and effects, both acute and delayed

Skin contact: Blistering may occur. Progressive ulceration will occur if treatment is not immediate.

Eye contact: Corneal burns may occur. May cause permanent damage.

Ingestion: Corrosive burns may appear around the lips. Blood may be vomited. There may be bleeding from the mouth or nose.

Inhalation: There may be shortness of breath with a burning sensation in the throat. Exposure may cause coughing or wheezing.

Delayed / immediate effects: Immediate effects can be expected after short-term exposure.

[cont...]

4.3. Indication of any immediate medical attention and special treatment needed

Immediate / special treatment: Eye bathing equipment should be available on the premises.

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: Suitable extinguishing media for the surrounding fire should be used. Use water spray to cool containers.

5.2. Special hazards arising from the substance or mixture

Exposure hazards: Corrosive. In combustion emits toxic fumes.

5.3. Advice for fire-fighters

Advice for fire-fighters: Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Notify the police and fire brigade immediately. If outside keep bystanders upwind and away from danger point. Mark out the contaminated area with signs and prevent access to unauthorised personnel. Do not attempt to take action without suitable protective clothing - see section 8 of SDS. Turn leaking containers leak-side up to prevent the escape of liquid.

6.2. Environmental precautions

Environmental precautions: Do not discharge into drains or rivers. Contain the spillage using bunding.

6.3. Methods and material for containment and cleaning up

Clean-up procedures: Clean-up should be dealt with only by qualified personnel familiar with the specific substance. Absorb into dry earth or sand. Transfer to a closable, labelled salvage container for disposal by an appropriate method.

6.4. Reference to other sections

Reference to other sections: Refer to section 8 of SDS.

Section 7: Handling and storage

7.1. Precautions for safe handling

Handling requirements: Avoid direct contact with the substance. Ensure there is sufficient ventilation of the area. Do not handle in a confined space. Avoid the formation or spread of mists in the air.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in a cool, well ventilated area. Keep container tightly closed.

[cont...]

7.3. Specific end use(s)

Specific end use(s): No data available.

Section 8: Exposure controls/personal protection

8.1. Control parameters

Hazardous ingredients:

ORTHOPHOSPHORIC ACID...100%

Workplace exposure limits: **Respirable dust**

State	8 hour TWA	15 min. STEL	8 hour TWA	15 min. STEL
UK	1 mg/m3	2 mg/m3	-	-

DNEL/PNEC Values

DNEL / PNEC No data available.

8.2. Exposure controls

Engineering measures: Ensure there is sufficient ventilation of the area.

Respiratory protection: Self-contained breathing apparatus must be available in case of emergency.

Hand protection: Impermeable gloves.

Eye protection: Tightly fitting safety goggles. Ensure eye bath is to hand.

Skin protection: Impermeable protective clothing.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Liquid

Colour: Colourless

Odour: Irritating odour

Vapour pressure: 2.2 mmHg @ 20oC **Relative density:** 1.65

pH: 1

9.2. Other information

Other information: No data available.

Section 10: Stability and reactivity

10.1. Reactivity

Reactivity: Stable under recommended transport or storage conditions.

10.2. Chemical stability

Chemical stability: Stable under normal conditions.

[cont...]

10.3. Possibility of hazardous reactions

Hazardous reactions: Hazardous reactions will not occur under normal transport or storage conditions. Decomposition may occur on exposure to conditions or materials listed below.

10.4. Conditions to avoid

Conditions to avoid: Heat.

10.5. Incompatible materials

Materials to avoid: Strong oxidising agents. Strong acids.

10.6. Hazardous decomposition products

Haz. decomp. products: In combustion emits toxic fumes.

Section 11: Toxicological information

11.1. Information on toxicological effects

Hazardous ingredients:

ORTHOPHOSPHORIC ACID...100%

ORL	RAT	LD50	1530	mg/kg

Relevant hazards for product:

Hazard	Route	Basis
Skin corrosion/irritation	DRM	Hazardous: calculated
Serious eye damage/irritation	OPT	Hazardous: calculated

Symptoms / routes of exposure

Skin contact: Blistering may occur. Progressive ulceration will occur if treatment is not immediate.

Eye contact: Corneal burns may occur. May cause permanent damage.

Ingestion: Corrosive burns may appear around the lips. Blood may be vomited. There may be bleeding from the mouth or nose.

Inhalation: There may be shortness of breath with a burning sensation in the throat. Exposure may cause coughing or wheezing.

Delayed / immediate effects: Immediate effects can be expected after short-term exposure.

Section 12: Ecological information

12.1. Toxicity

Ecotoxicity values: No data available.

12.2. Persistence and degradability

Persistence and degradability: Biodegradable.

[cont...]

12.3. Bioaccumulative potential

Bioaccumulative potential: No bioaccumulation potential.

12.4. Mobility in soil

Mobility: Readily absorbed into soil.

12.5. Results of PBT and vPvB assessment

PBT identification: This product is not identified as a PBT/vPvB substance.

12.6. Other adverse effects

Other adverse effects: Negligible ecotoxicity.

Section 13: Disposal considerations

13.1. Waste treatment methods

Disposal operations: Transfer to a suitable container and arrange for collection by specialised disposal company.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

Section 14: Transport information

14.1. UN number

UN number: UN1805

14.2. UN proper shipping name

Shipping name: PHOSPHORIC ACID, SOLUTION

14.3. Transport hazard class(es)

Transport class: 8

14.4. Packing group

Packing group: III

14.5. Environmental hazards

Environmentally hazardous: No **Marine pollutant:** No

14.6. Special precautions for user

Special precautions: No special precautions.

Tunnel code: E

Transport category: 3

Section 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Specific regulations: Not applicable.

[cont...]

15.2. Chemical Safety Assessment

Section 16: Other information

Other information

Other information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 2015/830.

* indicates text in the SDS which has changed since the last revision.

Phrases used in s.2 and s.3: H314: Causes severe skin burns and eye damage.

Legal disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.

SAFETY DATA SHEET

Sulphuric Acid 96%

1. Identification of the substance/preparation and of the company/undertaking

Date issued	14th January 2011
Revision	2
Product name	Sulphuric acid 96 %
Chemical name	Battery acid, dihydrogensulphate, dipping acid, eletrolyte acid, mattling acid
REACH registration no.	01-2119458838-20-0096
CAS no.	7664-93-9
EC no.	231-639-5
Formula	H2SO4

Supplier

Company name	Central Chemical Supplies Ltd
Postal address	44 Hall Road, Donaghcloney, Craigavon, Northern Ireland, Bt66 7LJ
Contact Email	info@ccsni.co.uk
Tel	+44 2838881936
Fax	+44 2838882335
Emergency telephone (outside of office hours)	+44 7872501842

2. Hazards identification

Classification	C; R35
Classification CLP	Skin Corr 1A; H314

Description of hazard	Causes severe burns.
Other hazards	Reacts violently with water. May influence pH in water. In use burnable/ explosive mixture of vapour/aerosols may be produced. Danger for burns

3. Composition/information on ingredients

Component name	Identification	Classification	Contents
Water	CAS no.: 7732-18-5		4 %
Sulphuric acid ..%	CAS no.: 7664-93-9 EC no.: 231-639-5	C; R35	95,9 - 100 %

Column headings	CAS no. = Chemical Abstracts Service; EU (Einecs or Elincs number)=European inventory of Existing Commercial Chemical Substances; Ingredient name = Name as specified in the substance list (substances that are not included in the substance list must be translated, if possible). Contents given in; %, %wt/wt, %vol/wt, %vol/vol, mg/m3, ppb, ppm, weight%, vol%
HH/HF/HE	T+ = Very toxic, T = Toxic, C = Corrosive, Xn = Harmful, Xi = Irritating,

E= Explosive, O = Oxidizing, F+ = Extremly flammable, F = Very flammable, N = Environmental hazard

4. First-aid measures

General	CAUTION! First aid personnel must be aware of own risk during rescue! Remove victim immediately from source of exposure. Provide rest, warmth and fresh air. Burns must be treated by doctors. Place unconscious person on the side in the recovery position and ensure breathing can take place. If heart stops, heart-compression must be carried out. In case of accidents: Call an ambulance immediately! Show the MSDS.
Inhalation	Move the exposed person to fresh air at once. If respiratory problems, artificial respiration/oxygen. Get medical attention.
Skin contact	Remove contaminated clothes and rinse skin thoroughly with water. Continue to rinse for at least 15 minutes and seek medical attention. Chemical burns must be treated by a physician. Use "water gel". Clothes must be washed before re-use.
Eye contact	Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Immediately transport to hospital or eye specialist.
Ingestion	Rinse mouth thoroughly with water and give large amounts of milk or water to people not unconscious. Transportion to hospital. Do not give victim anything to drink if he is unconscious. DO NOT INDUCE VOMITING!

5. Fire-fighting measures

Suitable extinguishing media	Water. Foam,carbon dioxide or dry powder. Cool containers exposed to heat with water spray and remove container, if no risk is involved.
Improper extinguishing Media	Water-jet.
Fire and explosion Hazards	It may develop explosive gases in case of fire. Not flammable
Personal protective equipment	Fire brigade must use fresh-air helmet.
Other Information	CO,CO2. In case of fire: CO2, CO are developed SOx

6. Accidental release measures

Personal precautions	Provide adequate ventilation. Wear protective clothing as described in Section 8 of this safety data sheet. Avoid inhalation of vapours and aerosols and contact with skin and eyes. In case of splashes: Wear apron or special protective clothing.
Environmental precautions	Do not contaminate water sources or sewer. Do not discharge into drains,water courses or onto the ground. Contact local authorities in case of spillage to drain/aquatic environment.
Methods for cleaning	Absorb with inert, damp, non-combustible material, then flush area with water. Containers with collected spillage must be properly labelled with correct contents and hazard symbol. Dangerous waste.

7. Handling and storage

Handling	Mechanical ventilation may be required. Do not eat, drink or smoke when using the product. Avoid inhalation of vapours and contact with skin and eyes. Eye wash facilities and emergency shower must be available when handling this product. Wear full protective clothing for prolonged exposure and/or high concentrations. Never pour water into acid/base. Dilute by slowly pouring the product into water while stirring. Avoid splashes.
Storage	Avoid storage with strong oxidizers, bases, metals, halegonated substances. Closed container. Ventilated area. Original container. Store dry and at temperature below 25 C. Avoid sunlight.

8. Exposure controls/personal protection

Exposure limit values

Component name	Identification	Value
Water	CAS no.: 7732-18-5	
Sulphuric acid ..%	CAS no.: 7664-93-9	8 h.: 0,1 aerosol mg/m3
	EC no.: 231-639-5	K

Exposure controls

Occupational exposure controls	TLV.: Sulphuric acid aerosol: 0,1 mg/m3 Provide eyewash, quick drench. Water and shower must be available. Provide adequate ventilation. Observe Occupational Exposure Limits and minimise the risk of inhalation of vapours.
Respiratory protection	Wear air-supplied mask in confined areas. In case of inadequate ventilation or risk of inhalation damp /mist, suitable respiratory equipment with combination filter (type E2/P2) can be used.
Hand protection	Use gauntlet type rubber gloves. Rubber gloves are recommended. Viton rubber (fluor rubber). Break-throughtime> 8 hours.
Eye protection	Use approved safety goggles or face shield.
Skin protection (other than of the hands)	Wear appropriate clothing to prevent any possibility of skin contact. Wear rubber footwear. AVOID ALL SKIN AND RESPIRATORY CONTACT!
Other Information	When using do not eat, drink or smoke. Wash at the end of each work shift and before eating, smoking and using the toilet. Isolate contaminated clothing and wash before reuse. Shower after work. Eating, smoking and water fountains prohibited in immediate work area.

9. Physical and chemical properties

Physical state	Oily
Odour	Slightly pungent odour
Colour	Colourless Brownish
Solubility description	Ethanol. Methanol.
Solubility in water	Soluble.
Specific gravity	**Value:** 1,84 g/ml **Comments:** 98,3% acid 20 C
Melting point/melting range	**Value:** 3 ℃ **Comments:** 98,3 %
Boiling point	**Value:** 332,5 ℃ **Comments:** 98,3% 760 mmHg
Vapour density	**Value:** 2,8 **Comments:** 98,3 %

Other physical and chemical properties

Comments	Moleculeweight:58,07

10. Stability and reactivity

Conditions to avoid	Hygroscopic.
Materials to avoid	Bases, alkalies (inorganic). Amines. Alkali metals. Strong alkalies. Alcohols, glycols. Massive, solid metal. Nitriter. Inorganic peroxides. Organic cyanides (nitriles). Avoid contact with oxidising agents (e.g. nitric acid, peroxides and chromates).
Hazardous decomposition products	Explosive gases/vapours/fumes of: Hydrogen. SO2
Stability	Stable under the prescribed storage conditions.

11. Toxicological information

Toxicological Information:

LD50 oral	**Value:** 2440 mg/kg **Test animal species:** rat **Comments:** LD50

Components' toxicological data

Other information regarding health hazards

General	Causes severe burns.
Inhalation	Aerosols may be corrosive. Vapours are corrosive. After 24-36 hours, injured persons may develop serious shortness of breath and lung oedema. May give damage over time to teeth. Serious damage to the lining of nose, throat and lungs.
Skin contact	Strongly corrosive. May cause deep tissue damage. May give wounds which are difficult to heal.
Eye contact	Strongly corrosive. Causes severe pains and serious eye damage. Immediate first aid is imperative. Risk of serious damage to eyes.
Ingestion	May have a corrosive effect on the digestive canal. Strongly corrosive. Even small amounts may cause very severe internal damage and may be fatal. Diarrhoea.
Chronic effects	May give permanent damage to eyes if first aid is not carried out at once.

12. Ecological information

Toxicological Information:

Acute aquatic, fish	**Value:** < 100 mg/l **Method of testing:** LC50 **Duration:** 96 hours
Acute aquatic, algae	**Value:** 24 mg/l **Method of testing:** EC50 **Algae, species:** Seleastrum capricomutum **Duration:** 72 hours
Aquatic, comments	Crustaceans: LC 50/48 : 10-100 mg/l Prawn : LC50/48 hours: 80-90 mg/l

Components' toxicological data

Other ecological information

Ecotoxicity	Large amounts of the product may affect the acidity (pH-factor) in water with possible risk of harmful effects to aquatic organisms.
Bioaccumulative potential	Will not bio-accumulate. Log Pow: <3
Other adverse effects/Remarks	Pollute earth and water.

13. Disposal considerations

EWC waste code	EWC: 060101 sulphuric acid and sulphurous acid
Product classified as hazardous waste	Yes
Packaging classified as hazardous waste	Yes
Specify the appropriate methods of Disposal	Recover and reclaim or recycle, if practical. Absorb in vermiculite or dry sand, dispose in licensed special waste.

14. Transport information

Proper Shipping Name	Sulphuric acid 96 %
Product name (national)	Sulphuric acid 96%
Dangerous goods ADR	**Status:** Yes **UN no.:** 1830 **Class:** 8 **Hazard no.:** 80 **Packing group:** II
Dangerous goods RID	**Status:** Yes **UN no.:** 1830 **Class:** 8 **Packing group:** II
Dangerous goods IMDG	**Status:** Yes **UN no.:** 1830 **Class:** 8 **Packing group:** II **IMDG Marine pollutant:** ja **EmS:** F-A,S-B
Dangerous goods ICAO/IATA	**Status:** Yes **UN no.:** 1830 **Class:** 8

Packing group: II

15. Regulatory information

HAZARD SYMBOL

Composition on the label	Water: 4 %, Sulphuric acid ..%: 95,9 - 100 %
EC no.	231-639-5
R phrases	R35 Causes severe burns.
S phrases	S2 Keep out of the reach of children. S51 Use only in well-ventilated areas. S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S30 Never add water to this product. S36/37/39 Wear suitable protective clothing, gloves and eye/face protection. S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

HAZARD PICTOGRAM (CLP)

Signal word	Danger
Hazard statements	H314 Causes Severe skin burns and eye damage.
Precautionary statements	P260 Do not breathe dust/fume/gas/mist/vapours/spray. P264 Wash thoroughly after handling. P280 Wear protective gloves/protective clothing/eye protection/face protection. P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting. P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. P363 Wash contaminated clothing before reuse. P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
References (laws/regulations)	Commission Decision 2000/532/EC as amended by Decision 2001/118/EC establishing a list of wastes and hazardous waste pursuant to Council Directive 75/442/EEC on waste and Directive 91/689/EEC on hazardous waste with amendments. MSDS is developed/ revised after 1 ATP til CLP
Declaration no.	30962

15. Regulatory information continued

Relevant Statutory Instruments

Carriage of Dangerous Goods by Road Regulations 2007, S.I. 288 of 2007

Carriage of Dangerous Goods by Road (ADR miscellaneous provisions) Regulations 2007,

S.I.289 of 2007

Carriage of Dangerous Goods by Road Act 1998 (Appointment of Competent Authorities) Order 2007, S.I. 290 of 2007

Carriage of Dangerous Goods by Road Act 1998 (Fees) Regulations 2007, S.I. 291 of 2007

Chemicals Act 2008, No. 13 of 2008

ADR 2011

Safety, Health and Welfare at Work (Chemical Agents) Regulation 2001, SI 619 of 2001

16. Other information

List of relevant R phrases (under headings 2 and 3).	R35 Causes severe burns.

Disclaimer

The information contained in this document is intended to describe the product only in terms of health, safety and environmental requirements for the purposes of its safe handling, use and disposal and is to the best of Central Chemical Supplies Limited knowledge and belief correct. Central Chemical Supplies Limited Technical Services will be pleased to give further advice and assistance, but customers must satisfy themselves (by appropriate testing if necessary) that the product is suitable for their purposes and conditions of use and that their facilities and arrangements are suitable for handling or using the product. Accordingly Central Chemical Supplies Limited disclaims any liability for loss, injury or damage which may result from the use of the product, this information or from such advice and assistance save as may be expressly agreed under its terms of sale. This information does not comprise a technical or performance specification for the product and customers are referred to any relevant product technical information or specification issued by Central Chemical Supplies Limited. Customers are also reminded that there may be uses or application for the product which are protected by Central Chemical Supplies Limited or third parties' patent rights and nothing herein may be construed as an authority or encouragement to use or apply the product in contravention of such rights.

SAFETY DATA SHEET

NITRIC ACID 55-60%

Compilation date: 23/11/2015

Revision No: 1

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name: NITRIC ACID 55-60%

REACH registered number(s): 01-2119487297-23

CAS number: 7697-37-2

EINECS number: 231714-2

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.3. Details of the supplier of the safety data sheet

Company name: Central Chemical Supplies Ltd
44 Hall Road
Donaghcloney
Co Armagh
BT66 7LJ
United Kingdom

Tel: 02838 881936

Email: frances@ccsni.co.uk

1.4. Emergency telephone number

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification under CLP: Skin Corr. 1A: H314; Met. Corr. 1: H290; -: EUH071

Most important adverse effects: Causes severe skin burns and eye damage. May be corrosive to metals. Corrosive to the respiratory tract.

2.2. Label elements

Label elements:

Hazard statements: H314: Causes severe skin burns and eye damage.
H290: May be corrosive to metals.
EUH071: Corrosive to the respiratory tract.

Hazard pictograms: GHS05: Corrosion

Signal words: Danger

Precautionary statements: P234: Keep only in original container.

[cont...]

P260: Do not breathe dust/fumes/gas/mist/vapours/spray.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P301+330+331: IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303+361+353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P390: Absorb spillage to prevent material damage.
P363: Wash contaminated clothing before reuse.
P310: Immediately call a POISON CENTER/doctor.
P404: Store in a closed container.
P406: Store in corrosive resistant container with a resistant inner liner.
P501: Dispose of contents/container to appropriate place.

2.3. Other hazards

PBT: This product is not identified as a PBT/vPvB substance.

Section 3: Composition/information on ingredients

3.2. Mixtures

Hazardous ingredients:

NITRIC ACID

EINECS	CAS	PBT / WEL	CLP Classification	Percent
231-714-2	7697-37-2	-	Ox. Liq. 3: H272; Skin Corr. 1A: H314	50-70%

Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: Remove all contaminated clothes and footwear immediately unless stuck to skin. Drench the affected skin with running water for 10 minutes or longer if substance is still on skin. Transfer to hospital if there are burns or symptoms of poisoning.

Eye contact: Bathe the eye with running water for 15 minutes. Transfer to hospital for specialist examination.

Ingestion: Wash out mouth with water. Do not induce vomiting. Give 1 cup of water to drink every 10 minutes. If unconscious, check for breathing and apply artificial respiration if necessary. If unconscious and breathing is OK, place in the recovery position. Transfer to hospital as soon as possible.

Inhalation: Remove casualty from exposure ensuring one's own safety whilst doing so. If unconscious and breathing is OK, place in the recovery position. If conscious, ensure the casualty sits or lies down. If breathing becomes bubbly, have the casualty sit and provide oxygen if available. Transfer to hospital as soon as possible.

[cont...]

4.2. Most important symptoms and effects, both acute and delayed

Skin contact: Blistering may occur. Progressive ulceration will occur if treatment is not immediate.

Eye contact: Corneal burns may occur. May cause permanent damage.

Ingestion: Corrosive burns may appear around the lips. Blood may be vomited. There may be bleeding from the mouth or nose.

Inhalation: There may be shortness of breath with a burning sensation in the throat. Exposure may cause coughing or wheezing.

Delayed / immediate effects: Immediate effects can be expected after short-term exposure.

4.3. Indication of any immediate medical attention and special treatment needed

Immediate / special treatment: Eye bathing equipment should be available on the premises.

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: Suitable extinguishing media for the surrounding fire should be used. Use water spray to cool containers. Water. Carbon dioxide. Do not use foam. Do not use dry chemical powder. Do not attempt to smother the fire with sand or steam.

5.2. Special hazards arising from the substance or mixture

Exposure hazards: Corrosive. In combustion emits toxic fumes. Nitrogen Oxides. Explosive when mixed with strong reducing agents. Reacts with most common metals to liberate hydrogen which can form explosive mixtures with air.

5.3. Advice for fire-fighters

Advice for fire-fighters: Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Notify the police and fire brigade immediately. If outside keep bystanders upwind and away from danger point. Mark out the contaminated area with signs and prevent access to unauthorised personnel. Do not attempt to take action without suitable protective clothing - see section 8 of SDS. Turn leaking containers leak-side up to prevent the escape of liquid.

6.2. Environmental precautions

Environmental precautions: Do not discharge into drains or rivers. Contain the spillage using bunding.

6.3. Methods and material for containment and cleaning up

Clean-up procedures: Clean-up should be dealt with only by qualified personnel familiar with the specific substance. Absorb into dry earth or sand. Transfer to a closable, labelled salvage container for disposal by an appropriate method.

[cont...]

6.4. Reference to other sections

Reference to other sections: Refer to section 8 of SDS.

Section 7: Handling and storage

7.1. Precautions for safe handling

Handling requirements: Avoid direct contact with the substance. Ensure there is sufficient ventilation of the area.

Do not handle in a confined space. Avoid the formation or spread of mists in the air.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in a cool, well ventilated area. Keep container tightly closed.

7.3. Specific end use(s)

Specific end use(s): No data available.

Section 8: Exposure controls/personal protection

8.1. Control parameters

Hazardous ingredients:

NITRIC ACID...100%

Workplace exposure limits: **Respirable dust**

State	8 hour TWA	15 min. STEL	8 hour TWA	15 min. STEL
UK	-	2.6 mg/m3	-	-

DNEL/PNEC Values

DNEL / PNEC No data available.

8.2. Exposure controls

Engineering measures: Ensure there is sufficient ventilation of the area.

Respiratory protection: Self-contained breathing apparatus must be available in case of emergency.

Hand protection: Impermeable gloves.

Eye protection: Tightly fitting safety goggles. Ensure eye bath is to hand.

Skin protection: Impermeable protective clothing.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Liquid

Colour: Colourless

Odour: Pungent

Evaporation rate: No data available.

Oxidising: Non-oxidising (by EC criteria)

Solubility in water: Miscible

[cont...]

Boiling point/range°C: 118
Melting point/range°C: -23
Flash point°C: Not applicable.
Vapour pressure: 5.498 mmHg
pH: <2

9.2. Other information

Other information: Met. Corr. 1; May be corrosive to metals.

Section 10: Stability and reactivity

10.1. Reactivity

Reactivity: Stable under recommended transport or storage conditions.

10.2. Chemical stability

Chemical stability: Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions: Hazardous reactions will not occur under normal transport or storage conditions. Decomposition may occur on exposure to conditions or materials listed below.

10.4. Conditions to avoid

Conditions to avoid: Heat.

10.5. Incompatible materials

Materials to avoid: Strong oxidising agents. Strong acids.

10.6. Hazardous decomposition products

Haz. decomp. products: In combustion emits toxic fumes.

Section 11: Toxicological information

11.1. Information on toxicological effects

Relevant hazards for product:

Hazard	Route	Basis
Skin corrosion/irritation	DRM	Hazardous: calculated
Serious eye damage/irritation	OPT	Hazardous: calculated

Symptoms / routes of exposure

Skin contact: Blistering may occur. Progressive ulceration will occur if treatment is not immediate.
Eye contact: Corneal burns may occur. May cause permanent damage.
Ingestion: Corrosive burns may appear around the lips. Blood may be vomited. There may be bleeding from the mouth or nose.
Inhalation: There may be shortness of breath with a burning sensation in the throat. Exposure may cause coughing or wheezing.
Delayed / immediate effects: Immediate effects can be expected after short-term exposure.

[cont...]

Section 12: Ecological information

12.1. Toxicity

Ecotoxicity values: No data available.

12.2. Persistence and degradability

Persistence and degradability: Biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential: No bioaccumulation potential.

12.4. Mobility in soil

Mobility: Readily absorbed into soil.

12.5. Results of PBT and vPvB assessment

PBT identification: This product is not identified as a PBT/vPvB substance.

12.6. Other adverse effects

Other adverse effects: Negligible ecotoxicity.

Section 13: Disposal considerations

13.1. Waste treatment methods

Disposal operations: Transfer to a suitable container and arrange for collection by specialised disposal company.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

Section 14: Transport information

14.1. UN number

UN number: UN2031

14.2. UN proper shipping name

Shipping name: NITRIC ACID

14.3. Transport hazard class(es)

Transport class: 8

14.4. Packing group

Packing group: II

14.5. Environmental hazards

Environmentally hazardous: No **Marine pollutant:** No

[cont...]

14.6. Special precautions for user

Special precautions: No special precautions.
Tunnel code: E
Transport category: 2

Section 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Specific regulations: Not applicable.

15.2. Chemical Safety Assessment

Section 16: Other information

Other information

Other information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 2015/830.
* indicates text in the SDS which has changed since the last revision.

Phrases used in s.2 and s.3: EUH071: Corrosive to the respiratory tract.
H272: May intensify fire; oxidiser.
H290: May be corrosive to metals.
H314: Causes severe skin burns and eye damage.

Legal disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.

CENTRAL CHEMICAL SUPPLIES LTD

SAFETY DATA SHEET
Caustic Soda Liquor

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier
GHS Product Identifier CAUSTIC SODA LIQUOR
EC INDEX No. 011-002-00-6
Alternative names Sodium hydroxide solution.
REACH Registration No. 01-2119457892-27-XXXX

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified use(s) Chemical manufacture and processing. pH control.
Uses advised against None anticipated.

1.3 Details of the supplier of the safety data sheet
Supplier: Central Chemical Supplies Ltd
44 Hall Road
Donaghcloney
Craigavon
Co.Armagh
Northern Ireland
BT66 7LJ

Telephone: +(0044)2838 881936
Fax: +(0044)2838 882335
Emergency Telephone: +(0044)7872 501842
Email: info@ccsni.co.uk

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
Directive 67/548/EEC & Directive 1999/45/EC C : Corrosive.
R35: Causes severe burns.
Regulation (EC) No. 1272/2008 (CLP) Skin Corr. 1A
Met. Corr. 1

2.2 Label elements
Hazard Statements H314: Causes severe skin burns and eye damage.
H290: May be corrosive to metals.
Signal word(s) DANGER
Hazard pictogram(s)

Precautionary statement(s)
P260: Do not breathe dust/fume/gas/mist/vapours/spray.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P301 + P330 + P331: IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310: Immediately call a POISON CENTRE or doctor/physician.
Additional label requirements
None

2.3 Other hazards
This data sheet covers solutions containing greater than 5% caustic soda (sodium hydroxide), rayon and membrane grades.
Rayon grades contain typically less than 0.1mg/kg mercury.

SECTION 3: COMPOSITION /INFORMATION ON INGREDIENTS

3.1 Substances

Hazardous ingredient(s)	%(w/w)	CAS No.	EC No.	H - Codes
Sodium Hydroxide	5 - 75	001310-73-2	215-185-5	H314, H290

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures
Inhalation Remove patient from exposure, keep warm and at rest. Administer oxygen if necessary.
Skin Contact Remove contaminated clothing. Drench with large quantities of water. Continue to wash the affected area for at least 10 minutes.
Eye Contact Immediately irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 15 minutes. Continue irrigation until medical attention can be obtained.
Ingestion Do not induce vomiting. Provided the patient is conscious, wash out mouth with water and give 200-300 ml (half a pint) of water to drink.

4.2 Most important symptoms and effects, both acute and delayed
Causes severe damage to eyes and skin. May cause severe damage with formation of corneal ulcers and permanent impairment of vision. Mist is severely irritant to the respiratory tract. Effect may vary from irritation of the nasal mucous membrane to severe lung irritation. Will immediately cause corrosion of and damage to the gastrointestinal tract.

4.3 Indication of any immediate medical attention and special treatment needed
SPEED IS ESSENTIAL. OBTAIN IMMEDIATE MEDICAL ATTENTION.
Showers and eye washing equipment must be provided at handling points.
Remove contaminated clothing and wash all affected areas with plenty of water.
Symptomatic treatment and supportive therapy as indicated.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media
Suitable Extinguishing Media foam, CO2 or dry powder.
Unsuitable Extinguishing Media As appropriate for surrounding fire.

5.2 Special hazards arising from the substance or mixture
Non-combustible. Exothermic reaction with water. Contact with some metals e.g. aluminium, zinc can produce flammable hydrogen gas. Contact with some organic chemicals can produce violent or explosive reactions.

5.3 Advice for fire fighters
A self contained breathing apparatus and suitable protective clothing must be worn in fire conditions.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Ensure suitable personal protection during removal of spillages.

6.2 Environmental precautions
Avoid release to the environment. Prevent liquid entering sewers, basements and any watercourses.

6.3 Methods and material for containment and cleaning up
Stop leak if safe to do so. Contain spillages.
Small spillages: Neutralized wherever possible. Wash the spillage area with water.
Large spillages: Contain spillages with sand, earth or any suitable adsorbent material. Remove and dispose of residues. Wash the spillage area with water. Water washing to drain of large amounts of caustic soda should only be carried out with the prior consent of the Environment Agency or other appropriate regulatory body. Contaminated adsorbent must be removed in sealed, plastic lined drums and disposed of via an authorized waste disposal contractor.

6.4 Reference to other sections
See Section: 8, 13
Spillages or uncontrolled discharges into watercourses must be IMMEDIATELY alerted to the Environment Agency or other appropriate regulatory body.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Keep away from acids and chlorinated hydrocarbons.
Care should be taken when diluting solutions. Do not spray. Avoid generation of aerosols or mist.
Rayon grades only: For operations involving black sludge containing mercury, atmospheric levels of mercury must be controlled in compliance with the occupational exposure limit (see 7.2).

7.2 Conditions for safe storage, including any incompatibilities
For small quantities - Keep container tightly closed.
For large quantities - Can be stored at normal or slightly elevated temperatures in mild steel tanks. Where temperature is above 40 Deg C for liquors containing 30% or more of caustic or above 60 Deg C for lower concentrations tanks must be stressed relieved.
Following prolonged storage in mild steel tanks, a black sludge will collect at the bottom of the tank. The sludge will contain iron, sodium carbonate and when Rayon grades are stored, mercury. In the latter case the mercury is likely to be present in a finely divided form, spread throughout the particulate matter in the sludge. Provision should be made for testing the tank atmosphere for oxygen and mercury prior to entry.

7.3 Specific end use(s)
Not applicable.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

HAZARDOUS INGREDIENT(S)	CAS No.	LTEL 8 hr TWA ppm	LTEL 8 hr TWA mg/m3	STEL ppm	STEL mg/m3	Note:
Sodium Hydroxide	001310-73-2	-	-	-	2	WEL
Mercury & its inorganic divalent compounds		-	0.025	-	-	COM

DNEL	oral	Inhalation	Dermal
Industry - Long Term - Local effects	-	1.0 mg/m³	-
Industry - Long Term - Systemic effects	-	-	-
Industry - Short term - Local effects	-	-	2%
Industry - Short term - Systemic effects	-	-	-
Consumer. - Long Term - Local effects	-	1.0 mg/m³	-
Consumer. - Long Term - Systemic effects	-	-	-
Consumer. - Short term - Local effects	-	-	2%
Consumer. - Short term - Systemic effects	-	-	-

Environment	PNEC
Aquatic Compartment (including sediment)	Not relevant for this material.
Terrestrial Compartment	Not relevant for this material.
Atmospheric Compartment	Not relevant for this material.

8.2 Exposure controls

Appropriate engineering controls
Provide adequate ventilation, including appropriate local extraction, if fumes or vapours are likely to be evolved.
Personal Protection
Eye/face protection Wear close fitting goggles or full face shield.
Skin protection Wear suitable protective clothing and gloves.
Suitable Materials: PVC , Neoprene , natural rubber
Unsuitable gloves materials : Leather
Leather footwear is not suitable.
Check with protective equipment manufacturer's data.
Respiratory protection Wear suitable respiratory protective equipment if exposure to levels above the occupational
exposure limit is likely. Use a respirator/filter with at least: Filter type P2
Rayon grades only: For operations involving black sludge containing mercury, air line fed breathing apperatus must be worn (see 7.2).
Check with protective equipment manufacturer's data.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Molecular weight: 40
Form Clear or slightly turbid liquid.
Colour colourless
Solubility (Water) soluble (100g NaOH/100g H2O at 25 Deg C)
Solubility (Other) ethanol
pH ~14 at 100g/L at 20C

9.2 Other information
Refer to technical brochure.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity
Highly reactive with aluminium, zinc, tin and alloys of these metals producing flammable hydrogen gas. Contact with some organic chemicals can produce violent or explosive reactions.

10.2 Chemical stability
Stable under normal conditions.

10.3 Possibility of hazardous reactions
Can react violently if in contact with acids and chlorinated hydrocarbons. Exothermic reaction with water. Can react with sugar residues to form carbon monoxide.

10.4 Conditions to avoid
If electric arc welding or cutting, particular attention must be paid to the way the circuit is completed to eliminate the possibility of electrolysis of liquor producing hydrogen.

10.5 Incompatible materials
Keep away from: Acids , ammonia solution , chlorinated hydrocarbons

10.6 Hazardous decomposition products
hydrogen

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
Test result / data
Acute oral toxicity Will immediately cause corrosion of and damage to the gastrointestinal tract. Lethal dose for man is approximately 5g.
Acute inhalation toxicity Mist is severely irritant to the respiratory tract. Effect may vary from irritation of the nasal mucous membrane to severe lung irritation.
Acute dermal toxicity Corrosive. May cause severe burns with permanent skin damage which are slow to heal. Repeated or prolonged contact to dilute solutions may cause dermatitis.
Skin irritation. Causes severe skin burns.
Serious eye damage/irritation Causes serious eye damage. May cause severe damage with formation of corneal ulcers and permanent impairment of vision.
Respiratory irritation Mist is severely irritant to the respiratory tract. Effect may vary from irritation of the nasal mucous membrane to severe lung irritation.
Sensitisation Respiratory system : No data. There is no evidence of skin sensitisation in humans.
Repeated dose toxicity No reliable data available.
Germ cell mutagenicity There is no evidence of mutagenic potential. The material did not induce mutagenicity in vitro and in vivo studies.
Carcinogenicity Sodium hydroxide is corrosive to the skin and respiratory tract and will not be systemically available in the body under normal conditions of handling and use. As a consequence it is not expected to cause cancer in any organ.

Reproductive toxicity Sodium hydroxide will not be systemically available in the body under normal conditions of handling and use and will not be toxic to the reproductive system or the developing foetus.
Specific target organ toxicity — single exposure (STOT SE) Not classified
Specific target organ toxicity —repeated exposure (STOT RE) Not classified
Aspiration hazard Not an aspiration hazard

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity
No reliable data available. Concentrations greater than 10ppm, especially in fresh water, or a pH value equal to or greater than10.5 may be fatal to fish and other aquatic organisms. Can cause damage to aquatic plants. Can cause damage to vegetation.

12.2 Persistence and degradability
Sodium hydroxide is highly soluble in water and has a low vapour pressure. It will be found predominantly in the aquatic environment. It degrades readily by reaction with the natural carbon dioxide in the air.

12.3 Bio accumulative potential
Sodium hydroxide does not bioaccumulate.

12.4 Mobility in soil
Sodium hydroxide becomes increasingly more mobile in soil with dilution.

12.5 Results of PBT and vPvB assessment
Sodium hydroxide does not meet the criteria for persistency, bioaccumulation and toxicity. (EU RAR 2007)

12.6 Other adverse effects
Concentrations sufficient to render effluent alkaline may cause damage to effluent treatment organisms

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Disposal should be in accordance with local, state or national legislation.
Do not empty into drains; dispose of this material and its container in a safe way.
Contaminated adsorbent must be removed in sealed, plastic lined drums and disposed of via an authorised waste disposal contractor.
Additional information
Sludge waste containing mercury (see Storage) will require to be disposed of in an authorised treatment facility licenced under the Environmental Protection Act (EPA).

SECTION 14: TRANSPORT INFORMATION

14.1 Road/Rail
UN No. 1824
Proper Shipping Name SODIUM HYDROXIDE SOLUTION
ADR/RID Class 8
Packing Group II
Label. 8
Tunnel Restriction Code (E)

14.2 Sea (IMDG)
UN No. 1824
Proper Shipping Name SODIUM HYDROXIDE SOLUTION

IMDG Class 8
Packing Group II
Label. 8
Marine Pollutant Not classified as a Marine Pollutant

14.3 Air (ICAO / IATA)
UN No. 1824
Proper Shipping Name SODIUM HYDROXIDE SOLUTION
ICAO-TI Class 8
Packing Group II
Label. 8

14.4 Additional Information
None

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Control of Substances Hazardous to Health Regulations (COSHH) 2002 SI 2002/2677 and COSHH Essentials: Easy steps to control chemicals - Control of Substances Hazardous to Health Regulations HSG193.

Inventory Status
Listed in: Australia (AICS) Canada (DSL/NDSL) China (IECSC) European Union (EINECS/ELINCS) South Korea (KECI) Philippines (PICCS) New Zealand Inventory (NZIoC) Switzerland United States (TSCA)

15.2 Chemical Safety Assessment
A Chemical Safety Assessment (CSA) has been completed for this substance.

SECTION 16: OTHER INFORMATION
Indication of changes All sections revised according to CLP/GHS requirements.

LEGEND
WEL : Workplace Exposure Limit (UK HSE EH40)
COM : The company aims to control exposure in its workplace to this limit
TLV : The company aims to control exposure in its workplace to the ACGIH limit
TLV-C: The company aims to control exposure in its workplace to the ACGIH Ceiling limit
MAK : The company aims to control exposure in its workplace to the German limit
Sk : Can be absorbed through skin
Sen : Capable of causing respiratory sensitisation
Bmgv : Biological monitoring guidance value (UK HSE EH40)
ILV : Indicative Limit Value (UK HSE EH40)
IOELV : Indicative Occupational Exposure Limit Value

Key literature references
EU RAR NaOH (2007), European Union Risk Assessment Report sodium hydroxide. Office for Official Publications of the
European Union. Luxembourg.
GESTIS -database on hazardous substances
Chemical Safety Report, Sodium Hydroxide (21 July 2010)

Issued by Quality Control

Disclaimer

The information contained in this document is intended to describe the product only in terms of health, safety and environmental requirements for the purposes of its safe handling, use and disposal and is to the best of Central Chemical Supplies Limited knowledge and belief correct. Central Chemical Supplies Limited Technical Services will be pleased to give further advice and assistance, but customers must satisfy themselves (by appropriate testing if necessary) that the product is suitable for their purposes and conditions of use and that their facilities and arrangements are suitable for handling or using the product. Accordingly Central Chemical Supplies Limited disclaims any liability for loss, injury or damage which may result from the use of the product, this information or from such advice and assistance save as may be expressly agreed under its terms of sale.
This information does not comprise a technical or performance specification for the product and customers are referred to any relevant product technical information or specification issued by Central Chemical Supplies Limited.
Customers are also reminded that there may be uses or application for the product which are protected by Central Chemical Supplies Limited or third parties' patent rights and nothing herein may be construed as an authority or encouragement to use or apply the product in contravention of such rights.

SODIUM HYPOCHLORITE, 5% <= C < 16% - SAFETY DATA SHEET – according to Regulation (EC) No. 1907/2006

Revision Date: 25.10.2012;

SODIUM HYPOCHLORITE, 5%<=C<16%

1. PRODUCT AND COMPANY IDENTIFICATION

1.1. Product Identifiers

-Product Name	:	**SODIUM HYPOCHLORITE, 5% <= C < 16%**
-Chemical Characterization	:	Stabilized product
-Synonyms	:	Hypochlorous acid, sodium salt, Javel extract
-Molecular Formula	:	NaClO
-REACH Registration Number	:	01-2119488154-34-0047
-Type of Product	:	Reaction mass

1.2. Identified uses / Uses advised against

-Identified uses	:	- Bleaching agent, Oxidizing agents, Reagent, Disinfectant, Cleaning agent
		- Water treatment agent
-Uses advised against	:	- None identified

1.3. Manufacturer or supplier's details

-Company	:	Central Chemical Supplies Ltd
-Address	:	44 Hall Road, Donaghcloney, Co Armagh, Northern Ireland, BT66 7LJ
-Telephone	:	+44 2838 881936
-Fax	:	+44 2838 882335
-E-mail address	:	info@ccsni.co.uk

1.4. Emergency telephone number

-Emergency telephone number	:	+44 7872 501842

2. HAZARDS IDENTIFICATION

2.1. GHS Classification

2.1.1. European regulation (EC) 1272/2008, as amended

Classified as hazardous according to the European regulation (EC) 1272/2008, as amended

Hazard class	Hazard category	Route of exposure	H Phrases
Corrosive to metals	Category 1		H290
Skin corrosion	Category 1B	Dermal	H314
Serious eye damage	Category 1		H318
Target Organ Systemic Toxicant – Single exposure	Category 3	Inhalation	H335
Acute aquatic toxicity	Category 1		H400

2.1.2. European Directive 67/548/EEC or 1999/45/EC, as amended

Hazard class / Hazard category	R-phrase(s)
C	R34
Xi	R37
N	R50
	R31

2.2. EC Label – According to Regulation (EC) 1272/2008, as amended

2.2.1. Name(s) on label

Hazardous components : Sodium hypochlorite (>= 5 -< 16%)

2.2.2. Signal word

Danger

2.2.3. Hazard symbols



2.2.4. Hazard statements

H290	-	May be corrosive to metals.
H314	-	Causes severe skin burns and eye damage.
H318	-	Causes serious eye damage.
H335	-	May cause respiratory irritation.
H400	-	Very toxic to aquatic life.
EUH031	-	Contact with acids liberates toxic gas

2.2.5. Precautionary statements

Prevention	P260	-	Do not breathe dust/fume/gas/mist/vapours/spray.
	P273	-	Avoid release to the environment
	P280	-	Wear protective gloves/protective clothing/eye protection/face protection.
Response	P310	-	Immediately call a POISON CENTRE or doctor/physician.
	P390	-	Absorb spillage to prevent material damage
	P303 + P361 + P353	-	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
	P305 + P351 + P338	-	IF IN EYES: Rinse cautiously with water for several minutes. Remove Contact lenses, if present and easy to do so. Continue rinsing.
Storage	P403 + P233	-	Store in a well-ventilated place. Keep container tightly closed.
Disposal	P501	-	Dispose of contents/container in accordance with local regulation.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substance name:	Concentration
Sodium hypochlorite	>= 5 - < 16 %
CAS-No.: 7681-52-9 / EC-No.: 231-668-3 / Index-No.: 017-011-00-1	

4. FIRST AID MEASURES

4.1. Description of necessary first-aid measures

4.1.1. If inhaled

- Move to fresh air.
- Give Oxygen or artificial respiration if needed.
- Victim to lie down in the recovery position, cover and keep him warm.
- Call a physician immediately.

4.1.2. In case of eye contact-**SPEED IS ESSENTIAL**

- Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
- In the case of difficulty of opening the lids, administer an analgesic eye wash (oxybuprocaine).
- Call a physician or poison control centre immediately.
- Take victim immediately to hospital.

4.1.3. In case of skin contact- **SPEED IS ESSENTIAL**

- Take off contaminated clothing and shoes immediately.
- Wash off immediately with plenty of water.
- Keep warm and in a quiet place.
- Call a physician or poison control centre immediately.
- Wash contaminated clothing before re-use.

4.1.4. If swallowed

- Call a physician or poison control centre immediately.
- Take victim immediately to hospital.
- If swallowed, rinse mouth with water (only if the person is conscious).
- Do NOT induce vomiting.
- Artificial respiration and/or oxygen may be necessary.

4.2. Most important symptoms/effects, acute and delayed

4.2.1. Inhalation

- Severe respiratory irritant
- Irritating to mucous membranes
- Symptoms: Breathing difficulties, cough, chemical pneumonitis, pulmonary oedema
- Repeated or prolonged exposure: Nose bleeds, chronic bronchitis

4.2.2. Skin contact

- Severe skin irritation.
- Symptoms: Redness, Swelling of tissue, Burn
- Repeated exposure: Ulceration

4.2.3. Eye contact

- Severe eye irritation
- May cause irreversible eye damage. May cause blindness.
- Symptoms: Redness, Lachrymation, Swelling of tissue, Burn

4.2.4. Ingestion

- If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.
- Risk of chemical pneumonitis from product inhalation.
- Risk of shock.
- Symptoms: Nausea, Abdominal pain, Bloody vomiting, Diarrhoea, Suffocation, Cough, Severe shortness of breath.
- Risk of: Respiratory disorder.

4.3. Indication of immediate medical attention and special treatment needed, if necessary

- Indication of immediate medical attention and special treatment needed, if necessary.
- The seriousness of the lesions and the prognosis of intoxication depend directly on the concentration and duration of exposure.

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

5.1.1. Suitable extinguishing media

- Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.1.2. Unsuitable extinguishing media

- None.

5.2. Specific hazards arising from the chemical

- Not combustible
- Hazardous decomposition products formed under fire conditions.
- Promotes combustion of combustible products or materials.

5.3. Special protective actions for fire-fighters

- In the event of fire, wear self-contained breathing apparatus.
- Use personal protective equipment.
- Wear chemical resistant oversuit.
- Cool containers / tanks with water spray.
- Suppress (knock down) gasses/vapours/mists with a water spray jet.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. Advice for non-emergency personnel

- Prevent further leakage or spillage if safe to do so.
- Keep away from Incompatible products.

6.1.2. Advice for emergency responders

- Isolate the area. Evacuate personnel to safe areas.
- Keep people away from and upwind of spill/leak.
- Ventilate the area.
- Wear suitable protective clothing.
- Wear self-contained breathing apparatus in confined spaces, in cases where the oxygen level is depleted, or in case of significant emissions.

6.2. Environmental precautions

- Should not be released into the environment.
- Do not flush into surface water or sanitary sewer system.
- In case of accidental release or spill, immediately notify the appropriate authorities if required by Federal, State/Provincial and local laws and regulations.

6.3. Methods and materials for containment and cleaning up

- Dam up.
- Soak up with inert absorbent material.
- Prevent product from entering drains.
- Keep in properly labelled containers.
- Keep in suitable, closed containers for disposal.

6.4. Reference to other sections

- Refer to protective measures listed in sections 7 and 8

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

- Provide appropriate exhaust ventilation.
- Use only in well-ventilated areas.
- Keep away from incompatible products.
- To avoid thermal decomposition, do not overheat.
- Use only equipment and materials which are compatible with the product.
- Do not confine the product in a circuit, between closed valves, or in a container without a vent.

7.2. Conditions for storage, including incompatibilities

7.2.1. Storage

- Store in original container.
- Keep in a well-ventilated place. Keep cool.
- Keep in properly labelled containers.
- Keep container closed (vented cap).
- Keep in a bunded area.
- Protect from direct sunlight. Store in a cool and dark place to preserve the quality of the product.
- Keep away from incompatible products.

7.2.2. Packaging material
7.2.2.1. *Suitable material*
- Reinforced polyester, Steel coated, PVC, Polyethylene, Glass

7.2.2.2. *Unsuitable material*
- Metals

7.3. Specific use(s)
- For further information, please contact: Supplier

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters
8.1.1. Exposure Limit Values

Sodium hypochlorite
- US. ACGIH Threshold Limit Values
  Remarks: none established

Sodium chlorate
- US.ACGIH Threshold Limit Values
  Remarks: None established

Sodium hydroxide
- Ireland: Code of Practice for the Safety Health & Welfare at Work (Chemical Agents) Regulations 2011 (SI No. 619 of 2001) Occupational Exposure Limit Value(15 minute reference period) = 2 mg/m3
- UK. EH40 Workplace Exposure Limits (WELs) 2007
  Short term exposure limit = 2 mg/m3
- US. ACGIH Threshold Limit Values 2009
  Ceiling Limit Value = 2 mg/m3

Sodium carbonate
- SAEL (Solvay Acceptable Exposure Limit) 2007
  TWA = 10 mg/m3
- US. ACGIH Threshold Limit Values
  Remarks: none established

8.1.2. Other information on limit values
8.1.2.1. *Predicted No Effect Concentration*
- Fresh water, 0.21 µg/l
- Marine water, 0.042 µg/l
- Sewage treatment plants, 0.03 mg/l

8.1.2.2. *Derived No Effect Level / Derived minimal effect level*
- Workers, Inhalation, Acute effects, 3.1 mg/m3, Systemic toxicity
- Workers, Inhalation, Acute effects, 3.1 mg/m3, Local effects
- Workers, Inhalation, Chronic effects, 1.55 mg/m3, Systemic toxicity
- Workers, Dermal, Chronic effects, 0.5%, Local effects
- Workers, Inhalation, 1.55 mg/m3, Local effects

8.2. Exposure controls
8.2.1. Appropriate engineering controls
- Provide local ventilation appropriate to the product decomposition risk (see section 10)
- Provide appropriate exhaust ventilation at machinery.
- Apply technical measures to comply with the occupational exposure limits.

8.2.2. Individual protection measures
8.2.2.1. *Respiratory protection*
- In case of insufficient ventilation, wear suitable respiratory equipment.
- When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
- Self-contained breathing apparatus (EN 133)
- Respirator with a vapour filter (EN 141)
- In case of decomposition (see section 10), face mask with combined type B-P2 cartridge.

8.2.2.2. *Hand protection*
- Impervious gloves in compliance with EN374:2003.
- Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact). The following list may be used for guidance but is not exhaustive:
- Nitrile rubber- NBR: thickness >= 0,35mm; breakthrough time>=480min.
- Polyvinyl chloride- PVC: thickness >=0,5mm; breakthrough time>=480min.
- Butyl rubber: thickness>= 0,5mm; breakthrough time>=480min.
- Dispose of contaminated gloves appropriately.
- Unsuitable material: Leather

8.2.2.3. *Eye protection*
- Chemical resistant goggles or full-face shield must be worn.
- If splashes are likely to occur, wear: Tightly fitted safety goggles and full face shield.

8.2.2.4. *Skin and body protection*
- Wear suitable protective clothing.
- Chemical resistant apron
- If splashes are likely to occur, wear: Rubber or plastic boots

8.2.2.5. *Hygiene measures*
- Ensure that eyewash stations and safety showers are close to the workstation location.
- Take off contaminated clothing and shoes immediately.
- Wash contaminated clothing before re-use.
- When using, do not eat, drink or smoke.
- Wash hands before breaks and at the end of workday.
- Handle in accordance with good industrial hygiene and safety practice.

8.2.3. Environmental Exposure controls
- Dispose of rinse water in accordance with local and national regulations.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Physical and chemical properties

9.1.1. General Information

Appearance	liquid
Colour	yellow, green
Odour	pungent-Chlorine
Molecular Weight	74.5 g/mol

9.1.2. Important health safety and environmental information

pH	>11 (15% solution)
pKa	No data
Melting point/freezing point	-17°C (15% solution); crystals of Sodium Chloride may form at low temperature (<5°C)
Boiling point/boiling range	110
Flash point	not applicable
Evaporation rate	No data
Flammability (solid, gas)	not applicable
Flammability	The product is not flammable
Explosive properties	Not explosive.
Vapour pressure	2.5 kPa, at 20°C
Vapour density	2.5
Density	No data
Relative density	1.25 at 20°C (Chlorine;15%) ;1.3, at 21.2°C (Chlorine; 24.3%)
Bulk density	No data
Solubility(ies)	Completely miscible
Solubility/qualitative	no data available
Partition coefficient: n-octanol/water	not applicable
Autoignition temperature	not applicable
Decomposition temperature	40°C, Slow decomposition
Viscosity	6.4 mPa.s
Oxidizing properties	Non oxidizer

9.2. Other information

Surface tension	82.4 mN/m 20°C (Chlorine; 24.3%)

10. STABILITY AND REACTIVITY

10.1. Chemical stability
- Stable under recommended storage conditions.
- Corrosive in contact with metals

10.2. Conditions to avoid
- Keep away from direct sunlight
- To avoid thermal decomposition, do not overheat.
- Keep away from contact with metals (Nickel, Copper, Cobalt, Aluminium, Manganese, etc.)
- Freezing

10.3. Materials to avoid
- Metals, Salts of metals, Acids, Organic materials

10.4. Hazardous decomposition products
- Risk of decomposition, Chlorine, Sodium chlorate
- Hypochlorous acid, predominant at acid pH, is 4 to 5 fold more toxic than hypochlorite ion. The release of other hazardous decomposition products is possible.

11. TOXICOLOGICAL INFORMATION

Chlorine gas produced under fire or acidic conditions is toxic by inhalation.

11.1. Acute toxicity

11.1.1. Acute oral toxicity
- LD50, rat, > 1,100 mg/kg (Chlorine)

11.1.2. Acute inhalation toxicity
- LC50, 1 h, rat, > 10.5 mg/l (Chlorine)

11.1.3. Acute dermal toxicity
- LD50, rabbit, > 20,000 mg/kg (Chlorine)

11.2. Skin corrosion/irritation-Causes severe skin burns.
- rabbit, corrosive effects

11.3. Serious eye damage/eye irritation-Causes serious eye damage
- rabbit, Severe eye irritation

11.4. Respiratory or skin sensitization-Irritating to respiratory tract.
- guinea pig, did not cause sensitization on laboratory animals.

11.5. Mutagenicity
- in vitro, Ambiguous mutagenic effect
- in vivo tests did not show mutagenic effects

11.6. Carcinogenicity
- Oral, rat, 50 mg/kg, NOAEL

11.7. Toxicity for reproduction
- Oral, rat, 5 mg/kg, Effects on fertility, NOAEL, (Chlorine)
- Oral, rat, 5.7 mg/kg, Developmental Toxicity, NOAEL, (Chlorine)

11.8. Specific target organ toxicity – single exposure
- Human experience, Remarks: May cause respiratory irritation.

11.9. Repeated dose toxicity
- Oral, 90-day, rat, 50 mg/kg, NOAEL

11.10. Other information
- Toxic effect linked with corrosive properties

12. ECOLOGICAL INFORMATION

12.1. Toxicity
- Fishes, various species, LC50, 96 h, 0.06mg/l, fresh water (active chlorine)
- Fishes, Menidia peninsulae, NOEC, 96 h, 0.04 mg/l, salt water (Chlorine)
- Fishes, various species, 96 h, 0.032 mg/l, Marine water (active chlorine)
- Crustaceans, various species, EC50, 48 h, 0.026 mg/l (Chlorine)
- Crustaceans, Daphnia magna, EC50, 48 h, 0.141 mg/l, fresh water (active chlorine)

12.2. Persistence and degradability

12.2.1. Abiotic degradation
- Water, photolysis, t ½ = 12 min
  Result: photolysis
  Conditions: pH 8
- Water, photolysis, t ½ = 60 min
  Result: photolysis
  Conditions: pH5
- Air, indirect photo-oxidation, t ½ 115 d
  Degradation products: Chlorine
- Water, Hydrolysis
  Result: Chemical degradation
  Degradation products: chlorides

12.2.2. Biodegradation
- The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential
- Does not bioaccumulate.

12.4. Mobility
- Water, Soil
  Considerable solubility and mobility
- Soil/sediments, log KOC: 1.12
  Highly mobile in soils
- Air, Henry's law constant (H), 0.076 $Pa.m^3/mol$, 20°C
  Non-significant volatility

12.5. Other adverse effects
- No data available

13. DISPOSAL CONSIDERATIONS

13.1. Waste disposal methods

- In accordance with local and national regulations.
- Reduce the product with sulphite or hydrogen peroxide.

13.2. Contaminated packaging

- Empty containers.
- Clean container with water.
- The empty and clean containers are to be reused in conformity with regulations.

14. TRANSPORT INFORMATION (<16% SOLUTION)

14.1. International transport regulations

- IATA-DGR

UN number	UN 1791
Class	8
Packing group	II
ICAO-Labels	8 - Corrosive
Proper shipping name	SODIUM HYPOCHLORITE SOLUTION

- IMDG

UN number	UN 1791
Class	8
Packing group	II
IMDG-Labels	8 - Corrosive
HI/UN No.	1791
EmS	F-A
	S-B
Remarks	Marine Pollutant
Proper shipping name	SODIUM HYPOCHLORITE SOLUTION

- ADR

UN number	UN 1791
Class	8
Packing group	II
ADR/RID-Labels	8 – Corrosive
HI/UN No.	80 / 1791
Remarks	Environmentally hazardous
Proper shipping name	SODIUM HYPOCHLORITE SOLUTION

- RID

UN number	UN 1791
Class	8
Packing group	II
ADR/RID-Labels	8 – Corrosive
HI/UN No.	80 / 1791
Remarks	Environmentally hazardous
Proper shipping name	SODIUM HYPOCHLORITE SOLUTION

- ADN

UN number	UN 1791
Class	8
Packing group	II
ADR/RID-Labels	8 – Corrosive
Remarks	Environmentally hazardous
Proper shipping name	SODIUM HYPOCHLORITE SOLUTION

15. REGULATORY INFORMATION

15.1. Applicable Laws or Regulations

- Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), as amended.
- Directive 1999/45/EC of the European Parliament and of the Council of 31 May 1999 concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations, as amended.
- Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, as amended.
- COUNCIL DIRECTIVE 96/82/EC on the control of major-accident hazards involving dangerous substances as amended.
- Council Directive 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work, as amended.
- REGULATION (EC) No 166/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 January 2006 concerning the establishment of a European Pollutant Release and Transfer Register and amending Council Directives 91/689/EEC and 96/61/EC.

- Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste.
- EH40/2005. Workplace Exposure Limits, as amended through 1,10,2007 (WELs). Published by the Health and Safety Executive (HSE). Issued under the Control of Substances Hazardous to Health Regulations – as amended.

15.2. Chemical Safety Assessment

- A Chemical Safety Assessment has been carried out for this substance.

15.3. Notification status

Inventory Information	Status
Toxic Substance Control Act list (TSCA)	- In compliance with inventory
Australian Inventory of Chemical Substances (AICS)	- In compliance with inventory
Canadian Domestic Substances List (DSL)	- In compliance with inventory
Korean Existing Chemicals Inventory (KECI (KR))	- In compliance with inventory
EU list of existing chemical substances (EINECS)	- In compliance with inventory
Japanese Existing and New Chemical Substances (MITI List) (ENCS)	- In compliance with inventory
Inventory of Existing Chemical Substances (China) (IECS)	- In compliance with inventory
Philippine Inventory of Chemicals and Chemical Substances (PICCS)	- In compliance with inventory
New Zealand Inventory of Chemicals (NZIOC)	- In compliance with inventory

16. OTHER INFORMATION

16.1. Full text of H-Statements referred to under section 3

H271	-	May cause fire or explosion; strong oxidiser.
H290	-	May be corrosive to metals.
H302	-	Harmful if swallowed.
H314	-	Causes severe skin burns and eye damage.
H318	-	Causes serious eye damage.
H319	-	Causes serious eye irritation
H335	-	May cause respiratory irritation
H400	-	Very toxic to aquatic life
H411	-	Toxic to aquatic life with long lasting effects

16.2. Full text of R-phrases referred to under sections 2 and 3

16.2.1. Full text of R-phrases referred to under section 2

R34	-	Causes burns.
R37	-	Irritating to respiratory system.
R50	-	Very toxic to aquatic organisms
R31	-	Contact with acids liberates toxic gas.

16.2.2. Full text of R-phrases referred to under section 3

R 9	-	Explosive when mixed with combustible material.
R22	-	Harmful if swallowed.
R31	-	Contact with acids liberates toxic gas
R34	-	Causes burns.
R35	-	Causes severe burns.
R36	-	Irritating to eyes.
R37	-	Irritating to respiratory system.
R50	-	Very toxic to aquatic organisms
R51/53	-	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic Environment.

16.3. Other information

Section	Revisions to Previous issue
8	Inclusion of OELV's from Irish Code of Practice-Chemical Agents. Update of information on hand protection.
14	IMDG Remark: Marine Pollutant
All	General reformatting without content change.

- Distribute new edition to clients

This SDS is only intended for the indicated country to which it is applicable. The European SDS format compliant with the applicable European legislation is not intended for use nor distribution in countries outside the European Union with the exception of Norway and Switzerland. Safety datasheets applicable in other countries/regions are available upon request. The information given corresponds to the current state of our knowledge and experience of the product, and is not exhaustive. This applies to product which conforms to the specification, unless otherwise stated. In this case of combinations and mixtures one must make sure that no new dangers can arise. In any case, the user is not exempt from observing all legal, administrative and regulatory procedures relating to the product, personal hygiene, and protection of human welfare and the environment.

CENTRAL CHEMICAL SUPPLIES LTD

SAFETY DATA SHEET
HYDROCHLORIC ACID 25-36%

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier

GHS Product Identifier HYDROCHLORIC ACID, CONCENTRATED (>25% Solution)
EC INDEX No. 017-002-01-X
Alternative names Aqueous hydrogen chloride, 25/36 % Hydrochloric acid, Muriatic acid , Hydrochloric acid solution
REACH Registration No. 01-2119484862-27-XXXX

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified use(s) Chemical intermediate, washing and cleaning agent, pH regulating agent, laboratory chemical
Uses advised against None

1.3 Details of the supplier of the safety data sheet

Supplier: Central Chemical Supplies Ltd
44 Hall Road
Donaghcloney
Craigavon
Co.Armagh
Northern Ireland
BT66 7LJ

Telephone: +(0044)2838 881936
Fax: +(0044)2838 882335
Emergency Telephone: +(0044)7872 501842
Email: info@ccsni.co.uk

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Directive 67/548/EEC & Directive 1999/45/EC C, R34: Causes burns.
Xi, R37: Irritating to respiratory system.

Regulation (EC) No. 1272/2008 (CLP) Skin Corr. 1B
STOT SE 3
Met. Corr. 1

2.2 Label elements

Hazard Statements H314: Causes severe skin burns and eye damage.
H335: May cause respiratory irritation.
H290: May be corrosive to metals.
Signal word(s) DANGER

Hazard pictogram(s)

Precautionary statement(s)
P260: Do not breathe mist/vapours/spray.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P303 + P361 + P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with
water/shower.
P304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy
to do. Continue rinsing.
P309 + P311: If exposed or if you feel unwell: Call a POISON CENTRE or doctor/physician.
Additional label requirements
None

2.3 Other hazards

SECTION 3: COMPOSITION /INFORMATION ON INGREDIENTS

3.1 Substances

Hazardous ingredient(s)	%(w/w)	CAS No.	EC No.	H - Codes
Hydrochloric acid	>25%	007647-01-0	231-595-7	H290, H314, H335,

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation Remove patient from exposure, keep warm and at rest. Administer oxygen if necessary. Apply artificial respiration if breathing has ceased or shows signs of failing. During resuscitation, care must be taken to avoid contamination by the substance from the patient.
Skin Contact SPEED IS ESSENTIAL. Drench with large quantities of water. Remove contaminated clothing. Continue to wash the affected area for at least 10 minutes.
Eye Contact SPEED IS ESSENTIAL. Immediately irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 15 minutes.
Ingestion Wash out mouth with water and give 200-300 ml (half a pint) of water to drink. Do not induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

Causes burns to skin, eyes, respiratory system and gastrointestinal tract.
May cause respiratory irritation.

4.3 Indication of any immediate medical attention and special treatment needed

SPEED IS ESSENTIAL. OBTAIN IMMEDIATE MEDICAL ATTENTION.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

Mist or vapour will cause irritation to the upper respiratory tract, coughing and choking sensation. Concentrations of 50-100ppm are barely tolerated for up to 1 hour. Higher concentrations may cause corrosion of the respiratory tract.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable Extinguishing Media As appropriate for surrounding fire. Water spray should be used to cool containers.
Unsuitable Extinguishing Media As appropriate for surrounding fire.

5.2 Special hazards arising from the substance or mixture

Non-combustible. Containers may burst if overheated.
Can react with most common metals to produce hydrogen which can form explosive mixtures with air.

5.3 Advice for fire fighters

A self contained breathing apparatus and suitable protective clothing must be worn in fire conditions.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Ensure full personal protection (including respiratory protection) during removal of spillages.

6.2 Environmental precautions

Avoid release to the environment. Prevent liquid entering sewers, basements and any watercourses.

6.3 Methods and material for containment and cleaning up

Stop leak if safe to do so. Contain spillages.
Small spillages: Neutralise small spillages with decontaminant. Wash the spillage area with water.
Large spillages: Neutralise with lime or soda ash before disposal.

6.4 Reference to other sections

See Section: 8, 13

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of mists/fumes. Provide adequate ventilation.
Atmospheric levels must be controlled in compliance with the workplace exposure limit.
Showers and eye washing equipment must be provided at handling points. Good hygiene practices and housekeeping measures.

7.2 Conditions for safe storage, including any incompatibilities

Bulk quantities should be stored in rubber lined steel or suitable plastic equipment.
Keep smaller quantities in suitable plastic or glass containers. May be corrosive to metals.
Keep container in a well-ventilated place.

7.3 Specific end use(s)

None

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

HAZARDOUS INGREDIENT(S)	CAS No.	LTEL 8 hr TWA ppm	LTEL 8 hr TWA mg/m3	STEL ppm	STEL mg/m3	Note:
Hydrogen Chloride (gas and aerosol mists)	007647-01-0	1	2	5	8	WEL

DNEL	oral	Inhalation	Dermal
Industry - Long Term - Local effects	-	8 mg/m³	-
Industry - Long Term - Systemic effects	-	-	-
Industry - Short term - Local effects	-	15 mg/m³	-
Industry - Short term - Systemic effects	-	-	-
Consumer. - Long Term - Local effects	-	-	-
Consumer. - Long Term - Systemic effects	-	-	-
Consumer. - Short term - Local effects	-	-	-
Consumer. - Short term - Systemic effects		-	-

Environment	PNEC
Aquatic Compartment (including sediment)	36 µg/l (Marine water) 36 µg/l (Fresh water) 45 µg/l (Intermittent releases) 36 µg/l sewage treatment plant
Terrestrial Compartment	-
Atmospheric Compartment	-

8.2 Exposure controls

Appropriate engineering controls
Provide adequate ventilation, including appropriate local extraction, to ensure that the occupational exposure limit is not exceeded. Atmospheric levels should be controlled in compliance with the occupational exposure limit.

Personal Protection
Eye/face protection Wear close fitting goggles or full face shield.
Skin protection Goggles or full face shield, acid resistant gloves and footwear are essential.
The following materials are suitable for protective gloves: Polychloroprene CR (0.5 mm), Nitrile rubber (0.35 mm), Butyl rubber (0.5 mm), Fluorocarbon rubber (0.4 mm), Poly(vinyl chloride) PVC (0.5 mm),
Check with protective equipment manufacturer's data.
Respiratory protection Wear suitable respiratory protective equipment if exposure to levels above the occupational exposure limit is likely. Where a cartridge/canister respirator is suitable use: Type E (EN 141)
Check with protective equipment manufacturer's data.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Form Fuming liquid.
Colour almost colourless to pale yellow
Odour characteristically pungent
Boiling Point (Deg C) 97.7 (28% HCL), 56.1 (36% HCL)
Vapour Pressure (mm Hg) 11 (28%) , 115 (36%) at 20 Deg C
Solubility (Water) soluble

Freezing Point (Deg C) -63 (28%) , -27 (36%)
Specific Gravity 1.14 (28%) , 1.18 (36%) at 15 Deg C (Water = 1 at 4 Deg C)

9.2 Other information

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity
Strong mineral acid. Reacts with - strong oxidising agents, alkalis

10.2 Chemical stability
Stable under normal conditions.

10.3 Possibility of hazardous reactions
Attacks most common metals liberating hydrogen, which can form explosive mixtures with air. Can react violently if in contact with oxidising agents, liberating chlorine. Exothermic reaction with alkalis .

10.4 Conditions to avoid
Skin Contact Aerosol or mist formation

10.5 Incompatible materials
Attacks many metals.

10.6 Hazardous decomposition products
Hydrogen chloride , chlorine , hydrogen

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
Test result / data
Acute oral toxicity No LD50 available. Will immediately cause corrosion of and damage to the gastrointestinal tract.
Acute inhalation toxicity No LC50 (4 hour) available
LC50 rat (5 min exposure to aerosol of aqueous solution) 45.6 mg/l
LC50 rat (30 min exposure to aerosol of aqueous solution) 8.3 mg/l
Acute dermal toxicity No LD50 available. The corrosive nature of the substance will predominate.
Skin irritation. Causes severe skin burns.
Serious eye damage/irritation Causes severe eye damage.
Respiratory irritation Hydrochloric acid vapour / mist will cause severe irritation to the upper respiratory tract.
Sensitisation Hydrochloric acid is not a skin sensitiser.
Repeated dose toxicity Repeated exposure to hydrochloric acid causes local corrosion or irritancy (of the gastrointestinal tract, skin, eyes or respiratory tract) but will have no effect on systemic toxicity. Repeated exposure may also cause erosion of the teeth and ulceration of the nasal septum and gums.
Germ cell mutagenicity On the basis of a weight of evidence approach, hydrochloric acid should not be classified as genotoxic as the majority of the relevant in-vitro and in-vivo mutagenicity studies were negative.
Carcinogenicity Hydrochloric acid has been shown not to be carcinogenic in animal studies.
Reproductive toxicity There is no evidence from animal studies that hydrochloric acid has any adverse effects on development or fertility.
Specific target organ toxicity — single exposure (STOT SE) Mist or vapour will cause irritation or corrosion to the upper respiratory tract, coughing and a choking sensation.
Specific target organ toxicity — repeated exposure (STOT RE) Not classified
Aspiration hazard Not an aspiration hazard

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity
Large discharges may contribute to the acidification of water and be fatal to fish and other aquatic life.
Can cause severe damage to aquatic plants.
Acute aquatic toxicity
Fish Fresh water LC50 (96 hour) 20.5 mg/l
Aquatic invertebrates: Fresh water EC50 (48 hour) (Daphnia magna) 0.45 mg/l
Algae Fresh water EC50 (72 hour) 0.73 mg/l

12.2 Persistence and degradability
Will freely dissociate to hydrogen and chloride ions.

12.3 Bio accumulative potential
Hydrochloric acid does not bioaccumulate (log Kow - 2.65)

12.4 Mobility in soil
The product is predicted to have high mobility in soil.

12.5 Results of PBT and vPvB assessment
Not classified as PBT or vPvB.

12.6 Other adverse effects
Can cause damage to vegetation

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Do not release undiluted and unneutralised to the sewer. Do not landfill unneutralised waste. Disposal of the neutralised waste at a licensed landfill site may be permissible. Consult an accredited waste disposal contractor or the local authority for advice.
Disposal should be in accordance with local, state or national legislation.

SECTION 14: TRANSPORT INFORMATION

14.1 Road/Rail
UN No. 1789
Proper Shipping Name Hydrochloric acid
ADR/RID Class 8
Packing Group II
Label. 8
Tunnel Restriction Code (E)

14.2 SEA (IMDG)
UN No. 1789
Proper Shipping Name Hydrochloric acid
IMDG Class 8
Packing Group II
Label. 8
Marine Pollutant Not classified as a Marine Pollutant.

14.3 Air (ICAO/IATA)
UN No. 1789
Proper Shipping Name Hydrochloric acid
ICAO-TI Class 8
Packing Group II

Label. 8

14.4 Additional Information
None

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Control of Substances Hazardous to Health Regulations (COSHH) 2002 SI 2002/2677 and COSHH Essentials: Easy steps to
control chemicals - Control of Substances Hazardous to Health Regulations HSG193.

Inventory Status
Listed in: European Union (EINECS/ELINCS) United States (TSCA) China (IECSC) Philippines (PICCS) Australia (AICS)
Canada (DSL/NDSL) Japan (ENCS) New Zealand Inventory (NZIoC) South Korea (KECI)

15.2 Chemical Safety Assessment
A Chemical Safety Assessment (CSA) has been completed for this substance.

SECTION 16: OTHER INFORMATION

Issued by Quality Control

Disclaimer
The information contained in this document is intended to describe the product only in terms of health, safety and environmental requirements for the purposes of its safe handling, use and disposal and is to the best of Central Chemical Supplies Limited knowledge and belief correct. Central Chemical Supplies Limited Technical Services will be pleased to give further advice and assistance, but customers must satisfy themselves (by appropriate testing if necessary) that the product is suitable for their purposes and conditions of use and that their facilities and arrangements are suitable for handling or using the product. Accordingly Central Chemical Supplies Limited disclaims any liability for loss, injury or damage which may result from the use of the product, this information or from such advice and assistance save as may be expressly agreed under its terms of sale.
This information does not comprise a technical or performance specification for the product and customers are referred to any relevant product technical information or specification issued by Central Chemical Supplies Limited.
Customers are also reminded that there may be uses or application for the product which are protected by Central Chemical Supplies Limited or third parties' patent rights and nothing herein may be construed as an authority or encouragement to use or apply the product in contravention of such rights.

SAFETY DATA SHEET
Cross Vetpharm - BIMODEX

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name Cross Vetpharm - BIMODEX

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses Acidic based Iodine disinfectant for animal hygiene.

1.3. Details of the supplier of the safety data sheet

Supplier

Cross Vetpharm Group Ltd
Broomhill Road
Tallaght
Dublin 24
Ireland
Tel: 01 451 5011
Fax: 01 451 5803
E-mail - info@bimeda.com

1.4. Emergency telephone number

Emergency telephone Cross Vetpharm - 01 451 5011 - 9am to 5pm Mon-Fri

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification

Physical hazards Not Classified

Health hazards Skin Corr. 1B - H314 Eye Dam. 1 - H318

Environmental hazards Not Classified

Classification (67/548/EEC or 1999/45/EC) C;R34.

2.2. Label elements

Pictogram

Signal word Danger

Hazard statements H314 Causes severe skin burns and eye damage.

Cross Vetpharm - BIMODEX

Precautionary statements P102 Keep out of reach of children.
P260 Do not breathe mist.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P315 Get immediate medical advice/attention.
P501 Dispose of contents/container in accordance with local regulations.

Contains SULPHURIC ACID, PHOSPHORIC ACID

2.3. Other hazards

This product does not contain any substances classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

ALCOHOL (C9-11) ETHOXYLATE (8EO) **20-25%**

CAS number: 68439-45-2

Classification	Classification (67/548/EEC or 1999/45/EC)
Acute Tox. 4 - H302 Eye Dam. 1 - H318	Xn;R22. Xi;R41.

SULPHURIC ACID **5-10%**

CAS number: 7664-93-9 EC number: 231-639-5

Classification	Classification (67/548/EEC or 1999/45/EC)
Skin Corr. 1A - H314 Eye Dam. 1 - H318	C;R35.

PHOSPHORIC ACID **5-10%**

CAS number: 7664-38-2 EC number: 231-633-2

Classification	Classification (67/548/EEC or 1999/45/EC)
Skin Corr. 1B - H314 Eye Dam. 1 - H318	C;R34

Cross Vetpharm - BIMODEX

IODINE	**1-3%**
CAS number: 7553-56-2	EC number: 231-442-4
M factor (Acute) = 1	

Classification	Classification (67/548/EEC or 1999/45/EC)
Acute Tox. 4 - H312 Acute Tox. 4 - H332 Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 STOT SE 3 - H335 Aquatic Acute 1 - H400	Xn;R20/21 N;R50

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation Unlikely route of exposure as the product does not contain volatile substances. If spray/mist has been inhaled, proceed as follows. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing.

Ingestion Do not induce vomiting. Rinse mouth thoroughly with water. Give plenty of water to drink. Get medical attention immediately.

Skin contact Wash with plenty of water. Get medical attention promptly if symptoms occur after washing.

Eye contact Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse. Get medical attention immediately.

4.2. Most important symptoms and effects, both acute and delayed

General information The severity of the symptoms described will vary dependent on the concentration and the length of exposure.

Inhalation Irritation of nose, throat and airway.

Ingestion May cause chemical burns in mouth and throat.

Skin contact Burning pain and severe corrosive skin damage. May cause serious chemical burns to the skin.

Eye contact Severe irritation, burning and tearing. Prolonged contact causes serious eye and tissue damage.

4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media The product is not flammable. Use fire-extinguishing media suitable for the surrounding fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards Thermal decomposition or combustion products may include the following substances: Irritating gases or vapours.

5.3. Advice for firefighters

Cross Vetpharm - BIMODEX

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Wear protective clothing, gloves, eye and face protection. For personal protection, see Section 8.

6.2. Environmental precautions

Environmental precautions Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Flush away spillage with plenty of water. Small Spillages: Contain and absorb spillage with sand, earth or other non-combustible material. Collect and place in suitable waste disposal containers and seal securely.

6.4. Reference to other sections

Reference to other sections For personal protection, see Section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Wear protective clothing, gloves, eye and face protection.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Keep only in the original container in a cool, well-ventilated place. Store away from the following materials: Oxidising materials.

7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

Usage description See Product Information Sheet & Label for detailed use of this product.

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

Occupational exposure limits

SULPHURIC ACID

Long-term exposure limit (8-hour TWA): WEL 0,05 mg/m³
Short-term exposure limit (15-minute): WEL

PHOSPHORIC ACID

Long-term exposure limit (8-hour TWA): WEL 1 mg/m³
Short-term exposure limit (15-minute): WEL 2 mg/m³

IODINE

Short-term exposure limit (15-minute): WEL 0.1 ppm 1.1 mg/m³
WEL = Workplace Exposure Limit

8.2. Exposure controls

Protective equipment

Cross Vetpharm - BIMODEX

Appropriate engineering controls	This product must not be handled in a confined space without adequate ventilation.
Eye/face protection	The following protection should be worn: Chemical splash goggles or face shield.
Hand protection	Wear protective gloves. Polyvinyl chloride (PVC).
Other skin and body protection	Wear appropriate clothing to prevent any possibility of skin contact.
Respiratory protection	Respiratory protection not required.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance	Liquid.
Colour	Clear. Dark brown.
Odour	Faint surfactant / Faint Iodine.
pH	pH (concentrated solution): 0
Melting point	-2°C
Initial boiling point and range	102°C @ 760 mm Hg
Flash point	Boils without flashing.
Relative density	1.170 @ 20°C
Solubility(ies)	Soluble in water.

9.2. Other information

Other information	None.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	Reacts with alkalis and generates heat.

10.2. Chemical stability

Stability	No particular stability concerns.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	See sections 10.1,10.4 & 10.5

10.4. Conditions to avoid

Conditions to avoid	Avoid exposure to high temperatures or direct sunlight.

10.5. Incompatible materials

Materials to avoid	Aluminium, Tin, Zinc and their alloys. Concentrated alkaline materials. Chlorine releasing materials will liberate toxic chlorine gas. Oxidising agents as Iodine vapour may be evolved.

10.6. Hazardous decomposition products

Hazardous decomposition products	When heated, vapours/gases hazardous to health may be formed.

SECTION 11: Toxicological information

Cross Vetpharm - BIMODEX

11.1. Information on toxicological effects

Toxicological effects Figures quoted below were from ATE (Acute Toxicity Estimate) Calculation Methods using LD50 or ATE figures provided by the raw material manufacturer.

Acute toxicity - oral

Notes (oral LD_{50}) Based on available data the classification criteria are not met.

ATE oral (mg/kg) 4,131.78307724

Acute toxicity - dermal

Notes (dermal LD_{50}) Based on available data the classification criteria are not met.

ATE dermal (mg/kg) 50,179.98560384

Acute toxicity - inhalation

Notes (inhalation LC_{50}) Based on available data the classification criteria are not met.

ATE inhalation (vapours mg/l) 387.35427484

SECTION 12: Ecological Information

Ecotoxicity The product may affect the acidity (pH) of water which may have hazardous effects on aquatic organisms.

12.1. Toxicity

Toxicity No Aquatic Toxicity Data for this product. Any data for ingredients with aquatic toxicity provided by the raw material manufacturer can be made available on request.

12.2. Persistence and degradability

Persistence and degradability The surfactant(s) contained in this product complies(comply) with the biodegradability criteria as laid down in Regulation (EC) No. 648/2004 on detergents. Data to support this assertion are held at the disposal of the competent authorities of the Member States and will be made available to them at their direct request, or at the request of a detergent manufacturer.

12.3. Bioaccumulative potential

Bioaccumulative potential The product does not contain any substances expected to be bioaccumulating.

12.4. Mobility in soil

Mobility Not known.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment This product does not contain any substances classified as PBT or vPvB.

12.6. Other adverse effects

Other adverse effects Not known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal methods Discharge used solutions to drain. Small amounts (less than 5 Litres) of unwanted product may be flushed with water to sewer. Larger volumes must be sent for disposal as special waste. Rinse out empty container with water and consign to normal waste.

SECTION 14: Transport information

14.1. UN number

Cross Vetpharm - BIMODEX

UN No. (ADR/RID)	3264
UN No. (IMDG)	3264
UN No. (ICAO)	3264

14.2. UN proper shipping name

Proper shipping name (ADR/RID)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (sulphuric acid & phosphoric acid solution)
Proper shipping name (IMDG)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (sulphuric acid & phosphoric acid solution)
Proper shipping name (ICAO)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (sulphuric acid & phosphoric acid solution)
Proper shipping name (ADN)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (sulphuric acid & phosphoric acid solution)

14.3. Transport hazard class(es)

ADR/RID class	Class 8 : Corrosive Substances.
ADR/RID label	8
IMDG class	Class 8: Corrosive substances.
ICAO class/division	Class 8: Corrosive substances.

Transport labels

14.4. Packing group

ADR/RID packing group	II
IMDG packing group	II
ICAO packing group	II

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

No.

14.6. Special precautions for user

EmS	F-A, S-B
Tunnel restriction code	(E)

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not relevant. for a packaged product.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Cross Vetpharm - BIMODEX

EU legislation	Safety Data Sheet prepared in accordance with REACH Commission Regulation (EU) No 453/2010 (which amends Regulation (EC) No 1907/2006). The product is as classified under GHS/CLP- Regulation (EC) No 1272/2008 classification, labelling & packaging of substances & mixtures. Ingredients are listed with classification under both CHIP - Directive 67/548/EEC - classification, packaging & labelling of dangerous substances & GHS/CLP- Regulation (EC) No 1272/2008 classification, labelling & packaging of substances & mixtures.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out as not applicable as this product is a mixture.

SECTION 16: Other information

Key literature references and sources for data	Material Safety Data Sheet, Misc. manufacturers. CLP Class - Table 3.1 List of harmonised classification and labeling of hazardous substances. CHIP Class - Table 3.2 The list of harmonised classification and labelling of hazardous substances from Annex I to Directive 67/548/EEC. ECHA - C&L Inventory database.
Revision comments	New product.
Revision date	01/07/2015
Revision	Issue 1
SDS number	20727
SDS status	The Risk Phrases / Hazard Statements listed below in this Section No 16 relate to the Raw Materials (Ingredients) in the Product (as listed in Section 3) and NOT the product itself. For the Risk Phrases / Hazard Statements relating to this Product see Section 2.
Risk phrases in full	R20/21 Harmful by inhalation and in contact with skin. R22 Harmful if swallowed. R34 Causes burns. R35 Causes severe burns. R41 Risk of serious damage to eyes. R50 Very toxic to aquatic organisms.
Hazard statements in full	H302 Harmful if swallowed. H312 Harmful in contact with skin. H314 Causes severe skin burns and eye damage. H315 Causes skin irritation. H318 Causes serious eye damage. H319 Causes serious eye irritation. H332 Harmful if inhaled. H335 May cause respiratory irritation. H400 Very toxic to aquatic life.

Hyperox®

Version 3.0
Revision Date 02.03.2010 Ref.130000033587

This SDS adheres to the standards and regulatory requirements of Great Britain and may not meet the regulatory requirements in other countries.

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product information

Product name	:	Hyperox®
Use of the Substance/Mixture	:	Disinfectant
Company	:	Antec International Limited Windham Road Chilton Industrial Estate Sudbury / Suffolk - CO10 2XD United Kingdom
Telephone	:	+44(0)1787 377 305
Telefax	:	+44(0)1787 310 846
Emergency telephone	:	+44-(0)8456-006.640
E-mail address	:	sds-support@che.dupont.com
Remarks	:	Antec International Limited is a wholly owned subsidiary of Dupont (UK) Ltd.

2. HAZARDS IDENTIFICATION

Contact with combustible material may cause fire.
Also harmful by inhalation, in contact with skin and if swallowed.
Causes burns.
Inhalation of aerosol or fine spray mist may cause serious respiratory problems.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature of the mixture : Aqueous solution

Chemical Name	CAS-No.	EC-No.	Classification	Concentration [%]
Peracetic acid	79-21-0	201-186-8	R10 O; R 7 Xn; R20/21/22 C; R35 N; R50	3 - 8
Hydrogen peroxide	7722-84-1	231-765-0	R 5 O; R 8 C; R35 Xn; R20/22	20 - 30

Acetic acid	64-19-7	200-580-7	R10 C; R35	3 - 8
Poly(acrolein/acrylic acid)	28349-72-6		Xi; R41	1 - 5

For the full text of the R-phrases mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

General advice : Keep upper body upright Never give anything by mouth to an unconscious person. When symptoms persist or in all cases of doubt seek medical advice.

Inhalation : Move to fresh air. If victim has stopped breathing: Artificial respiration and/or oxygen may be necessary. Call a physician immediately.

Skin contact : Wash off immediately with plenty of water. Take off contaminated clothing and shoes immediately. Consult a physician.

Eye contact : Remove contact lenses. Rinse thoroughly with plenty of water, also under the eyelids. Keep eye wide open while rinsing. Seek medical advice.

Ingestion : Do NOT induce vomiting. Rinse mouth. Drink 1 or 2 glasses of water. Call a physician immediately.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Foam, Dry powder, Water spray,

Extinguishing media which shall not be used for safety reasons : Carbon dioxide (CO2),

Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.

Special protective equipment for fire-fighters : Wear self-contained breathing apparatus and protective suit.

Further information : Use water spray to cool unopened containers. Prevent fire extinguishing water from contaminating surface water or the ground water system.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions : Evacuate personnel to safe areas. Wear personal protective equipment.

Environmental precautions : Do not contaminate surface water. Do not let product enter drains.

Methods for cleaning up : Clean-up methods - large spillage Clean contaminated surface thoroughly. To clean the floor and all objects contaminated by this material, use plenty of water. Soak up with inert absorbent material. Shovel into suitable container for

disposal.

Clean-up methods - small spillage Dilute with plenty of water. Flush away traces with water. Soak up with inert absorbent material and dispose of as hazardous waste. Shovel into suitable container for disposal.

Additional advice : Dispose of in accordance with local regulations.

7. HANDLING AND STORAGE

Handling

Advice on safe handling : For personal protection see section 8. Avoid contact with skin, eyes and clothing. Check packages regularly for any signs of deformation, pressure build-up leakage or temperature rise. Do not breathe vapour. Avoid formation of respirable particles.

Advice on protection against fire and explosion : Keep away from direct sunlight.

Storage

Requirements for storage areas and containers : Protect from contamination. Keep in original, vented container. When stacking, do not block cap vent. Keep in a dry, cool place.

Advice on common storage : Keep away from oxidising agents, strongly alkaline and strongly acid materials in order to avoid exothermic reactions.

Keep away from: Strong bases Combustible material

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Type Form of exposure	Control parameters	Update	Basis
Hydrogen peroxide	7722-84-1	TWA	1,4 mg/m3 1 ppm	2007	EH40 WEL
		STEL	2,8 mg/m3 2 ppm	2007	EH40 WEL
Acetic acid	64-19-7	TWA	25 mg/m3 10 ppm	2001	EH40 OES
		STEL	37 mg/m3 15 ppm	2001	EH40 OES

		TWA	25 mg/m3 10 ppm	02 2006	EU ELV

Engineering measures

Provide local exhaust ventilation when handling material in bulk. acid resisting floor Jointless smooth floor Use an airless flow type of spray applicator. Keep spraying pressure below 4.1 bar (410 kPa).

Personal protective equipment

Respiratory protection	:	In the case of dust or aerosol formation use respirator with an approved filter.
Hand protection	:	Rubber gloves, Neoprene gloves, Polyvinyl chloride - PVC
Eye protection	:	Tightly fitting safety goggles Face-shield
Skin and body protection	:	Wear as appropriate: Complete suit protecting against chemicals Rubber or plastic boots
Hygiene measures	:	Wash hands before breaks and immediately after handling the product. Regular cleaning of equipment, work area and clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	:	liquid,
Colour	:	colourless,
Odour	:	stinging,
pH	:	1 at (20 °C)
Melting point/range	:	ca. -61 - -60 °C
Boiling point/boiling range	:	> 60 °C estimated
Flash point	:	> 96 °C , Method: No information available. estimated
Ignition temperature	:	ca.430 °C
Self-Accelerating decomposition temperature (SADT)	:	45 °C
Vapour pressure	:	27 hPa at 20 °C, estimated
Density	:	ca. 1,12 g/cm3 at 20 °C

Water solubility	:	, completely miscible

10. STABILITY AND REACTIVITY

Conditions to avoid	:	Exposure to sunlight. Heat.
Materials to avoid	:	Metals, Contamination, Reducing agents, Bases, Powdered metal salts, Combustible material, Flammable materials, organic solvent
Hazardous decomposition products	:	Acetic acid
Hazardous reactions	:	Potential for exothermic hazard If contaminated with impurities or incompatible substances, self-accelerated exothermic decomposition may occur. Decomposition in confined spaces and pipes may lead to over-pressure and bursting. Heating can release hazardous gases. Oxygen formation is possible. Decomposes on heating.

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity	:	LD50/ ratfemale: 1 859 mg/kg
Acute inhalation toxicity	:	ALC/ rat : 0,49 mg/l
Acute dermal toxicity	:	LD50/ rat 1 147 mg/kg
Skin irritation	:	rabbit Classification: Corrosive Method: OECD Test Guideline 404
Eye irritation	:	rabbit Result: Corrosive
Sensitisation	:	Buehler Test guinea pig Result: Animal test did not cause sensitization by skin contact.
Repeated dose toxicity	:	Oral rat, Exposure time: 90 d, Method: OECD Test Guideline 408
Human experience	:	Excessive exposures may affect human health, as follows: Inhalation ***Upper respiratory tract***: Cough, Damage, Severe shortness of breath Skin contact ***Skin***: Damage, Corrosion Eye contact ***Eyes***: Damage, Corrosion

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)

Biodegradability : Readily biodegradable.

Ecotoxicity effects

Toxicity to fish : LC50/ 96 h/ Oncorhynchus mykiss (rainbow trout) :: 1 - 2 mg/l

Toxicity to algae : / IC50/ 120 h/ Scenedesmus capricornutum (fresh water algae): ca. 0,18 mg/l
Method: US EPA Test Guideline OPP 122-2 & 123-2

Toxicity to daphnia : / EC50/ 48 h/ Daphnia: 0,5 - 1,1 mg/l
Method: OECD Test Guideline 202

Chronic toxicity to aquatic Invertebrates : / NOEC/ 21 d/ Daphnia magna (Water flea): 0,05 mg/l

Further information on ecology

Adsorbed organic bound halogens (AOX) : Product does not contain any organic halogens.

13. DISPOSAL CONSIDERATIONS

Product : Dispose of as special waste in compliance with local and national regulations.
The product should not be allowed to enter drains, water courses or the soil.

Contaminated packaging : If recycling is not practicable, dispose of in compliance with local regulations.

14. TRANSPORT INFORMATION

ADR

Class:	5.1
Packaging group:	II
Classification Code:	OC1
HI No::	58
UN-Number:	3149
Labelling No.:	5.1, 8
Proper shipping name:	Hydrogen peroxide and peroxyacetic acid mixture, stabilized

IATA_C

Class:	5.1
Packaging group:	II
UN-Number:	3149
Labelling No.:	5.1, 8
Proper shipping name:	Hydrogen peroxide and peroxyacetic acid mixture, stabilized

IMDG

Class:	5.1
Packaging group:	II
UN-Number:	3149

Labelling No.: 5.1, 8
Proper shipping name: Hydrogen peroxide and peroxyacetic acid mixture, stabilized

15. REGULATORY INFORMATION

Labelling according to EC Directives

Symbol(s)	:	C	Corrosive
		O	Oxidising

Hazardous components: Hydrogen peroxide
Peracetic acid

R-phrase(s)	:	R 8	Contact with combustible material may cause fire.
		R20/21/22	Also harmful by inhalation, in contact with skin and if swallowed.
		R34	Causes burns.

S-phrase(s)	:	S 3/7	Keep container tightly closed in a cool place.
		S14	Keep away from easily oxidizable materials.
		S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
		S28	After contact with skin, wash immediately with plenty of water.
		S35	This material and its container must be disposed of in a safe way.
		S36/37/39	Wear suitable protective clothing, gloves and eye/face protection.
		S45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Special labelling of certain mixtures : Spray application: Do not breathe vapours or spray mist. Use only in well-ventilated areas. Do not spray on a naked flame or any other incandescent material. Use an airless flow type spray applicator. Keep spraying pressure below 4.1 bar (410 kPa). Before use, read DuPont's safety information.

16. OTHER INFORMATION

Text of R-phrases mentioned in Section 3

R 5	Heating may cause an explosion.
R 7	May cause fire.
R 8	Contact with combustible material may cause fire.
R10	Flammable.
R20/21/22	Harmful by inhalation, in contact with skin and if swallowed.
R20/22	Harmful by inhalation and if swallowed.
R35	Causes severe burns.
R41	Risk of serious damage to eyes.
R50	Very toxic to aquatic organisms.

Significant change from previous version is denoted with a double bar.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The above information relates only to the specific material(s) designated herein and may not be valid for such material(s) used in combination with any other materials or in any process or if the material is altered or processed, unless specified in the text.

SAFETY DATA SHEET
AGITAN DF 6338

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name AGITAN DF 6338

Product number 11028

Synonyms; trade names RHODOLINE DF 6338, BEVALOID 6338

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses Antifoam

1.3. Details of the supplier of the safety data sheet

Supplier

Univar
536 Grants Crescent
Greenougue Industrial Estate
Rathcoole
Co Dublin
sds@univar.com
+353 1 401 9800
+353 1 401 9142

1.4. Emergency telephone number

Emergency telephone SGS - +32 (0)3 575 55 55 (24h)

Sds No. 11028

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC/1272/2008)

Physical hazards Not Classified

Health hazards Skin Irrit. 2 - H315 Eye Dam. 1 - H318

Environmental hazards Aquatic Chronic 3 - H412

Classification (67/548/EEC or 1999/45/EC) Xi; R41, R38. R52/53

2.2. Label elements

Pictogram

Signal word Danger

AGITAN DF 6338

Hazard statements

H315 Causes skin irritation.
H318 Causes serious eye damage.
H412 Harmful to aquatic life with long lasting effects.
EUH208 Contains 5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE [EC NO. 247-500-7] & 2-METHYL-2H -ISOTHIAZOL-3-ONE [EC NO. 220-239-6] (3:1). May produce an allergic reaction.

Precautionary statements

P264 Wash contaminated skin thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P302+P352 IF ON SKIN: Wash with plenty of water.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER/ doctor.
P501 Dispose of contents/ container in accordance with national regulations.

Contains

NONYLPHENOL, ETHOXYLATED

2.3. Other hazards

This substance is not classified as PBT or vPvB according to current EU criteria.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

NONYLPHENOL, ETHOXYLATED **10-30%**

CAS number: 9016-45-9

Classification
Acute Tox. 4 - H302
Skin Irrit. 2 - H315
Eye Dam. 1 - H318
Aquatic Chronic 2 - H411

BRONOPOL (INN) **<0.1%**

CAS number: 52-51-7 EC number: 200-143-0

M factor (Acute) = 10

Classification
Acute Tox. 4 - H302
Acute Tox. 4 - H312
Skin Irrit. 2 - H315
Eye Dam. 1 - H318
STOT SE 3 - H335
Aquatic Acute 1 - H400
Aquatic Chronic 2 - H411

Classification (67/548/EEC or 1999/45/EC)
Xn; R21/22. Xi; R41, R37/38. N; R50, R51/53

AGITAN DF 6338

5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE [EC NO. 247-500-7] & 2-METHYL-2H -ISOTHIAZOL-3-ONE [EC NO. 220-239-6] (3:1)	**<0.1%**
CAS number: 55965-84-9	EC number: 611-341-5
M factor (Acute) = 10	M factor (Chronic) = 1

Classification	Classification (67/548/EEC or 1999/45/EC)
Acute Tox. 3 - H301 Acute Tox. 3 - H311 Acute Tox. 3 - H331 Skin Corr. 1B - H314 Skin Sens. 1 - H317 Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410	T; R23/24/25. C; R34. N; R50/53. R43

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

Composition comments The data shown are in accordance with the latest EC Directives.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation Move affected person to fresh air at once. Rinse nose and mouth with water. Get medical attention if any discomfort continues.

Ingestion Rinse mouth thoroughly with water. Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs. Get medical attention if any discomfort continues.

Skin contact Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if any discomfort continues.

Eye contact Remove any contact lenses and open eyelids wide apart. Rinse immediately with plenty of water. Continue to rinse for at least 15 minutes. Get medical attention immediately. Continue to rinse.

4.2. Most important symptoms and effects, both acute and delayed

Skin contact Irritating to skin. The product contains a small amount of sensitising substance. May cause an allergic skin reaction.

Eye contact Causes serious eye damage. May cause permanent damage if eye is not immediately irrigated.

4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

AGITAN DF 6338

5.3. Advice for firefighters

Protective actions during firefighting Contain and collect extinguishing water.

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Take care as floors and other surfaces may become slippery. Follow precautions for safe handling described in this safety data sheet. Avoid inhalation of vapours and contact with skin and eyes. Provide adequate ventilation.

6.2. Environmental precautions

Environmental precautions Avoid discharge into water courses or onto the ground. Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Collect with absorbent, non-combustible material into suitable containers. Collect spillage in containers, seal securely and deliver for disposal according to local regulations.

6.4. Reference to other sections

Reference to other sections For personal protection, see Section 8. For waste disposal, see Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Avoid inhalation of vapours and contact with skin and eyes. Avoid heat, flames and other sources of ignition. Provide adequate ventilation.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Store in tightly-closed, original container in a dry and cool place. Avoid contact with oxidising agents. Avoid freezing.

7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

Ingredient comments No exposure limits known for ingredient(s).

BRONOPOL (INN) (CAS: 52-51-7)

Ingredient comments No exposure limits known for ingredient(s).

8.2. Exposure controls

Protective equipment

AGITAN DF 6338

Appropriate engineering controls	Provide adequate ventilation. Provide eyewash station and safety shower.
Eye/face protection	Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Unless the assessment indicates a higher degree of protection is required, the following protection should be worn: Wear chemical splash goggles. EN 166
Hand protection	Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. It is recommended that gloves are made of the following material: Polyvinyl chloride (PVC). EN 374
Other skin and body protection	Wear appropriate clothing to prevent any possibility of liquid contact and repeated or prolonged vapour contact.
Hygiene measures	Wash hands at the end of each work shift and before eating, smoking and using the toilet. When using do not eat, drink or smoke. Take off immediately all contaminated clothing and wash it before reuse.
Respiratory protection	If ventilation is inadequate, suitable respiratory protection must be worn. EN 136/140/145/143/149

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance	Liquid.
Colour	White.
Odour	Slight.
pH	pH (diluted solution): ~7.5 @ 20g/l
Initial boiling point and range	~100°C @ 760 mm Hg
Flash point	Data lacking.
Upper/lower flammability or explosive limits	Data lacking.
Vapour pressure	Data lacking.
Relative density	~1 @ 20°C
Solubility(ies)	Dispersible in water.
Auto-ignition temperature	Data lacking.
Viscosity	~1500 mPa s @ 20°C
Explosive properties	Not considered to be explosive.
Oxidising properties	Data lacking.

9.2. Other information

Other information	No information required.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	No test data specifically related to reactivity available for this product or its ingredients.

10.2. Chemical stability

AGITAN DF 6338

Stability Stable at normal ambient temperatures and when used as recommended.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None known.

10.4. Conditions to avoid

Conditions to avoid Avoid heat, flames and other sources of ignition. Avoid freezing.

10.5. Incompatible materials

Materials to avoid Oxidising agents.

10.6. Hazardous decomposition products

Hazardous decomposition products Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicological effects No information available.

Acute toxicity - oral

ATE oral (mg/kg) 2,500.0

Skin corrosion/irritation

Animal data Irritating to skin.

Serious eye damage/irritation

Serious eye damage/irritation Causes serious eye damage.

Respiratory sensitisation

Respiratory sensitisation Based on available data the classification criteria are not met.

Skin sensitisation

Skin sensitisation Based on available data the classification criteria are not met.

Germ cell mutagenicity

Genotoxicity - in vitro Based on available data the classification criteria are not met.

Carcinogenicity

Carcinogenicity Based on available data the classification criteria are not met.

Reproductive toxicity

Reproductive toxicity - fertility Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure

STOT - single exposure Based on available data the classification criteria are not met.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Based on available data the classification criteria are not met.

Aspiration hazard

Aspiration hazard Based on available data the classification criteria are not met.

Inhalation Gas or vapour in high concentrations may irritate the respiratory system.

Ingestion May cause discomfort if swallowed.

AGITAN DF 6338

Skin contact Irritating to skin. The product contains a small amount of sensitising substance. May cause an allergic skin reaction.

Eye contact Causes serious eye damage.

Toxicological information on ingredients.

NONYLPHENOL, ETHOXYLATED

Acute toxicity - oral

Notes (oral LD_{50})	LD_{50} >2000 mg/kg, Oral, Rat
ATE oral (mg/kg)	500.0

BRONOPOL (INN)

Acute toxicity - oral

Acute toxicity oral (LD_{50} mg/kg)	307.0
Species	Rat
ATE oral (mg/kg)	307.0

Acute toxicity - dermal

ATE dermal (mg/kg)	1,100.0

Skin corrosion/irritation

Animal data	Irritating to skin.

Serious eye damage/irritation

Serious eye damage/irritation	Causes serious eye damage.

Respiratory sensitisation

Respiratory sensitisation	Data lacking.

Skin sensitisation

Skin sensitisation	Data lacking.

Germ cell mutagenicity

Genotoxicity - in vitro	Data lacking.

Carcinogenicity

Carcinogenicity	Data lacking.

Reproductive toxicity

Reproductive toxicity - fertility	Data lacking.

Specific target organ toxicity - single exposure

STOT - single exposure	May cause respiratory irritation.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure	Data lacking.

Aspiration hazard

Aspiration hazard	Data lacking.

AGITAN DF 6338

Inhalation	May cause respiratory system irritation.
Ingestion	Harmful if swallowed.
Skin contact	Harmful in contact with skin. Irritating to skin.
Eye contact	Causes serious eye damage.

SECTION 12: Ecological Information

Ecotoxicity Harmful to aquatic life with long lasting effects.

Ecological information on ingredients.

BRONOPOL (INN)

Ecotoxicity	The product contains a substance which is very toxic to aquatic organisms.

12.1. Toxicity

Acute toxicity - fish No information available.

Ecological information on ingredients.

BRONOPOL (INN)

Toxicity	Very toxic to aquatic organisms.
Acute aquatic toxicity	
LE(C)$_{50}$	0.01 < L(E)C50 ≤ 0.1
M factor (Acute)	10
Acute toxicity - fish	LC50, 96 hours: 11 mg/l, Lepomis macrochirus (Bluegill)
Acute toxicity - aquatic invertebrates	EC_{50}, 48 hours: 1.4 mg/l, Daphnia magna
Acute toxicity - aquatic plants	EC_{50}, 72 hours: 0.020 mg/l, Scenedesmus subspicatus

12.2. Persistence and degradability

Persistence and degradability The product is moderately biodegradable.

Ecological information on ingredients.

BRONOPOL (INN)

Persistence and degradability	The product is not expected to be biodegradable.
Biodegradation	- Degradation (%) 51 - 57: 28 days

12.3. Bioaccumulative potential

Bioaccumulative potential No data available on bioaccumulation.

Ecological information on ingredients.

BRONOPOL (INN)

AGITAN DF 6338

Bioaccumulative potential May accumulate in soil and water systems. BCF: 3.6,

Partition coefficient : -0.64

12.4. Mobility in soil

Mobility No information available.

Ecological information on ingredients.

BRONOPOL (INN)

Mobility The product is soluble in water.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current EU criteria.

Ecological information on ingredients.

BRONOPOL (INN)

Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current EU criteria.

12.6. Other adverse effects

Other adverse effects No data recorded.

Ecological information on ingredients.

BRONOPOL (INN)

Other adverse effects Not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information Waste is classified as hazardous waste. Do not puncture or incinerate, even when empty.

Disposal methods Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

SECTION 14: Transport information

General The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.1. UN number

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

No transport warning sign required.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

AGITAN DF 6338

Environmentally hazardous substance/marine pollutant
No.

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU legislation	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended). Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended). COMMISSION REGULATION (EU) 2015/830 of 28 May 2015.
Authorisations (Title VII Regulation 1907/2006)	This product is/contains a substance that is included in REGULATION (EC) No 1907/2006 (REACH) ANNEX XVII - RESTRICTIONS ON THE MANUFACTURE, PLACING ON THE MARKET AND USE OF CERTAIN DANGEROUS SUBSTANCES, MIXTURES AND ARTICLES. Entry number: 46a
Restrictions (Title VIII Regulation 1907/2006)	Nonylphenol: 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations (nonylphenol, nonylphenol ethoxylate and cement) Regulation (EC) 689/2008 of the European Parliament and of the Council of 17 June 2008 concerning the export and import of dangerous chemicals (as amended).

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

AGITAN DF 6338

Abbreviations and acronyms used in the safety data sheet

ATE: Acute Toxicity Estimate.
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
CAS: Chemical Abstracts Service.
DNEL: Derived No Effect Level.
IATA: International Air Transport Association.
IMDG: International Maritime Dangerous Goods.
Kow: Octanol-water partition coefficient.
LC_{50}: Lethal Concentration to 50 % of a test population.
LD_{50}: Lethal Dose to 50% of a test population (Median Lethal Dose).
PBT: Persistent, Bioaccumulative and Toxic substance.
PNEC: Predicted No Effect Concentration.
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006.
RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
vPvB: Very Persistent and Very Bioaccumulative.
IARC: International Agency for Research on Cancer.
MARPOL 73/78: International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978.
cATpE: Converted Acute Toxicity Point Estimate.
BCF: Bioconcentration Factor.
BOD: Biochemical Oxygen Demand.
EC_{50}: 50% of maximal Effective Concentration.
LOAEC: Lowest Observed Adverse Effect Concentration.
LOAEL: Lowest Observed Adverse Effect Level.
NOAEC: No Observed Adverse Effect Concentration.
NOAEL: No Observed Adverse Effect Level.
NOEC: No Observed Effect Concentration.
LOEC: Lowest Observed Effect Concentration.
DMEL: Derived Minimal Effect Level.
EL50: Exposure Limit 50
hPa: Hectopascal
LL50: Lethal Loading fifty
OECD: Organisation for Economic Co-operation and Development
POW: Octanol-water partition coefficient
SCBA: self-contained breathing apparatus
STP: Sewage Treatment Plant
VOC: Volatile Organic Compounds

Classification abbreviations and acronyms

Acute Tox. = Acute toxicity
Aquatic Acute = Hazardous to the aquatic environment (acute)
Aquatic Chronic = Hazardous to the aquatic environment (chronic)

Key literature references and sources for data

Supplier's information.

Revision comments

NOTE: Lines within the margin indicate significant changes from the previous revision.

Revision date

22/12/2016

Revision

05

Supersedes date

11/03/2008

SDS number

11028

AGITAN DF 6338

Version number	2.000
SDS status	Approved.
Signature	K Winter
Risk phrases in full	R21/22 Harmful in contact with skin and if swallowed. R23/24/25 Toxic by inhalation, in contact with skin and if swallowed. R34 Causes burns. R37/38 Irritating to respiratory system and skin. R38 Irritating to skin. R41 Risk of serious damage to eyes. R43 May cause sensitisation by skin contact. R50 Very toxic to aquatic organisms. R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Hazard statements in full	H301 Toxic if swallowed. H302 Harmful if swallowed. H311 Toxic in contact with skin. H312 Harmful in contact with skin. H314 Causes severe skin burns and eye damage. H315 Causes skin irritation. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H331 Toxic if inhaled. H335 May cause respiratory irritation. H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects. H411 Toxic to aquatic life with long lasting effects. H412 Harmful to aquatic life with long lasting effects. EUH208 Contains 5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE [EC NO. 247-500-7] & 2-METHYL-2H -ISOTHIAZOL-3-ONE [EC NO. 220-239-6] (3:1). May produce an allergic reaction.

We create chemistry

Safety data sheet

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Lutropur® MSA

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: chemical for the chemical industry

For the detailed identified uses of the product see appendix of the safety data sheet.

1.3. Details of the supplier of the safety data sheet

Company:
BASF SE
67056 Ludwigshafen
GERMANY

Contact address:
BASF plc
PO Box 4, Earl Road, Cheadle Hulme,
Cheadle, Cheshire
SK8 6QG, UNITED KINGDOM

Telephone: +44 161 485-6222
E-mail address: product-safety-north@basf.com

1.4. Emergency telephone number

International emergency number:
Telephone: +49 180 2273-112

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

According to Regulation (EC) No 1272/2008 [CLP]

Met. Corr. 1

Acute Tox. 4 (oral)
Acute Tox. 4 (dermal)
Skin Corr./Irrit. 1B
Eye Dam./Irrit. 1
STOT SE 3 (irritating to respiratory system)

H290, H312, H302, H335, H314

For the classifications not written out in full in this section the full text can be found in section 16.

2.2. Label elements

According to Regulation (EC) No 1272/2008 [CLP]

Pictogram:

Signal Word:
Danger

Hazard Statement:

H290	May be corrosive to metals.
H312	Harmful in contact with skin.
H302	Harmful if swallowed.
H335	May cause respiratory irritation.
H314	Causes severe skin burns and eye damage.

Precautionary Statements (Prevention):

P280	Wear protective gloves/protective clothing/eye protection/face protection.
P271	Use only outdoors or in a well-ventilated area.
P260	Do not breathe dust or mist.
P270	Do not eat, drink or smoke when using this product.
P264	Wash with plenty of water and soap thoroughly after handling.
P234	Keep only in original container.

Precautionary Statements (Response):

P310	Immediately call a POISON CENTER or doctor/physician.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P301 + P330 + P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P361 + P364	Take off immediately all contaminated clothing and wash it before reuse.
P390	Absorb spillage to prevent material damage.

Precautionary Statements (Storage):

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P406	Store in corrosive resistant/… container with a resistant inner liner.

Precautionary Statements (Disposal):

P501	Dispose of contents/container to hazardous or special waste collection point.

According to Regulation (EC) No 1272/2008 [CLP]

Hazard determining component(s) for labelling: METHANESULPHONIC ACID

2.3. Other hazards

According to Regulation (EC) No 1272/2008 [CLP]

No specific dangers known, if the regulations/notes for storage and handling are considered.

SECTION 3: Composition/Information on Ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Chemical nature

methanesulphonic acid, in water

Hazardous ingredients (GHS)
according to Regulation (EC) No. 1272/2008

methanesulphonic acid

Content (W/W): >= 50 % - < 75 %	Met. Corr. 1
CAS Number: 75-75-2	Acute Tox. 4 (oral)
EC-Number: 200-898-6	Acute Tox. 4 (dermal)
REACH registration number: 01-2119491166-34	Skin Corr./Irrit. 1B
INDEX-Number: 607-145-00-4	Eye Dam./Irrit. 1
	STOT SE 3 (irr. to respiratory syst.)
	H290, H312, H302, H335, H314

For the classifications not written out in full in this section, including the hazard classes and the hazard statements, the full text is listed in section 16.

SECTION 4: First-Aid Measures

4.1. Description of first aid measures

First aid personnel should pay attention to their own safety. If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position). Immediately remove contaminated clothing.

If inhaled:
Keep patient calm, remove to fresh air, seek medical attention. Immediately administer a corticosteroid from a controlled/metered dose inhaler.

On skin contact:
Immediately wash thoroughly with plenty of water, apply sterile dressings, consult a skin specialist.

On contact with eyes:
Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

On ingestion:
Do not induce vomiting. Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Further important symptoms and effects are so far not known.

4.3. Indication of any immediate medical attention and special treatment needed

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

SECTION 5: Fire-Fighting Measures

5.1. Extinguishing media

Suitable extinguishing media:
water spray, dry powder, foam

Unsuitable extinguishing media for safety reasons:
water jet

5.2. Special hazards arising from the substance or mixture
harmful vapours, carbon oxides
Evolution of fumes/fog. The substances/groups of substances mentioned can be released in case of fire.

5.3. Advice for fire-fighters
Special protective equipment:
Wear a self-contained breathing apparatus.

Further information:
The degree of risk is governed by the burning substance and the fire conditions. Contaminated extinguishing water must be disposed of in accordance with official regulations.

SECTION 6: Accidental Release Measures

High risk of slipping due to leakage/spillage of product.

6.1. Personal precautions, protective equipment and emergency procedures
Use personal protective clothing. Information regarding personal protective measures see, section 8.

6.2. Environmental precautions
Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

Do not allow contamination of public drains or surface or ground waters. Inform local water plc if spillage enters drains and the Environment Agency (England & Wales), the Scottish Environmental Protection Agency (Scotland), or the Environment and Heritage Service (Northern Ireland) if it enters surface or ground waters. Keep people and animals away.

6.3. Methods and material for containment and cleaning up
For large amounts: Dike spillage. Pump off product.
For residues: Pick up with suitable absorbent material.
Dispose of absorbed material in accordance with regulations.

6.4. Reference to other sections
Information regarding exposure controls/personal protection and disposal considerations can be found in section 8 and 13.

SECTION 7: Handling and Storage

7.1. Precautions for safe handling
No special measures necessary provided product is used correctly.

Protection against fire and explosion:
Take precautionary measures against static discharges.

7.2. Conditions for safe storage, including any incompatibilities
Further information on storage conditions: Keep container tightly closed and dry; store in a cool place.

7.3. Specific end use(s)
For the relevant identified use(s) listed in Section 1 the advice mentioned in this section 7 is to be observed.

SECTION 8: Exposure Controls/Personal Protection

8.1. Control parameters

Components with occupational exposure limits

No occupational exposure limits known.

PNEC
freshwater: 0.012 mg/l

marine water: 0.0012 mg/l

intermittent release: 0.12 mg/l

sediment (freshwater): 0.0251 mg/kg

soil: 0.00183 mg/kg

STP: 100 mg/l

DNEL
worker:
Long-term exposure - local effects, Inhalation: 2.89 mg/m3

worker:
Long-term exposure- systemic effects, dermal: 19.44 mg/kg

consumer:
Long-term exposure- systemic effects, Inhalation: 1.44 mg/m3

consumer:
Short-term exposure - systemic effects, Inhalation: 1.44 mg/m3

consumer:
Long-term exposure- systemic effects, dermal: 8.33 mg/kg

8.2. Exposure controls

Personal protective equipment

Respiratory protection:
Respiratory protection in case of vapour/aerosol release. Particle filter with medium efficiency for solid and liquid particles (e.g. EN 143 or 149, Type P2 or FFP2)

Hand protection:
Chemical resistant protective gloves (EN 374)
Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN 374):
polyvinylchloride (PVC) - 0.7 mm coating thickness
butyl rubber (butyl) - 0.7 mm coating thickness
fluoroelastomer (Viton)
Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing.
Manufacturer's directions for use should be observed because of great diversity of types.

Eye protection:
Tightly fitting safety goggles (cage goggles) (e.g. EN 166) and face shield.

Body protection:
Body protection must be chosen based on level of activity and exposure., acid- resp. lye-proof apron, e.g. of rubber (f.e. according to EN 14605), protection boots, f.e. of rubber (e.g. according to EN 20346), acid-proof chemical protection suit (f.e. according to EN 14605)

General safety and hygiene measures
No eating, drinking, smoking or tobacco use at the place of work. Handle in accordance with good industrial hygiene and safety practice. Personal protective equipment should be decontaminated prior to reuse.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Form:	liquid
Colour:	colourless
Odour:	product specific
Odour threshold:	not determined
pH value:	< 1 (25 °C) (measured with the undiluted substance)
solidification temperature:	-54 °C
boiling temperature:	135 °C

Flash point:		
	Study technically not feasible., Aqueous preparation	
Evaporation rate:		
	not determined	
Flammability:	not flammable	(other)
Lower explosion limit:		
	For liquids not relevant for classification and labelling., The lower explosion point may be 5 - 15 °C below the flash point.	
Upper explosion limit:		
	For liquids not relevant for classification and labelling.	
Ignition temperature:	> 600 °C	(DIN 51794)
Vapour pressure:	4 mbar (20 °C) 22 mbar (50 °C)	
Density:	approx. 1.35 g/cm3 (20 °C)	(DIN 51757)
Relative density:	approx. 1.35 (20 °C)	
Relative vapour density (air):		
	not determined	
Solubility in water:	soluble	
Partitioning coefficient n-octanol/water (log Kow):	-5.17	(OECD Guideline 117)
Self ignition:	not self-igniting	Test type: Spontaneous self-ignition at room-temperature. (Method: other)
Thermal decomposition:	not determined	
Viscosity, dynamic:		
	not determined	
Viscosity, kinematic:	7.63 mm2/s (25 °C)	
Explosion hazard:	not explosive	
Fire promoting properties:	Based on its structural properties the product is not classified as oxidizing.	(other)

9.2. Other information

Surface tension:		(other)
	Based on chemical structure, surface activity is not to be expected.	
Grain size distribution:	The substance / product is marketed or used in a non solid or granular form.	

SECTION 10: Stability and Reactivity

10.1. Reactivity
No hazardous reactions if stored and handled as prescribed/indicated.

Corrosion to metals:	Corrosive effect on metals.	
Formation of flammable gases:	Remarks:	Forms no flammable gases in the presence of water.

10.2. Chemical stability
The product is stable if stored and handled as prescribed/indicated.

10.3. Possibility of hazardous reactions
In aqueous solution, evolves hydrogen on contact with metals.

10.4. Conditions to avoid
See MSDS section 7 - Handling and storage.

10.5. Incompatible materials

Substances to avoid:
bases, oxidizing agents

10.6. Hazardous decomposition products

Hazardous decomposition products:
No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition products:
sulfur oxides, Acid fumes

SECTION 11: Toxicological Information

11.1. Information on toxicological effects

Acute toxicity

Assessment of acute toxicity:
The toxicity of the product is based on its corrosivity. Of moderate toxicity after short-term skin contact. Of moderate toxicity after single ingestion.

Experimental/calculated data:
LD50 rabbit (dermal): > 1,000 - 2,000 mg/kg

Information on: methanesulphonic acid

Experimental/calculated data:

LD50 rat (oral): 649 mg/kg

Information on: methanesulphonic acid
Experimental/calculated data:
LC0 mouse (by inhalation): > 1.88 mg/m3 1 h

Irritation

Assessment of irritating effects:
Corrosive! Damages skin and eyes.

Experimental/calculated data:
Skin corrosion/irritation mouse: Corrosive. (other)

Serious eye damage/irritation rabbit: irreversible damage (OECD Guideline 405)

Respiratory/Skin sensitization

Assessment of sensitization:
Skin sensitizing effects were not observed in animal studies.

Experimental/calculated data:
Buehler test guinea pig: Non-sensitizing.

Germ cell mutagenicity

Assessment of mutagenicity:
The substance was not mutagenic in mammalian cell culture. The substance was not mutagenic in bacteria. The substance was not mutagenic in a test with mammals.

Carcinogenicity

Assessment of carcinogenicity:
Study does not need to be conducted.

Reproductive toxicity

Assessment of reproduction toxicity:
The results of animal studies gave no indication of a fertility impairing effect.

Experimental/calculated data:
other rat (gavage); 250, 500 and 1000 mg/kg bw
NOAEL Mat.: >= 1,000 mg/kg
NOAEL F1: >= 1,000 mg/kg

Developmental toxicity

Assessment of teratogenicity:

In animal studies the substance did not cause malformations.

Specific target organ toxicity (single exposure)

Assessment of STOT single:
Causes temporary irritation of the respiratory tract.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure)

Assessment of repeated dose toxicity:
After repeated exposure the prominent effect is local irritation. The substance may cause damage to the olfactory epithelium after repeated inhalation. Prolonged repeated exposure caused inflammable degenerative processes in the respiratory tract of rats.

Aspiration hazard

not applicable

SECTION 12: Ecological Information

12.1. Toxicity

Assessment of aquatic toxicity:
Acutely harmful for aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Toxicity to fish:
LC50 (96 h) > 10 - 100 mg/l, Oncorhynchus mykiss (OECD Guideline 203, static)
The details of the toxic effect relate to the nominal concentration.

LC50 (96 h) > 10,000 mg/l, Cyprinodon variegatus (OECD Guideline 203, static)
The details of the toxic effect relate to the nominal concentration.

Aquatic invertebrates:
EC50 (48 h) > 10 - 100 mg/l, Daphnia magna (OECD Guideline 202, part 1, static)

Aquatic plants:
EC50 (72 h) > 10 - 100 mg/l (growth rate), Selenastrum capricornutum (OECD Guideline 201)
The details of the toxic effect relate to the nominal concentration.

Microorganisms/Effect on activated sludge:
EC20 (30 min) > 1,000 mg/l, activated sludge, domestic (DIN EN ISO 8192-OECD 209-88/302/EEC,P. C, aquatic)
Nominal concentration.

Chronic toxicity to fish:
Study scientifically not justified.

Chronic toxicity to aquatic invertebrates:
Study scientifically not justified.

Assessment of terrestrial toxicity:
Study scientifically not justified.

12.2. Persistence and degradability

Assessment biodegradation and elimination (H2O):
Readily biodegradable (according to OECD criteria).

Elimination information:
> 70 % DOC reduction (OECD 301 A (new version)) Based on OECD criteria the product is readily biodegradable.

Assessment of stability in water:
Study scientifically not justified.

12.3. Bioaccumulative potential

Assessment bioaccumulation potential:
Significant accumulation in organisms is not to be expected.

12.4. Mobility in soil

Assessment transport between environmental compartments:
Volatility: The substance will not evaporate into the atmosphere from the water surface.
Adsorption in soil: Adsorption to solid soil phase is not expected.

12.5. Results of PBT and vPvB assessment

According to Annex XIV of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): The product does not contain a substance fulfilling the PBT (persistent/bioaccumulative/toxic) criteria or the vPvB (very persistent/very bioaccumulative) criteria. Self classification

12.6. Other adverse effects

The substance is not listed in Regulation (EC) 1005/2009 on substances that deplete the ozone layer.

12.7. Additional information

Adsorbable organically-bound halogen (AOX):
This product contains no organically-bound halogen.

Other ecotoxicological advice:
Do not allow to enter soil, waterways or waste water channels.

SECTION 13: Disposal Considerations

13.1. Waste treatment methods

Must be disposed of or incinerated in accordance with local regulations.

The UK Environmental Protection (Duty of Care) Regulations (EP) and amendments should be noted (United Kingdom).
This product and any uncleaned containers must be disposed of as hazardous waste in accordance with the 2005 Hazardous Waste Regulations and amendments (United Kingdom)

Contaminated packaging:
Uncontaminated packaging can be re-used.
Packs that cannot be cleaned should be disposed of in the same manner as the contents.

SECTION 14: Transport Information

Land transport

ADR

UN number	UN3265
UN proper shipping name:	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (contains METHANESULPHONIC ACID)
Transport hazard class(es):	8
Packing group:	II
Environmental hazards:	no
Special precautions for user:	Tunnel code: E

RID

UN number	UN3265
UN proper shipping name:	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (contains METHANESULPHONIC ACID)
Transport hazard class(es):	8
Packing group:	II
Environmental hazards:	no
Special precautions for user:	None known

Inland waterway transport
ADN

UN number	UN3265
UN proper shipping name:	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (contains METHANESULPHONIC ACID)

Transport hazard class(es):	8
Packing group:	II
Environmental hazards:	no
Special precautions for user:	None known

Transport in inland waterway vessel
Not evaluated

Sea transport

IMDG

UN number:	UN 3265
UN proper shipping name:	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (contains METHANESULPHONIC ACID)
Transport hazard class(es):	8
Packing group:	II
Environmental hazards:	no Marine pollutant: NO
Special precautions for user:	None known

Air transport

IATA/ICAO

UN number:	UN 3265
UN proper shipping name:	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (contains METHANESULPHONIC ACID)
Transport hazard class(es):	8
Packing group:	II
Environmental hazards:	No Mark as dangerous for the environment is needed
Special precautions for user:	None known

14.1. UN number
See corresponding entries for “UN number” for the respective regulations in the tables above.

14.2. UN proper shipping name
See corresponding entries for “UN proper shipping name” for the respective regulations in the tables above.

14.3. Transport hazard class(es)

See corresponding entries for “Transport hazard class(es)” for the respective regulations in the tables above.

14.4. Packing group
See corresponding entries for “Packing group” for the respective regulations in the tables above.

14.5. Environmental hazards
See corresponding entries for “Environmental hazards” for the respective regulations in the tables above.

14.6. Special precautions for user
See corresponding entries for “Special precautions for user” for the respective regulations in the tables above.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Regulation:	Not evaluated
Shipment approved:	Not evaluated
Pollution name:	Not evaluated
Pollution category:	Not evaluated
Ship Type:	Not evaluated

Further information
This product is subject to the most recent edition of "The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations" and their amendments (United Kingdom).

SECTION 15: Regulatory Information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

The data should be considered when making any assessment under the Control of Substances Hazardous to Health Regulations (COSHH), and related guidance, for example, 'COSHH Essentials' (United Kingdom).

15.2. Chemical Safety Assessment

Chemical Safety Assessment performed

SECTION 16: Other Information

Information on intended use: This product is of industrial quality and unless otherwise specified or agreed intended exclusively for industrial use. This includes the mentioned and recommended

usage. Any other intended applications should be discussed with the manufacturer. In particular this concerns the application for products that are the object of special standards and regulations.

Full text of the classifications, including the hazard classes and the hazard statements, if mentioned in section 2 or 3:

Met. Corr.	Corrosive to metals
Acute Tox.	Acute toxicity
Skin Corr./Irrit.	Skin corrosion/irritation
Eye Dam./Irrit.	Serious eye damage/eye irritation
STOT SE	Specific target organ toxicity — single exposure
H290	May be corrosive to metals.
H312	Harmful in contact with skin.
H302	Harmful if swallowed.
H335	May cause respiratory irritation.
H314	Causes severe skin burns and eye damage.

If you have any queries relating to this MSDS, it's contents or any other product safety related questions, please write to the following e-mail address: product-safety-north@basf.com

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. The data do not describe the product's properties (product specification). Neither should any agreed property nor the suitability of the product for any specific purpose be deduced from the data contained in the safety data sheet. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.

Annex: Exposure Scenarios

Index

1. Manufacture of substance, Distribution of substance, Formulation & (re)packing of substances and mixtures
SU3; SU3, SU8, SU9; ERC1, ERC2, ERC4, ERC6a, ERC6b; PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC13, PROC15

2. Use in chemical synthesis
SU3; SU3, SU10; ERC1, ERC2, ERC5, ERC6a, ERC6b, ERC6d, ERC7; PROC1, PROC2, PROC3, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC16, PROC23

3. Manufacturing of cleaning and maintenance products
SU3; SU10; ERC2, ERC4; PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC13, PROC15

4. Production of pharmaceutical products, Beverage packaging
SU3; SU3; ERC4, ERC8a; PROC1, PROC7, PROC8a, PROC8b, PROC10, PROC15

5. Use in Oilfield drilling and production operations, Use in Metal surface treatment
SU3; SU3; ERC4, ERC5, ERC6a, ERC6b, ERC7, ERC8d; PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC17, PROC18

6. Use in/as Formulation
SU3; SU3, SU10; ERC2, ERC4; PROC5, PROC8b, PROC9, PROC15

7. Use for Electroplating
SU3; SU3; ERC4, ERC5; PROC7, PROC13, PROC15

8. Agriculture, forestry, fishery
SU22; SU1; ERC8a, ERC8b; PROC1, PROC4, PROC8a, PROC8b, PROC10, PROC11, PROC13

9. Road and construction applications
SU22; SU22; ERC8f; PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13

10. Use in Surface treatment products, Use in Cleaning Agents
SU22; SU22; ERC4, ERC8a, ERC8b, ERC8d; PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC19

11. Use in laboratories
SU22; SU22; ERC8a; PROC15

12.maintenance, Cleaning agents
SU21; SU21; ERC8a, ERC8b; PC3, PC4, PC24, PC35

****

1. Short title of exposure scenario

Manufacture of substance, Distribution of substance, Formulation & (re)packing of substances and mixtures
SU3; SU3, SU8, SU9; ERC1, ERC2, ERC4, ERC6a, ERC6b; PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC13, PROC15

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC1: Manufacture of substances As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	ERC2: Formulation of preparations As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates) As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	ERC6b: Industrial use of reactive processing aids As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	PROC1: Use in closed process, no likelihood of exposure. PROC2: Use in closed, continuous process with occasional controlled exposure. PROC3: Use in closed batch process (synthesis or formulation). PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant

	contact). PROC8a: Transfer of substance or preparation (charging/discharging) from/to ves-sels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). PROC13: Treatment of articles by dipping and pouring. Use domain: industrial
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 100 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	
Avoid frequent and direct contact with substance. Supervision in place to check that the RMMs in place are being used correctly and OCs followed. Clean equipment and the work area every day. Ensure minimization of manual phases	
Use suitable eye protection. Wear chemically resistant gloves in combination with specific activity training Wear suitable coveralls to prevent exposure to the skin.	
Risk Management Measures are based on qualitative risk characterisation.	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment
	Worker - dermal
	Worker - inhalation
	Exposure is considered negligible.
Assessment method	Qualitative assessment
	Worker - contact with eyes
Additional good practice advice	
Wear suitable face shield Use of suitable respiratory protection is recommended.	

Contributing exposure scenario	
Use descriptors covered	PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises. PROC15: Use a laboratory reagent. Use domain: industrial

Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 100 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	
Avoid frequent and direct contact with substance. Supervision in place to check that the RMMs in place are being used correctly and OCs followed. Clean equipment and the work area every day. Ensure minimization of manual phases	
Use suitable eye protection. Wear chemically resistant gloves in combination with specific activity training Wear suitable coveralls to prevent exposure to the skin.	
Risk Management Measures are based on qualitative risk characterisation.	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment
	Worker - dermal
	Worker - inhalation
	Exposure is considered negligible.
Assessment method	Qualitative assessment
	Worker - contact with eyes
Additional good practice advice	
Use of suitable respiratory protection is recommended. Wear suitable face shield	

****

2. Short title of exposure scenario

Use in chemical synthesis
SU3; SU3, SU10; ERC1, ERC2, ERC5, ERC6a, ERC6b, ERC6d, ERC7; PROC1, PROC2, PROC3, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC16, PROC23

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC1: Manufacture of substances As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	ERC2: Formulation of preparations As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	ERC5: Industrial use resulting in inclusion into or onto a matrix As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates) As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	ERC6b: Industrial use of reactive processing aids As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	ERC7: Industrial use of substances in closed systems. As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	PROC1: Use in closed process, no likelihood of exposure. PROC2: Use in closed, continuous process with occasional controlled exposure. PROC3: Use in closed batch process (synthesis or formulation). PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). PROC8a: Transfer of substance or preparation (charging/discharging) from/to ves-sels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated

	filling line, including weighing). PROC13: Treatment of articles by dipping and pouring. Use domain: industrial
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 100 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	
Avoid frequent and direct contact with substance. Supervision in place to check that the RMMs in place are being used correctly and OCs followed. Clean equipment and the work area every day. Ensure minimization of manual phases	
Use suitable eye protection. Wear chemically resistant gloves in combination with specific activity training Wear suitable coveralls to prevent exposure to the skin.	
Risk Management Measures are based on qualitative risk characterisation.	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment
	Worker - dermal
	Worker - inhalation
	Exposure is considered negligible.
Assessment method	Qualitative assessment
	Worker - contact with eyes
Additional good practice advice	
Wear suitable face shield Use of suitable respiratory protection is recommended.	

Contributing exposure scenario	
Use descriptors covered	PROC10: Roller application or brushing PROC16: Using material as fuel sources, limited exposure to unburned product to be expected. Use domain: industrial
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 100 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	480 min 5 days per week

Indoor/Outdoor	Indoor
Risk Management Measures	
Avoid frequent and direct contact with substance. Supervision in place to check that the RMMs in place are being used correctly and OCs followed. Clean equipment and the work area every day. Ensure minimization of manual phases	
Use suitable eye protection. Wear chemically resistant gloves in combination with specific activity training Wear suitable coveralls to prevent exposure to the skin.	
Risk Management Measures are based on qualitative risk characterisation.	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment
	Worker - dermal
	Worker - inhalation
	Exposure is considered negligible.
Assessment method	Qualitative assessment
	Worker - contact with eyes
Additional good practice advice	
Use of suitable respiratory protection is recommended. Wear suitable face shield	

Contributing exposure scenario	
Use descriptors covered	PROC23: Open processing and transfer operations (with minerals) at elevated temperature Use domain: industrial
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 100 %
Physical state	Liquid, low fugacity
Process temperature	90 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Room size	1,000 m3
Risk Management Measures	
Avoid frequent and direct contact with substance. Supervision in place to check that the RMMs in place are being used correctly and OCs followed. Clean equipment and the	

work area every day. Regular inspection and maintenance of equipment and machines. Ensure minimization of manual phases	
Ensure mechanical ventilation is in place.	
Use suitable eye protection. Wear chemically resistant gloves in combination with specific activity training Wear suitable coveralls to prevent exposure to the skin.	
Risk Management Measures are based on qualitative risk characterisation.	
Wear suitable respiratory protection.	Effectiveness: 60 %
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment
	Worker - dermal
Assessment method	Stoffenmanager v4.0
	Worker - inhalation, long-term - systemic
Exposure estimate	2.85 mg/m³
Risk Characterization Ratio (RCR)	0.986
	The exposure estimate represents the 90th percentile of the exposure distribution.
Assessment method	Qualitative assessment
	Worker - contact with eyes
Additional good practice advice	
Use of suitable respiratory protection is recommended. Wear suitable face shield	
Guidance to Downstream Users	
For scaling see: https://www.stoffenmanager.nl/default.aspx	

****

3. Short title of exposure scenario

Manufacturing of cleaning and maintenance products
SU3; SU10; ERC2, ERC4; PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC13, PROC15

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC2: Formulation of preparations As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

	As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	PROC1: Use in closed process, no likelihood of exposure. PROC2: Use in closed, continuous process with occasional controlled exposure. PROC3: Use in closed batch process (synthesis or formulation). PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). PROC8a: Transfer of substance or preparation (charging/discharging) from/to ves-sels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). PROC13: Treatment of articles by dipping and pouring. Use domain: industrial
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 100 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	
Avoid frequent and direct contact with substance. Supervision in place to check that the RMMs in place are being used correctly and OCs followed. Clean equipment and the work area every day. Ensure minimization of manual phases	
Use suitable eye protection. Wear chemically resistant gloves in combination with specific activity training Wear suitable coveralls to prevent exposure to the skin.	
Risk Management Measures are based on qualitative risk characterisation.	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment
	Worker - dermal
	Worker - inhalation

	Exposure is considered negligible.
Assessment method	Qualitative assessment
	Worker - contact with eyes
Additional good practice advice	
Wear suitable face shield Use of suitable respiratory protection is recommended.	

Contributing exposure scenario	
Use descriptors covered	PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises. PROC15: Use a laboratory reagent. Use domain: industrial
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 100 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	
Avoid frequent and direct contact with substance. Supervision in place to check that the RMMs in place are being used correctly and OCs followed. Clean equipment and the work area every day. Ensure minimization of manual phases	
Use suitable eye protection. Wear chemically resistant gloves in combination with specific activity training Wear suitable coveralls to prevent exposure to the skin.	
Risk Management Measures are based on qualitative risk characterisation.	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment
	Worker - dermal
	Worker - inhalation
	Exposure is considered negligible.
Assessment method	Qualitative assessment
	Worker - contact with eyes
Additional good practice advice	
Use of suitable respiratory protection is recommended. Wear suitable face shield	

****

4. Short title of exposure scenario

Production of pharmaceutical products, Beverage packaging
SU3; SU3; ERC4, ERC8a; PROC1, PROC7, PROC8a, PROC8b, PROC10, PROC15

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	ERC8a: Wide dispersive indoor use of processing aids in open systems As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	PROC1: Use in closed process, no likelihood of exposure. PROC8a: Transfer of substance or preparation (charging/discharging) from/to ves-sels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities Use domain: industrial
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 10 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	
Avoid frequent and direct contact with substance. Supervision in place to check that the RMMs in place are being used correctly and OCs followed. Clean equipment and the work area every day. Ensure minimization of manual phases	
Use suitable eye protection. Wear chemically resistant gloves in combination with specific activity training Wear suitable coveralls to prevent exposure to the skin.	

Risk Management Measures are based on qualitative risk characterisation.	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment
	Worker - dermal
	Worker - inhalation
	Exposure is considered negligible.
Assessment method	Qualitative assessment
	Worker - contact with eyes
Additional good practice advice	
Use suitable chemically resistant gloves. Wear suitable face shield	

Contributing exposure scenario	
Use descriptors covered	PROC7: Industrial spraying Use domain: industrial
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 10 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Room size	1,000 m3
Risk Management Measures	
Avoid frequent and direct contact with substance. Supervision in place to check that the RMMs in place are being used correctly and OCs followed. Clean equipment and the work area every day. Regular inspection and maintenance of equipment and machines. Ensure minimization of manual phases	
Ensure mechanical ventilation is in place.	
Use suitable eye protection. Wear chemically resistant gloves in combination with specific activity training Wear suitable coveralls to prevent exposure to the skin.	
Risk Management Measures are based on qualitative risk characterisation.	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment
	Worker - dermal
Assessment method	Stoffenmanager v4.0

	Worker - inhalation, long-term - systemic
Exposure estimate	0.75 mg/m³
Risk Characterization Ratio (RCR)	0.26
	The exposure estimate represents the 90th percentile of the exposure distribution.
Assessment method	Qualitative assessment
	Worker - contact with eyes
Additional good practice advice	
Use of suitable respiratory protection is recommended. Wear suitable face shield	
Guidance to Downstream Users	
For scaling see: https://www.stoffenmanager.nl/default.aspx	

Contributing exposure scenario	
Use descriptors covered	PROC10: Roller application or brushing PROC15: Use a laboratory reagent. Use domain: industrial
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 10 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	15 min 5 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	
Avoid frequent and direct contact with substance. Supervision in place to check that the RMMs in place are being used correctly and OCs followed. Clean equipment and the work area every day. Ensure minimization of manual phases	
Use suitable eye protection. Wear chemically resistant gloves in combination with specific activity training Wear suitable coveralls to prevent exposure to the skin.	
Risk Management Measures are based on qualitative risk characterisation.	
Local exhaust ventilation	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment
	Worker - dermal
	Worker - inhalation
	Exposure is considered negligible.
Assessment method	Qualitative assessment
	Worker - contact with eyes
Additional good practice advice	

Use of suitable respiratory protection is recommended. Wear suitable face shield

* * * * * * * * * * * * * * * * *

5. Short title of exposure scenario

Use in Oilfield drilling and production operations, Use in Metal surface treatment
SU3; SU3; ERC4, ERC5, ERC6a, ERC6b, ERC7, ERC8d; PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC17, PROC18

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	ERC5: Industrial use resulting in inclusion into or onto a matrix As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates) As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	ERC6b: Industrial use of reactive processing aids As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	ERC7: Industrial use of substances in closed systems. As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario

Use descriptors covered	ERC8d: Wide dispersive outdoor use of processing aids in open systems As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	PROC1: Use in closed process, no likelihood of exposure. PROC2: Use in closed, continuous process with occasional controlled exposure. PROC3: Use in closed batch process (synthesis or formulation). PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises. PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). PROC8a: Transfer of substance or preparation (charging/discharging) from/to ves-sels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring. PROC17: Lubrication at high energy conditions and in partly open process. PROC18: Greasing at high energy conditions. Use domain: industrial
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 10 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	
Avoid frequent and direct contact with substance. Supervision in place to check that the RMMs in place are being used correctly and OCs followed. Clean equipment and the work area every day. Ensure minimization of manual phases	
Use suitable eye protection. Wear chemically resistant gloves in combination with specific activity training Wear suitable coveralls to prevent exposure to the skin.	

Risk Management Measures are based on qualitative risk characterisation.	
Local exhaust ventilation	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment
	Worker - dermal
Assessment method	Qualitative assessment
	Worker - contact with eyes
	Worker - inhalation
	Exposure is considered negligible.
Additional good practice advice	
Use of suitable respiratory protection is recommended. Wear suitable face shield	

Contributing exposure scenario	
Use descriptors covered	PROC7: Industrial spraying Use domain: industrial
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 10 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Room size	1,000 m3
Risk Management Measures	
Avoid frequent and direct contact with substance. Supervision in place to check that the RMMs in place are being used correctly and OCs followed. Clean equipment and the work area every day. Regular inspection and maintenance of equipment and machines. Ensure minimization of manual phases	
Ensure mechanical ventilation is in place.	
Use suitable eye protection. Wear chemically resistant gloves in combination with specific activity training Wear suitable coveralls to prevent exposure to the skin.	
Risk Management Measures are based on qualitative risk characterisation.	
Local exhaust ventilation	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment

	Worker - dermal
Assessment method	Stoffenmanager v4.0
	Worker - inhalation, long-term - systemic
Exposure estimate	0.34 mg/m³
Risk Characterization Ratio (RCR)	0.12
	The exposure estimate represents the 90th percentile of the exposure distribution.
Assessment method	Qualitative assessment
	Worker - contact with eyes
Additional good practice advice	
Use of suitable respiratory protection is recommended. Wear suitable face shield	
Guidance to Downstream Users	
For scaling see: https://www.stoffenmanager.nl/default.aspx	

****

6. Short title of exposure scenario

Use in/as Formulation
SU3; SU3, SU10; ERC2, ERC4; PROC5, PROC8b, PROC9, PROC15

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC2: Formulation of preparations As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). PROC15: Use a laboratory reagent. Use domain: industrial
Operational conditions	
Concentration of the substance	methanesulphonic acid

	Content: >= 0 % - <= 100 %
Physical state	Liquid, low fugacity
Process temperature	90 °C
Physical state	Solid, Granules or flakes
Process temperature	90 °C
Physical state	pasty
Process temperature	90 °C
Duration and Frequency of activity	480 min 3 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	
Avoid frequent and direct contact with substance. Supervision in place to check that the RMMs in place are being used correctly and OCs followed. Clean equipment and the work area every day. Ensure minimization of manual phases	
Use suitable eye protection. Wear chemically resistant gloves in combination with specific activity training Wear suitable coveralls to prevent exposure to the skin.	
Risk Management Measures are based on qualitative risk characterisation.	
Local exhaust ventilation	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment
	Worker - dermal
PROC5, PROC9, PROC15	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	2.00 mg/m³
Risk Characterization Ratio (RCR)	0.69
PROC8b	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0.60 mg/m³
Risk Characterization Ratio (RCR)	0.2
Assessment method	Qualitative assessment
	Worker - contact with eyes
Additional good practice advice	
Use of suitable respiratory protection is recommended. Wear suitable face shield	

****

7. Short title of exposure scenario

Use for Electroplating
SU3; SU3; ERC4, ERC5; PROC7, PROC13, PROC15

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	ERC5: Industrial use resulting in inclusion into or onto a matrix As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	PROC7: Industrial spraying Use domain: industrial
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 35 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Room size	1,000 m3
Risk Management Measures	
Avoid frequent and direct contact with substance. Supervision in place to check that the RMMs in place are being used correctly and OCs followed. Clean equipment and the work area every day. Regular inspection and maintenance of equipment and machines. Ensure minimization of manual phases	
Ensure mechanical ventilation is in place.	
Use suitable eye protection. Wear chemically resistant gloves in	

combination with specific activity training Wear suitable coveralls to prevent exposure to the skin.	
Risk Management Measures are based on qualitative risk characterisation.	
Local exhaust ventilation	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment
	Worker - dermal
Assessment method	Stoffenmanager v4.0
	Worker - inhalation, long-term - systemic
Exposure estimate	1.78 mg/m³
Risk Characterization Ratio (RCR)	0.61
Assessment method	Qualitative assessment
	Worker - contact with eyes
Additional good practice advice	
Use of suitable respiratory protection is recommended. Wear suitable face shield	
Guidance to Downstream Users	
For scaling see: https://www.stoffenmanager.nl/default.aspx	

Contributing exposure scenario	
Use descriptors covered	PROC13: Treatment of articles by dipping and pouring. PROC15: Use a laboratory reagent. Use domain: industrial
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 35 %
Physical state	Liquid, low fugacity
Process temperature	90 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	
Avoid frequent and direct contact with substance. Supervision in place to check that the RMMs in place are being used correctly and OCs followed. Clean equipment and the work area every day. Ensure minimization of manual phases	
Use suitable eye protection. Wear chemically resistant gloves in combination with specific activity training Wear suitable coveralls to prevent exposure to the skin.	
Risk Management Measures are	

based on qualitative risk characterisation.	
Local exhaust ventilation	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment
	Worker - dermal
PROC13	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	1.4 mg/m³
Risk Characterization Ratio (RCR)	0.48
PROC15	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0.24 mg/m³
Risk Characterization Ratio (RCR)	0.08
Assessment method	Qualitative assessment
	Worker - contact with eyes
Additional good practice advice	
Wear suitable face shield Use of suitable respiratory protection is recommended.	

****

8. Short title of exposure scenario

Agriculture, forestry, fishery
SU22; SU1; ERC8a, ERC8b; PROC1, PROC4, PROC8a, PROC8b, PROC10, PROC11, PROC13

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC8a: Wide dispersive indoor use of processing aids in open systems As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	ERC8b: Wide dispersive indoor use of reactive substances in open systems As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	PROC1: Use in closed process, no likelihood of exposure. PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises. PROC8a: Transfer of

	substance or preparation (charging/discharging) from/to ves-sels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring. Use domain: professional
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 70 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	240 min 5 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	
Avoid frequent and direct contact with substance. Supervision in place to check that the RMMs in place are being used correctly and OCs followed. Clean equipment and the work area every day. Regular inspection and maintenance of equipment and machines. Ensure minimization of manual phases	
Use suitable eye protection. Wear chemically resistant gloves in combination with specific activity training Wear suitable coveralls to prevent exposure to the skin.	
Risk Management Measures are based on qualitative risk characterisation.	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment
	Worker - dermal
	Worker - inhalation
	Exposure is considered negligible.
Assessment method	Qualitative assessment
	Worker - contact with eyes
Additional good practice advice	
Use suitable chemically resistant gloves. Wear suitable face shield	

Contributing exposure scenario	
Use descriptors covered	PROC11: Non industrial spraying Use domain: professional
Operational conditions	
Concentration of the substance	methanesulphonic acid

	Content: >= 0 % - <= 70 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	240 min 5 days per week
Indoor/Outdoor	Indoor
Room size	100 m3
Risk Management Measures	
Avoid frequent and direct contact with substance. Supervision in place to check that the RMMs in place are being used correctly and OCs followed. Clean equipment and the work area every day. Regular inspection and maintenance of equipment and machines. Ensure minimization of manual phases	
Ensure mechanical ventilation is in place.	
Use suitable eye protection. Wear chemically resistant gloves in combination with specific activity training Wear suitable coveralls to prevent exposure to the skin.	
Risk Management Measures are based on qualitative risk characterisation.	
Wear suitable respiratory protection.	Effectiveness: 80 %
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment
	Worker - dermal
Assessment method	Stoffenmanager v4.0
	Worker - inhalation, long-term - systemic
Exposure estimate	2.20 mg/m³
Risk Characterization Ratio (RCR)	0.76
	The exposure estimate represents the 90th percentile of the exposure distribution.
Assessment method	Qualitative assessment
	Worker - contact with eyes
Additional good practice advice	
Use of suitable respiratory protection is recommended. Wear suitable face shield	
Guidance to Downstream Users	
For scaling see: https://www.stoffenmanager.nl/default.aspx	

Contributing exposure scenario	
Use descriptors covered	PROC11: Non industrial spraying Use domain: professional
Operational conditions	
Concentration of the substance	methanesulphonic acid

	Content: >= 0 % - <= 25 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	480 min 5 days per week
Duration and Frequency of activity	240 min 5 days per week
Indoor/Outdoor	Indoor
Room size	100 m3
Indoor/Outdoor	Outdoor
Risk Management Measures	
Avoid frequent and direct contact with substance. Supervision in place to check that the RMMs in place are being used correctly and OCs followed. Clean equipment and the work area every day. Regular inspection and maintenance of equipment and machines. Ensure minimization of manual phases	
Ensure mechanical ventilation is in place.	
Use suitable eye protection. Wear chemically resistant gloves in combination with specific activity training Wear suitable coveralls to prevent exposure to the skin.	
Risk Management Measures are based on qualitative risk characterisation.	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment
	Worker - dermal
Assessment method	Stoffenmanager v4.0
	Worker - inhalation, long-term - systemic
Exposure estimate	2.82 mg/m³
Risk Characterization Ratio (RCR)	0.97
	The exposure estimate represents the 90th percentile of the exposure distribution.
Assessment method	Qualitative assessment
	Worker - contact with eyes
Additional good practice advice	
Use of suitable respiratory protection is recommended. Wear suitable face shield	
Guidance to Downstream Users	
For scaling see: https://www.stoffenmanager.nl/default.aspx	

****

9. Short title of exposure scenario

Road and construction applications
SU22; SU22; ERC8f; PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). PROC8a: Transfer of substance or preparation (charging/discharging) from/to ves-sels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring. Use domain: professional
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 100 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Indoor/Outdoor	Outdoor
Risk Management Measures	
Avoid frequent and direct contact with substance. Supervision in place to check that the RMMs in place are being used correctly and OCs followed. Clean equipment and the work area every day. Regular inspection and maintenance of equipment and machines. Ensure minimization of manual phases	
Use suitable eye protection. Wear chemically resistant gloves in combination with specific activity training Wear suitable coveralls to prevent exposure to the skin.	

Risk Management Measures are based on qualitative risk characterisation.	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment
	Worker - dermal
	Worker - inhalation
	Exposure is considered negligible.
Assessment method	Qualitative assessment
	Worker - contact with eyes
Additional good practice advice	
Use of suitable respiratory protection is recommended. Wear suitable face shield	

Contributing exposure scenario	
Use descriptors covered	PROC11: Non industrial spraying Use domain: professional
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 100 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Room size	100 m3
Indoor/Outdoor	Outdoor
Risk Management Measures	
Ensure that the task is being carried out outside the breathing zone of a worker (distance head-product greater than 1m). Avoid frequent and direct contact with substance. Supervision in place to check that the RMMs in place are being used correctly and OCs followed. Clean equipment and the work area every day. Regular inspection and maintenance of equipment and machines. Ensure minimization of manual phases	
Ensure mechanical ventilation is in place. Ensure use of long-handled tools (longer than 30 cm).	
Use suitable eye protection. Wear chemically resistant gloves in combination with specific activity training Wear suitable coveralls to prevent exposure to the skin.	
Risk Management Measures are based on qualitative risk	

characterisation.	
Wear suitable respiratory protection.	Effectiveness: 80 %
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment
	Worker - dermal
Assessment method	Stoffenmanager v4.0
	Worker - inhalation, long-term - systemic
Exposure estimate	1.34 mg/m³
Risk Characterization Ratio (RCR)	0.46
	The exposure estimate represents the 90th percentile of the exposure distribution.
Assessment method	Qualitative assessment
	Worker - contact with eyes
Additional good practice advice	
Use of suitable respiratory protection is recommended. Wear suitable face shield	
Guidance to Downstream Users	
For scaling see: https://www.stoffenmanager.nl/default.aspx	

Contributing exposure scenario	
Use descriptors covered	PROC11: Non industrial spraying Use domain: professional
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 25 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	480 min 5 days per week
Duration and Frequency of activity	240 min 5 days per week
Indoor/Outdoor	Indoor
Room size	100 m3
Indoor/Outdoor	Outdoor
Risk Management Measures	
Avoid frequent and direct contact with substance. Supervision in place to check that the RMMs in place are being used correctly and OCs followed. Clean equipment and the work area every day. Regular inspection and maintenance of equipment and machines. Ensure minimization of manual phases	
Ensure mechanical ventilation is in place.	
Use suitable eye protection. Wear chemically resistant gloves in combination with specific activity training Wear suitable coveralls to	

prevent exposure to the skin.	
Risk Management Measures are based on qualitative risk characterisation.	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment
	Worker - dermal
Assessment method	Stoffenmanager v4.0
	Worker - inhalation, long-term - systemic
Exposure estimate	2.82 mg/m³
Risk Characterization Ratio (RCR)	0.97
	The exposure estimate represents the 90th percentile of the exposure distribution.
Assessment method	Qualitative assessment
	Worker - contact with eyes
Additional good practice advice	
Use of suitable respiratory protection is recommended. Wear suitable face shield	
Guidance to Downstream Users	
For scaling see: https://www.stoffenmanager.nl/default.aspx	

****

10. Short title of exposure scenario

Use in Surface treatment products, Use in Cleaning Agents
SU22; SU22; ERC4, ERC8a, ERC8b, ERC8d; PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC19

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	ERC8a: Wide dispersive indoor use of processing aids in open systems As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	ERC8b: Wide dispersive indoor use of reactive substances in open systems As no environmental hazard was identified no environmental-related exposure assessment and risk

	characterization was performed.

Contributing exposure scenario	
Use descriptors covered	ERC8d: Wide dispersive outdoor use of processing aids in open systems As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	PROC1: Use in closed process, no likelihood of exposure. PROC2: Use in closed, continuous process with occasional controlled exposure. PROC3: Use in closed batch process (synthesis or formulation). PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises. PROC8a: Transfer of substance or preparation (charging/discharging) from/to ves-sels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring. PROC19: Hand-mixing with intimate contact and only PPE available. Use domain: professional
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 10 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Indoor/Outdoor	Outdoor
Risk Management Measures	
Avoid frequent and direct contact with substance. Supervision in place to check that the RMMs in place are being used correctly and OCs followed. Clean equipment and the work area every day. Ensure minimization of manual phases	
Use suitable eye protection. Wear chemically resistant gloves in combination with specific activity training Wear suitable coveralls to	

prevent exposure to the skin.	
Risk Management Measures are based on qualitative risk characterisation.	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment
	Worker - dermal
	Worker - inhalation
	Exposure is considered negligible.
Assessment method	Qualitative assessment
	Worker - contact with eyes
Additional good practice advice	
Use suitable chemically resistant gloves. Wear suitable face shield	

Contributing exposure scenario	
Use descriptors covered	PROC11: Non industrial spraying Use domain: professional
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 10 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Room size	100 m3
Indoor/Outdoor	Outdoor
Risk Management Measures	
Avoid frequent and direct contact with substance. Supervision in place to check that the RMMs in place are being used correctly and OCs followed. Clean equipment and the work area every day. Regular inspection and maintenance of equipment and machines. Ensure minimization of manual phases	
Ensure mechanical ventilation is in place.	
Use suitable eye protection. Wear chemically resistant gloves in combination with specific activity training Wear suitable coveralls to prevent exposure to the skin.	
Risk Management Measures are based on qualitative risk characterisation.	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment

	Worker - dermal
Assessment method	Stoffenmanager v4.0
	Worker - inhalation, long-term - systemic
Exposure estimate	0.71 mg/m³
Risk Characterization Ratio (RCR)	0.25
	The exposure estimate represents the 90th percentile of the exposure distribution.
Assessment method	Qualitative assessment
	Worker - contact with eyes
Additional good practice advice	
Wear suitable face shield Use of suitable respiratory protection is recommended.	
Guidance to Downstream Users	
For scaling see: https://www.stoffenmanager.nl/default.aspx	

****

11. Short title of exposure scenario

Use in laboratories
SU22; SU22; ERC8a; PROC15

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC8a: Wide dispersive indoor use of processing aids in open systems As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	PROC15: Use a laboratory reagent. Use domain: professional
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 100 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	
Avoid frequent and direct contact with substance. Supervision in place to check that the RMMs in place are being used correctly and OCs followed. Clean equipment and the work area every day. Ensure minimization of manual phases	

Use suitable eye protection. Wear chemically resistant gloves in combination with specific activity training Wear suitable coveralls to prevent exposure to the skin.	
Risk Management Measures are based on qualitative risk characterisation.	
Local exhaust ventilation	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment
	Worker - dermal
	Worker - inhalation
	Exposure is considered negligible.
Assessment method	Qualitative assessment
	Worker - contact with eyes
Additional good practice advice	
Use of suitable respiratory protection is recommended. Wear suitable face shield	

****

12. Short title of exposure scenario

maintenance, Cleaning agents
SU21; SU21; ERC8a, ERC8b; PC3, PC4, PC24, PC35

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC8a: Wide dispersive indoor use of processing aids in open systems As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	ERC8b: Wide dispersive indoor use of reactive substances in open systems As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Contributing exposure scenario	
Use descriptors covered	SU21: Consumer uses PC35: Washing and Cleaning Products (including solvent based products)., Bathroom cleaning (spray), Surface cleaning
Operational conditions	

Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 10 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	Exposure duration: 25 min 52 days per year
Duration and Frequency of activity	Application duration: 20 min
Room size	10 m3
Ventilation rate per hour	2
Exposed skin area	Palm of one hand (215 cm²)
	Amount per use 30 g
Risk Management Measures	
Consumer Measures	Regular cleaning of work area Ensure that direct skin contact is avoided. Use suitable eye protection. Use of suitable gloves.
Exposure estimate and reference to its source	
Assessment method	ConsExpo v4.1
	Consumer - inhalation, long-term - systemic
Exposure estimate	0.0009 mg/m³
Risk Characterization Ratio (RCR)	0.0006
Assessment method	ConsExpo v4.1
	Consumer - inhalation, short-term - systemic
Exposure estimate	0.0505 mg/m³
Risk Characterization Ratio (RCR)	0.035
Assessment method	Qualitative assessment
	Consumer - dermal
Additional good practice advice	
Avoid using without gloves.	
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered	SU21: Consumer uses PC35: Washing and Cleaning Products (including solvent based products)., Bathroom cleaning (liquid), Mixing and loading
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 10 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	Exposure duration: 0.75 min 4 days per year
Duration and Frequency of activity	Application duration: 0.3 min
Room size	1 m3
Ventilation rate per hour	2

Exposed skin area	Palm of one hand (215 cm²)
	Amount per use 500 g
Release area	20 cm²
Risk Management Measures	
Consumer Measures	Regular cleaning of work area Ensure that direct skin contact is avoided. Use suitable eye protection. Use of suitable gloves.
Exposure estimate and reference to its source	
Assessment method	ConsExpo v4.1
	Consumer - inhalation, long-term - systemic
Exposure estimate	< 0.001 mg/m³
Risk Characterization Ratio (RCR)	< 0.001
Assessment method	ConsExpo v4.1
	Consumer - inhalation, short-term - systemic
Exposure estimate	0.0036 mg/m³
Risk Characterization Ratio (RCR)	0.0025
Assessment method	Qualitative assessment
	Consumer - dermal
Additional good practice advice	
Avoid using without gloves.	
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered	SU21: Consumer uses PC35: Washing and Cleaning Products (including solvent based products)., Bathroom cleaning (liquid), Surface cleaning
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 10 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	Exposure duration: 25 min 4 days per year
Duration and Frequency of activity	Application duration: 20 min
Room size	10 m3
Ventilation rate per hour	2
Exposed skin area	Both hands and forearms (1900 cm²)
	Amount per use 260 g
Release area	6400 cm²
Risk Management Measures	
Consumer Measures	Regular cleaning of work area Ensure that direct skin contact is avoided. Use suitable eye protection. Use of suitable gloves.
Exposure estimate and reference to its source	
Assessment method	ConsExpo v4.1

	Consumer - inhalation, long-term - systemic
Exposure estimate	0.0003 mg/m³
Risk Characterization Ratio (RCR)	0.0002
Assessment method	ConsExpo v4.1
	Consumer - inhalation, short-term - systemic
Exposure estimate	0.0162 mg/m³
Risk Characterization Ratio (RCR)	0.0113
Assessment method	Qualitative assessment
	Consumer - dermal
Additional good practice advice	
Avoid using without gloves.	
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered	SU21: Consumer uses PC35: Washing and Cleaning Products (including solvent based products)., Toilet cleaners (acid)
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 10 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	Exposure duration: 3 min 260 days per year
Duration and Frequency of activity	Application duration: 2 min
Room size	2.5 m3
Ventilation rate per hour	2
Exposed skin area	Palm of one hand (215 cm²)
	Amount per use 1,000 g
Release area	750 cm²
Risk Management Measures	
Consumer Measures	Regular cleaning of work area Ensure that direct skin contact is avoided. Use suitable eye protection. Use of suitable gloves.
Exposure estimate and reference to its source	
Assessment method	ConsExpo v4.1
	Consumer - inhalation, long-term - systemic
Exposure estimate	< 0.001 mg/m³
Risk Characterization Ratio (RCR)	< 0.001
Assessment method	ConsExpo v4.1
	Consumer - inhalation, short-term - systemic
Exposure estimate	0.0005 mg/m³
Risk Characterization Ratio (RCR)	0.0004
Assessment method	Qualitative assessment
	Consumer - dermal
Additional good practice advice	

Avoid using without gloves.
Guidance to Downstream Users
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp

Contributing exposure scenario	
Use descriptors covered	SU21: Consumer uses PC3: Air care products., PC3_1: Subcategory: Air care, instant action (aerosol sprays)
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 1 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	Exposure duration: 15 min 4 uses per day
Duration and Frequency of activity	Spray duration: 0.17 min
Room size	10 m3
Ventilation rate per hour	0.5
Risk Management Measures	
Consumer Measures	Regular cleaning of work area Ensure that direct skin contact is avoided. Use suitable eye protection. Use of suitable gloves.
Exposure estimate and reference to its source	
Assessment method	ConsExpo v4.1
	Consumer - inhalation, long-term - systemic
Exposure estimate	0.0007 mg/m³
Risk Characterization Ratio (RCR)	0.0005
Assessment method	ConsExpo v4.1
	Consumer - inhalation, short-term - systemic
Exposure estimate	0.0175 mg/m³
Risk Characterization Ratio (RCR)	0.012
Assessment method	Qualitative assessment
	Consumer - dermal
Additional good practice advice	
Avoid using without gloves.	
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered	SU21: Consumer uses PC3: Air care products., PC3_2: Subcategory: Air care, continuous action (solid and liquid)
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 1 %

Physical state	Liquid, low fugacity
Duration and Frequency of activity	Exposure duration: 480 min 365 days per year
Room size	58 m3
Ventilation rate per hour	0.5
Exposed skin area	Fingertips (36 cm2)
	Amount per use 40 g
Risk Management Measures	
Consumer Measures	Regular cleaning of work area Ensure that direct skin contact is avoided. Use suitable eye protection. Use of suitable gloves.
Exposure estimate and reference to its source	
Assessment method	ConsExpo v4.1
	Consumer - inhalation, long-term - systemic
Exposure estimate	0.433 mg/m³
Risk Characterization Ratio (RCR)	0.3
Assessment method	ConsExpo v4.1
	Consumer - inhalation, short-term - systemic
Exposure estimate	1.3 mg/m³
Risk Characterization Ratio (RCR)	0.9
Assessment method	Qualitative assessment
	Consumer - dermal
Additional good practice advice	
Avoid using without gloves.	
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered	SU21: Consumer uses PC4: Anti-Freeze and De-icing products., PC4_2: Subcategory: Pouring into radiator
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 10 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	Exposure duration: 15 min 104 uses per day
Room size	1 m3
Ventilation rate per hour	0.5
Exposed skin area	Palm of one hand (215 cm²)
	Amount per use 500 g
Release area	20 cm²
Risk Management Measures	
Consumer Measures	Regular cleaning of work area Ensure that direct skin contact is avoided. Use suitable eye protection. Use of suitable gloves.
Exposure estimate and reference to its source	

Assessment method	ConsExpo v4.1
	Consumer - inhalation, long-term - systemic
Exposure estimate	< 0.001 mg/m³
Risk Characterization Ratio (RCR)	< 0.001
Assessment method	ConsExpo v4.1
	Consumer - inhalation, short-term - systemic
Exposure estimate	< 0.001 mg/m³
Risk Characterization Ratio (RCR)	< 0.001
Assessment method	Qualitative assessment
	Consumer - dermal
Additional good practice advice	
Avoid using without gloves.	
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered	SU21: Consumer uses PC4: Anti-Freeze and De-icing products., PC4_1: Subcategory: Washing car window
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 10 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	Exposure duration: 240 min 104 uses per day
Duration and Frequency of activity	Application duration: 20 min
Room size	58 m3
Ventilation rate per hour	0.5
Exposed skin area	Palm of one hand (215 cm²)
	Amount per use 400 g
Release area	1900 cm²
Risk Management Measures	
Consumer Measures	Regular cleaning of work area Ensure that direct skin contact is avoided. Use suitable eye protection. Use of suitable gloves.
Exposure estimate and reference to its source	
Assessment method	ConsExpo v4.1
	Consumer - inhalation, long-term - systemic
Exposure estimate	0.0048 mg/m³
Risk Characterization Ratio (RCR)	0.0034
Assessment method	ConsExpo v4.1
	Consumer - inhalation, short-term - systemic
Exposure estimate	0.029 mg/m³
Risk Characterization Ratio (RCR)	0.02
Assessment method	Qualitative assessment
	Consumer - dermal

Additional good practice advice
Avoid using without gloves.
Guidance to Downstream Users
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp

Contributing exposure scenario	
Use descriptors covered	SU21: Consumer uses PC4: Anti-Freeze and De-icing products., Spray
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 10 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	Exposure duration: 60 min 365 days per year
Duration and Frequency of activity	Spray duration: 0.41 min
Room size	15 m3
Ventilation rate per hour	2.5
	Amount per use 500 g
Release area	20 cm²
Risk Management Measures	
Consumer Measures	Regular cleaning of work area Ensure that direct skin contact is avoided. Use suitable eye protection. Use of suitable gloves.
Exposure estimate and reference to its source	
Assessment method	ConsExpo v4.1
	Consumer - inhalation, long-term - systemic
Exposure estimate	< 0.001 mg/m³
Risk Characterization Ratio (RCR)	< 0.001
Assessment method	ConsExpo v4.1
	Consumer - inhalation, short-term - systemic
Exposure estimate	0.0005 mg/m³
Risk Characterization Ratio (RCR)	0.0004
Assessment method	Qualitative assessment
	Consumer - dermal
Additional good practice advice	
Avoid using without gloves.	
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered	SU21: Consumer uses PC4: Anti-Freeze and De-icing products., Spray
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 10 %

Physical state	Liquid, low fugacity
Duration and Frequency of activity	Exposure duration: 60 min 365 days per year
Duration and Frequency of activity	Application duration: 10 min 365 days per year
Room size	15 m3
Ventilation rate per hour	2.5
Exposed skin area	Palm of one hand (215 cm²)
	Amount per use 16.2 g
Release area	20 cm²
Risk Management Measures	
Consumer Measures	Regular cleaning of work area Ensure that direct skin contact is avoided. Use suitable eye protection. Use of suitable gloves.
Exposure estimate and reference to its source	
Assessment method	ConsExpo v4.1
	Consumer - inhalation, long-term - systemic
Exposure estimate	0.0002 mg/m³
Risk Characterization Ratio (RCR)	0.0001
Assessment method	ConsExpo v4.1
	Consumer - inhalation, short-term - systemic
Exposure estimate	0.0047 mg/m³
Risk Characterization Ratio (RCR)	0.0033
Assessment method	Qualitative assessment
	Consumer - dermal
Additional good practice advice	
Avoid using without gloves.	
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered	SU21: Consumer uses PC24: Lubricants, Greases and Release Products, PC24_3: Subcategory: Sprays
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 3 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	Exposure duration: 15 min 50 days per year
Duration and Frequency of activity	Spray duration: 15 min
Room size	10 m3
Ventilation rate per hour	0.5
Release area	20 cm²
Risk Management Measures	

Consumer Measures	Regular cleaning of work area Ensure that direct skin contact is avoided. Use suitable eye protection. Use of suitable gloves.
Exposure estimate and reference to its source	
Assessment method	ConsExpo v4.1
	Consumer - inhalation, long-term - systemic
Exposure estimate	0.0114 mg/m³
Risk Characterization Ratio (RCR)	0.0079
Assessment method	ConsExpo v4.1
	Consumer - inhalation, short-term - systemic
Exposure estimate	1.1 mg/m³
Risk Characterization Ratio (RCR)	0.76
Assessment method	Qualitative assessment
	Consumer - dermal
Additional good practice advice	
Avoid using without gloves.	
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered	SU21: Consumer uses PC24: Lubricants, Greases and Release Products, PC24_2: Subcategory: Pastes, PC13_1, PC24_1: Subcategory: Liquids
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 3 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	Exposure duration: 15 min 50 days per year
Duration and Frequency of activity	Spray duration: 15 min
Exposed skin area	Both hands (860 cm²)
Risk Management Measures	
Consumer Measures	Regular cleaning of work area Ensure that direct skin contact is avoided. Use suitable eye protection. Use of suitable gloves.
Exposure estimate and reference to its source	
	Consumer - inhalation
	Exposure is considered negligible.
Assessment method	Qualitative assessment
	Consumer - dermal
Additional good practice advice	
Avoid using without gloves.	
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered	SU21: Consumer uses PC35: Washing and Cleaning Products (including solvent based products)., Bathroom cleaning (spray), Spray - General surface application
Operational conditions	
Concentration of the substance	methanesulphonic acid Content: >= 0 % - <= 10 %
Physical state	Liquid, low fugacity
Duration and Frequency of activity	Exposure duration: 25 min 52 days per year
Duration and Frequency of activity	Spray duration: 1.5 min
Room size	10 m3
Ventilation rate per hour	2
Exposed skin area	Both hands (860 cm²)
Risk Management Measures	
Consumer Measures	Regular cleaning of work area Ensure that direct skin contact is avoided. Use suitable eye protection. Use of suitable gloves.
Exposure estimate and reference to its source	
Assessment method	ConsExpo v4.1
	Consumer - inhalation, long-term - systemic
Exposure estimate	< 0.001 mg/m³
Risk Characterization Ratio (RCR)	< 0.001
Assessment method	Qualitative assessment
	Consumer - dermal
Assessment method	ConsExpo v4.1
	Consumer - inhalation, short-term - systemic
Exposure estimate	0.0036 mg/m³
Risk Characterization Ratio (RCR)	0.0025
Additional good practice advice	
Avoid using without gloves.	
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

****

Safety Data Sheet

According to EC 1907/2006

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Name:	**Fuels, diesel**
Safety Data Sheet Number:	**814603**
MARPOL Annex I Category:	Gas Oils, Including Ship's Bunkers
REACH Registration Number:	01-2119484664-27-0006

1.2 Relevant identified uses of the substance or mixture and uses advised against

Intended Use:	Transportation Fuel Heating Oil
Uses Advised Against:	Uses other than those covered by the exposure scenarios appended to this Safety Data Sheet are not supported.

1.3 Details of the supplier of the substance or mixture Manufacturer:

Supplier:	The Maxol Group, 3 Custom House Plaza, IFSC, Dublin 1
Customer Service:	00 353 1 6076800
Technical Information:	www.maxol.ie
SDS Information:	post@maxol.ie

1.4 Emergency telephone number +353 (0) 1 6076800

Section 2: Hazards Identification

2.1 Classification of the substance or mixture

CLP Classification (EC No 1272/2008)

H304 -- Aspiration Hazard -- Category 1
H315 -- Skin corrosion/irritation -- Category 2
H332 -- Acute toxicity, Inhalation -- Category 4
H350 -- Carcinogenicity -- Category 1B
H373 -- Specific target organ toxicity (repeated exposure) -- Category 2
H411 -- Hazardous to the aquatic environment, chronic toxicity -- Category 2

Superseded DSD Classification (67/548/EEC and 1999/45/EC):
Xn;R20, Xi;R38, Carc. Cat. 2;R45, Xn;R48/21, Xn;R65, N;R51/53

2.2 Label Elements

DANGER

H304: May be fatal if swallowed and enters airways
H315: Causes skin irritation H332:
Harmful if inhaled H351:Suspected
of causing cancer
H373: May cause damage to organs through prolonged or repeated exposure.
H411: Toxic to aquatic life with long lasting effects.

P201: Obtain special instructions before use
P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P260: Do not breathe dust/fume/gas/mist/vapours/spray
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P331: Do NOT induce vomiting
P501: Dispose of contents/container to approved disposal facility.

2.3 Other hazards

Combustible liquid
Does not meet the criteria for persistent, bioaccumulative and toxic (PBT) or very persistent, very bioaccumulative (vPvB) substances.

Section 3: Composition / Information on Ingredients

3.1 Substance

Component	CASRN	EINECS	REACH Registration No.	Concentration[1]	CLP Classification[2]	DSD Classification[3]
Fuels, diesel	68334-30-5	269-822-7	Not applicable	100	H351	Carc.Cat.3; R40
Naphthalene	91-20-3	202-049-5	Not applicable	<1	H351,H302,H410	Xn; R22 Carc.Cat.3; R40 N; R50-53

[1] All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.
[2] Regulation EC 1272/2008.
[3] Superseded Directives 67/548/EEC and 1999/45/EC.

Total Sulfur: < 0.1

Section 4: First Aid Measures

4.1 Description of first aid measures

Eye Contact: If irritation or redness develops from exposure, flush eyes with clean water. If symptoms persist, seek medical attention.

Skin Contact: Remove contaminated shoes and clothing, and flush affected area(s) with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. If skin surface is not damaged, cleanse affected area(s) thoroughly by washing with mild soap and water or a waterless hand cleaner. If irritation or redness develops, seek medical attention. Wash contaminated clothing before reuse. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician. (see Note to Physician)

Inhalation (Breathing): If respiratory symptoms or other symptoms of exposure develop, move victim away from source of exposure and into fresh air in a position comfortable for breathing. If symptoms persist, seek immediate medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

Ingestion (Swallowing): Aspiration hazard: Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. If victim is drowsy or unconscious and vomiting, place on the left side with the head down. If possible, do not leave victim unattended and observe closely for adequacy of breathing. Seek medical attention.

4.2 Most important symptoms and effects

Acute: Minor respiratory irritation at high vapor concentrations.

Delayed: Dry skin and possible irritation with repeated or prolonged exposure.

4.3 Indication of immediate medical attention and special treatment needed

Notes to Physician: When using high-pressure equipment, injection of product under the skin can occur. In this case, the casualty should be sent immediately to hospital. Do not wait for symptoms to develop. High-pressure hydrocarbon injection injuries may produce substantial necrosis of underlying tissue despite an innocuous appearing external wound. These injuries often require extensive emergency surgical debridement and all injuries should be evaluated by a specialist in order to assess the extent of injury. Early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

Section 5: Fire-Fighting Measures

5.1 Extinguishing media

Dry chemical, carbon dioxide, foam, or water spray is recommended. Water or foam may cause frothing of materials heated above 212°F / 100°C. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

5.2 Special hazards arising from the substance or mixture

Unusual Fire & Explosion Hazards: Combustible. This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, or mechanical/electrical equipment). May create vapor/air explosion hazard if heated. This product will float and can be reignited on surface water. Vapors are heavier than air and can accumulate in low areas. If container is not properly cooled, it can rupture in the heat of a fire.

Hazardous Combustion Products: Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion. Oxides of nitrogen and sulfur may also be formed.

5.3 Special protective actions for firefighters

For fires beyond the initial stage, emergency responders in the immediate hazard area should wear protective clothing. When the potential chemical hazard is unknown, in enclosed or confined spaces, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Avoid spreading burning liquid with water used for cooling purposes. Cool equipment exposed to fire with water, if it can be done safely.

See Section 9 for Flammable Properties including Flash Point and Flammable (Explosive) Limits

Section 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Combustible. The use of explosion-proof electrical equipment is recommended. Keep all sources of ignition away from spill/release. Stay upwind and away from spill/release. Avoid direct contact with material. For large spillages, notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.

6.2 Environmental precautions

Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Use water sparingly to minimize environmental contamination and reduce disposal requirements. If spill occurs on water notify appropriate authorities and advise shipping of any hazard.

6.3 Methods and material for containment and cleaning up

Notify relevant authorities in accordance with all applicable regulations. Immediate cleanup of any spill is recommended. Dike far ahead of spill for later recovery or disposal. Absorb spill with inert material such as sand or vermiculite, and place in suitable container for disposal. If spilled on water remove with appropriate methods (e.g. skimming, booms or absorbents). In case of soil contamination, remove contaminated soil for remediation or disposal, in accordance with local regulations.

Recommended measures are based on the most likely spillage scenarios for this material; however local conditions and regulations may influence or limit the choice of appropriate actions to be taken.

Section 7: Handling and Storage

7.1 Precautions for safe handling

Keep away from ignition sources such as heat/sparks/open flame – No smoking. Take precautionary measures against static discharge. Nonsparking tools should be used. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe vapors or mists. Use only outdoors or in well-ventilated area. Wear protective gloves/clothing and eye/face protection. Wash thoroughly after handling. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8).

Open container slowly to relieve any pressure. Electrostatic charge may accumulate and create a hazardous condition when handling or processing this material. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. The use of explosion-proof electrical equipment is recommended and may be required (see appropriate fire codes for specific bonding/grounding requirements). Do not enter confined spaces such as tanks or pits without following proper entry procedures. Do not wear contaminated clothing or shoes. Keep contaminated clothing away from sources of ignition such as sparks or open flames.

High pressure injection of hydrocarbon fuels, hydraulic oils or greases under the skin may have serious consequences even though no symptoms or injury may be apparent. This can happen accidentally when using high pressure equipment such as high pressure grease guns, fuel injection apparatus or from pinhole leaks in tubing of high pressure hydraulic oil equipment.

For use as a motor fuel or home heating oil only. Do not use as a solvent due to its flammable and potentially toxic properties. Siphoning by mouth can result in lung aspiration which can be harmful or fatal.
The use of hydrocarbon fuel in an area without adequate ventilation may result in hazardous levels of incomplete combustion products (e.g. carbon monoxide, oxides of sulfur and nitrogen, benzene and other hydrocarbons) and/or dangerously low oxygen levels.

Diesel engine exhaust contains hazardous combustion products and has been classified as a probable cancer hazard in humans.

7.2 Conditions for safe storage, including any incompatibilities

Keep container(s) tightly closed and properly labeled. Use and store this material in cool, dry, well-ventilated area away from heat and all sources of ignition. Store only in approved containers. Post area "No Smoking or Open Flame." Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. Before working on or in tanks which contain or have contained this material, refer to appropriate guidance pertaining to cleaning, repairing, welding, or other contemplated operations. Outdoor or detached storage is preferred. Indoor storage should meet Country or Committee standards and appropriate fire codes.

7.3 Specific end use(s)

Refer to supplemental exposure scenarios if attached.

Section 8: Exposure Controls / Personal Protection

8.1 Control parameters

Occupational Exposure Limits			
Component	**ACGIH**	**Ireland-HSA**	**Other**
Fuels, diesel	TWA: 100 mg/m^3 Skin	TWA: 100 mg/m^3	---

Naphthalene	STEL: 15 ppm TWA: 10 ppm 2 ppm TWA; skin; A3 - confirmed animal carcinogen with unknown relevance to humans; TLV basis: upper respiratory tract irritation Skin	TWA: 10 ppm TWA: 50 mg/m³ STEL: 15 ppm STEL: 75 mg/m³	TWA: 0.2 mg/m³ (as total of 17 PNAs measured by NIOSH Method 5506) (Phillips 66 Guidelines)

STEL = Short Term Exposure Limit (15 minutes); TWA = Time Weighted Average (8 hours); --- = No Occupational Exposure Limit

Biological Limit Values		
Component	**ACGIH**	**EU 98/24/EC**
Fuels, diesel	---	---
Naphthalene	---	---

--- = No Biological Limit Value

Relevant DNEL and PNEC:

Worker Derived No-Effect Level (DNEL)
Inhalation: 68.3 mg/m³/day
Dermal: 2.9 mg/kgbw/day

Consumer Derived No-Effect Level (DNEL)
Inhalation: 61.2 mg/m³/day
Dermal: 1.3 mg/kgbw/day
Ingestion: Not applicable

Environmental Predicted No-Effect Concentration (PNEC): Not applicable

8.2 Exposure controls

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

Eye/Face Protection: The use of eye protection that meets or exceeds EN 166 is recommended to protect against potential eye contact, irritation, or injury. Depending on conditions of use, close fitting eye protection and a face shield may be necessary.

Skin/Hand Protection: The use of gloves impervious to the specific material handled that comply with EN 374 is advised to prevent skin contact. Users should check with manufacturers to confirm the breakthrough performance of their products. Depending on exposure and use conditions, additional protection may be necessary to prevent skin contact including use of items such as chemical resistant boots, aprons, arm covers, hoods, coveralls, or encapsulated suits. Suggested protective materials: Nitrile

Respiratory Protection: Where there is potential for airborne exposure above the exposure limit an approved air purifying respirator equipped with Type A, organic gases and vapour filters (as specified by the manufacturer) may be used.

A respiratory protection program that follows recommendations for the selection, use, care and maintenance of respiratory protective devices in EN 529:2005 should be followed whenever workplace conditions warrant a respirator's use. Air purifying respirators provide limited protection and cannot be used in atmospheres that exceed the maximum use concentration (as directed by regulation or the manufacturer's instructions), in oxygen deficient (less than 19.5 percent oxygen) situations, or under conditions that are immediately dangerous to life and health.

Other Protective Equipment: Eye wash and quick-drench shower facilities should be available in the work area. Thoroughly clean shoes and wash contaminated clothing before reuse.

Environmental Exposure Controls: Refer to Sections 6, 7, 12 and 13.

Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, or engineering professionals.

Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Data represent typical values and are not intended to be specifications. N/A = Not Applicable; N/D = Not Determined

Appearance:	Clear red
Physical Form:	Liquid
Odor:	Pungent Petroleum
Odour Threshold:	N/D
pH:	N/A
Melting/Freezing Point:	N/D
Initial Boiling Point/Range:	180 - 390 °C
Flash Point:	> 60 °C; (Closed Cup)
Evaporation Rate (nBuAc=1):	N/D
Flammability (solid, gas):	Combustible
Upper Explosive Limits (vol % in air):	5.0
Lower Explosive Limits (vol % in air):	0.5
Vapour Pressure:	<0.1 kPa @20°C
Relative Vapour Density (air=1):	>1
Relative Density (water=1):	0.82-0.88 @ 15°C
Solubility (ies):	Insoluble in water.
Partition Coefficient (n-octanol/water) (Kow):	N/D
Auto-ignition Temperature:	250 °C
Decomposition Temperature:	N/D
Viscosity:	4.8 mm^2/s @ 20°C; 1.5-5.5 mm^2/s @ 40°C
Explosive Properties:	N/A
Oxidising Properties:	N/A

9.2 Other Information

Pour Point:	-24 °C

Section 10: Stability and Reactivity

10.1 Reactivity	Not chemically reactive.
10.2 Chemical stability	Stable under normal ambient and anticipated conditions of use.
10.3 Possibility of hazardous reactions	Hazardous reactions not anticipated.
10.4 Conditions to avoid	Avoid all possible sources of ignition.
10.5 Incompatible materials	Avoid contact with strong oxidizing agents and strong reducing agents.
10.6 Hazardous decomposition products	Not anticipated under normal conditions of use.

Section 11: Toxicological Information

11.1 Information on Toxicological Effects of Substance/Mixture

Substance / Mixture

Acute Toxicity	Hazard	Additional Information	LC50/LD50 Data
Inhalation	Harmful if inhaled		4.65 mg/L (mist)
Skin Absorption	Unlikely to be harmful		
Ingestion (Swallowing)	Unlikely to be harmful		> 5 g/kg

Aspiration Hazard: May be fatal if swallowed and enters airways.

Skin Corrosion/Irritation: Causes skin irritation. Repeated exposure may cause skin dryness or cracking.

Serious Eye Damage/Irritation: Causes mild eye irritation.

Signs and Symptoms: While significant vapor concentrations are not likely, high concentrations can cause minor respiratory irritation, headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue. Ingestion can cause irritation of the digestive tract, nausea, diarrhea, and vomiting.

Skin Sensitization: Not expected to be a skin sensitizer.

Respiratory Sensitization: No information available.

Specific Target Organ Toxicity (Single Exposure): Not expected to cause organ effects from single exposure.

Specific Target Organ Toxicity (Repeated Exposure): May cause damage to organs through prolonged or repeated exposure. Repeated dermal application of petroleum gas oils for 90 days resulted in decreased liver, thymus, and spleen weights, and altered bone marrow function. Microscopic alterations included liver hypertrophy and necrosis, decreased hematopoesis and lymphocyte depletion.

Carcinogenicity: Suspected of causing cancer. Petroleum middle distillates have been shown to cause skin tumors in mice following repeated and prolonged skin contact. Follow-up studies have shown that these tumors are produced through a non-genotoxic mechanism associated with frequent cell damage and repair, and that they are not likely to cause tumors in the absence of prolonged skin irritation.

Germ Cell Mutagenicity: Not expected to cause heritable genetic effects.

Reproductive Toxicity: Not expected to cause reproductive toxicity.

11.2 Information on Hazardous Components

Naphthalene

Carcinogenicity: Naphthalene has been evaluated in two year inhalation studies in both rats and mice. The US National Toxicology Program (NTP) concluded that there is clear evidence of carcinogenicity in male and female rats based on increased incidences of respiratory epithelial adenomas and olfactory epithelial neuroblastomas of the nose. NTP found some evidence of carcinogenicity in female mice (alveolar adenomas) and no evidence of carcinogenicity in male mice. Naphthalene has been identified as a carcinogen by IARC and NTP.

Section 12: Ecological Information

12.1 Toxicity

Experimental studies of gas oils show that acute aquatic toxicity values are typically in the range 2-20 mg/L. These values are consistent with the predicted aquatic toxicity of these substances based on their hydrocarbon compositions. They should be regarded as toxic to aquatic organisms, with the potential to cause long term adverse effects in the aquatic environment. Classification: H411; Chronic Cat 2.

12.2 Persistence and degradability

Gas oils are complex combinations of individual hydrocarbon species. Based on the known or expected properties of individual constituents, category members are not predicted to be readily biodegradable. Some hydrocarbon constituents of gas oils are predicted to meet the criteria for persistence; on the other hand, some components can be easily degraded by microorganisms under aerobic conditions.

Persistence per IOPC Fund definition: Non-Persistent

12.3 Bioaccumulative potential

Gas oil components have measured or calculated Log Kow values in the range of 3.9 to 6 which indicates a high potential to bioaccumulate. Lower molecular weight compounds are readily metabolized and the actual bioaccumulation potential of higher molecular weight compounds is limited by the low water solubility and large molecular size.

12.4 Mobility in soil and environmental fate

Releases to water will result in a hydrocarbon film floating and spreading on the surface. For the lighter components, volatilization is an important loss process and reduces the hazard to aquatic organisms. In air, the hydrocarbon vapors react readily with hydroxyl radicals with half-lives of less than one day. Photoxidation on the water surface is also a significant loss process particularly for polycyclic aromatic compounds. In water, the majority of components will be adsorbed on sediment. Adsorption is the most predominant physical process on release to soil. Adsorbed hydrocarbons will slowly degrade in both water and soil.

12.5 Results of PBT and vPvB Assessment

Not a PBT or vPvB substance.

12.6 Other Adverse Effects

None anticipated.

Section 13: Disposal Considerations

13.1 Waste treatment methods

European Waste Code: 13 07 01* fuel oil and diesel

This material, if discarded as produced, would be considered as hazardous waste pursuant to Directive 91/689/EEC on hazardous waste, and subject to the provisions of that Directive unless Article 1(5) of that Directive applies.
This code has been assigned based upon the most common uses for this material and may not reflect contaminants resulting from actual use. Waste generators/producers are responsible for assessing the actual process used when generating the waste and it's contaminants in order to assign the proper waste disposal code.

Disposal must be in accordance with Directive 2006/12/EC and other applicable national or regional provisions, and based upon material characteristics at time of disposal. For incineration of waste, follow Directive 2000/76/EC. For landfill of waste, follow Directive 1999/31/EC. Product is suitable for burning in an enclosed controlled burner for fuel value if >5000 BTU, or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Follow Directive 2000/76/EC.

Empty Containers: Container contents should be completely used and containers emptied prior to discard. Empty drums should be properly sealed and promptly returned to a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with applicable regulations.

Section 14: Transport Information

14.1 UN number	UN1202
14.2 UN proper shipping name	DIESEL FUEL ***or*** GASOIL ***or*** HEATING OIL, LIGHT
14.3 Transport hazard class(es)	3
14.4 Packing group	III
14.5 Environmental hazards	Marine pollutant - Environmentally Hazardous
14.6 Special precautions for user	***If transported in bulk by marine vessel in international waters, product is being carried under the scope of MARPOL Annex I.***
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable

Section 15: Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EC 1272/2008 - Classification, labelling and packaging of substances and mixtures
EN166:2002 Eye Protection
EN 529:2005 Respiratory Protective devices
BS EN 374-1:2003 Protective gloves against chemicals and micro-organisms
Occupational Exposure Limits, Health and Safety Authority
Directive 91/689/EEC on hazardous waste (European Waste Codes)
Directive 2000/76/EC on incineration of waste
Directive 1999/31/EC on landfill of waste

Export Rating: NLR (No License Required)

15.2 Chemical Safety Assessment

A chemical safety assessment has been carried out for the substance/mixture.

Section 16: Other Information

Date of Issue:	09/22/2011
Status:	FINAL
Previous Issue Date:	05/23/2011
Revised Sections or Basis for Revision:	Responsible party (Section 1)
Safety Data Sheet Number:	**814603**
Language:	English

List of Relevant Hazard Statements:
H302: Harmful if swallowed
H304: May be fatal if swallowed and enters airways
H315: Causes skin irritation
H332: Harmful if inhaled
H351: Suspected of causing cancer
H373: May cause damage to organs through prolonged or repeated exposure
H410: Very toxic to aquatic life with long lasting effects
H411: Toxic to aquatic life with long lasting effects

R20: Harmful by inhalation
R22: Harmful if swallowed
R38: Irritating to skin
R40: Limited evidence of a carcinogenic effect
R48: Danger of serious damage to health by prolonged exposure
R65: Harmful: may cause lung damage if swallowed
R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Guide to Abbreviations:
ACGIH = American Conference of Governmental Industrial Hygienists; ADR = Agreement on Dangerous Goods by Road; BMGV = Biological Monitoring Guidance Value; CASRN = Chemical Abstracts Service Registry Number; CEILING = Ceiling Limit; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA = [US] Environmental Protection Agency; Germany-TRGS = Technical Rules for Dangerous Substances; IARC = International Agency for Research on Cancer; ICAO/IATA = International Civil Aviation Organization / International Air Transport Association; INSHT = National Institute for Health and Safety at Work; IMDG = International Maritime Dangerous Goods; Irland-HSA = Ireland's National Health and Safety Authority; LEL = Lower Explosive Limit; MARPOL = Marine Pollution; N/A = Not Applicable; N/D = Not Determined; NTP = [US] National Toxicology Program; PBT = Persistent, Bioaccumulative and Toxic; RID = Regulations Concerning the International Transport of Dangerous Goods by Rail; STEL = Short Term Exposure Limit; TLV = Threshold Limit Value; TRGS 903 = Technical rules for hazardous substances; TWA = Time Weighted Average; UEL = Upper Explosive Limit; UK-EH40 = United Kingdom EH40/2005 OEL; vPvB = very Persistent, very Bioaccumulative

Disclaimer of Expressed and implied Warranties:
The information presented in this Material Safety Data Sheet is based on data believed to be accurate as of the date this Material Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.

MAXOL

Exposure Scenario Annex

Fuels, diesel

1. Manufacture of substance - Industrial

Section 1 Exposure Scenario Vacuum or Hydrocracked Gas Oils and Distillate Fuels	
Title Manufacture of substance	
Use Descriptor	
Sector(s) of Use	3, 8, 9
Process Category(ies)	1, 2, 3, 4, 8a, 8b, 15
Environmental Release Category(ies)	1, 4
Specific Environmental Release Category	ESVOC SpERC 1.1.v1
Processes, tasks, activities covered	
Manufacture of the substance or use as a process chemical or extraction agent. Includes recycling/ recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities.	
Section 2 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting exposure	Operation is carried out at elevated temperature (>20°C above ambient temperature). Assumes a good basic standard of occupational hygiene is implemented.
Contributing Scenarios	
Contributing Scenarios / Product Category	**Specific Risk Management Measures & Operating Conditions**
General measures applicable to all activities	Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
General exposures (closed systems)	Handle substance within a closed system.
General exposures (open systems)	Wear suitable gloves tested to EN374.
Process sampling	No other specific measures identified.
Bulk closed loading and unloading	Handle substance within a closed system. Wear suitable gloves tested to EN374.

Bulk open loading and unloading	Wear suitable gloves tested to EN374.
Equipment cleaning and maintenance	Drain down system prior to equipment break-in or maintenance. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Laboratory activities	No other specific measures identified.
Bulk product storage	Store substance within a closed system.

Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits acute inhalation toxicity and is classified R20 (Harmful by inhalation) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary / additional RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits irritation to the skin and is classified R38 (Irritating to skin) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels is classified R65 (Harmful: may cause lung damage if swallowed). The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aims to define the appropriate RMMs necessary to protect from this adverse effect. There is limited evidence of carcinogenic effects in Vacuum or Hydrocracked Gas Oils and Distillate Fuels and it is classified R40 (May cause cancer) accordingly. The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aim to define the appropriate RMMs necessary to protect from these adverse effects.

2.2 Control of environmental exposure

Product Characteristics
Substance is complex UVCB. Predominantly hydrophobic.

Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tonnes/year)	2.8e7
Fraction of regional tonnage used locally	0.021

Frequency and duration of use
Continuous release.

Emission days (days/year)	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given operational conditions affecting environmental exposure	
Release fraction to air from process (initial release prior to RMM)	1.0e-2
Release fraction to wastewater from process (initial release prior to RMM)	3.0e-5
Release fraction to soil from process (initial release prior to RMM)	0.0001

Technical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater.

Treat air emission to provide a typical removal efficiency of (%):	90
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency >= (%):	90.3
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):	0

Organisation measures to prevent/limit release from site
Prevent discharge of undissolved substance to or recover from onsite wastewater
Do not apply industrial sludge to natural soils
Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%):	94.1
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	94.1
Maximum allowable site tonnage (Msafe) based on release following total wastewater treatment removal (kg/d):	3.3e6
Assumed domestic sewage treatment plant flow (m^3/d):	10000

Conditions and measures related to external treatment of waste for disposal

During manufacturing no waste of the substance is generated.
Conditions and measures related to external recovery of waste
During manufacturing no waste of the substance is generated.
Section 3 Exposure Estimation
3.1 Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2 Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.
Section 4 Guidance to check compliance with the Exposure Scenario
4.1 Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation.
4.2 Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html). Scaled local assessments for EU refineries have been performed using site-specific data and are attached in PETRORISK file – “Site-Specific Production” worksheet.

2. Use of substance as an intermediate - Industrial

Section 1 Exposure Scenario Vacuum or Hydrocracked Gas Oils and Distillate Fuels		
Title Use as an intermediate		
Use Descriptor		
Sector(s) of Use	3, 8, 9	
Process Category(ies)	1, 2, 3, 4, 8a, 8b, 15	
Environmental Release Category(ies)	6a	
Specific Environmental Release Category	ESVOC SpERC 6.1a.v1	
Processes, tasks, activities covered		
Use of substance as an intermediate (not related to Strictly Controlled Conditions). Includes recycling/ recovery, material transfers storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).		
Section 2 Operational conditions and risk management measures		
2.1 Control of worker exposure		
Product Characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP	
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)	
Other operational conditions affecting exposure	Operation is carried out at elevated temperature (>20°C above ambient temperature). Assumes a good basic standard of occupational hygiene is implemented.	
Contributing Scenarios		
Contributing Scenarios / Product Category		**Specific Risk Management Measures & Operating Conditions**

General measures applicable to all activities	Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
General exposures (closed systems)	Handle substance within a closed system.
General exposures (open systems)	Wear suitable gloves tested to EN374.
Process sampling	No other specific measures identified.
Bulk closed loading and unloading	Handle substance within a closed system. Wear suitable gloves tested to EN374.
Bulk open loading and unloading	Wear suitable gloves tested to EN374.
Equipment cleaning and maintenance	No other specific measures identified.
Laboratory activities	No other specific measures identified.
Bulk product storage	Store substance within a closed system.

Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits acute inhalation toxicity and is classified R20 (Harmful by inhalation) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary / additional RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits irritation to the skin and is classified R38 (Irritating to skin) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels is classified R65 (Harmful: may cause lung damage if swallowed). The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aims to define the appropriate RMMs necessary to protect from this adverse effect. There is limited evidence of carcinogenic effects in Vacuum or Hydrocracked Gas Oils and Distillate Fuels and it is classified R40 (May cause cancer) accordingly. The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aim to define the appropriate RMMs necessary to protect from these adverse effects.

2.2 Control of environmental exposure

Product Characteristics
Substance is complex UVCB. Predominantly hydrophobic.

Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tonnes/year)	3.5e5
Fraction of regional tonnage used locally	0.043
Frequency and duration of use Continuous release.	
Emission days (days/year)	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given operational conditions affecting environmental exposure	
Release fraction to air from process (initial release prior to RMM)	1.0e-3
Release fraction to wastewater from process (initial release prior to RMM)	3.0e-5
Release fraction to soil from process (initial release prior to RMM)	0.001

Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater.	
Treat air emission to provide a typical removal efficiency of (%):	80
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency >= (%):	51.7
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):	0
Organisation measures to prevent/limit release from site Prevent discharge of undissolved substance to or recover from onsite wastewater Do not apply industrial sludge to natural soils Sludge should be incinerated, contained or reclaimed.	
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%):	94.1
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	94.1
Maximum allowable site tonnage (Msafe) based on release following total wastewater treatment removal (kg/d):	4.1e5
Assumed domestic sewage treatment plant flow (m³/d):	2000
Conditions and measures related to external treatment of waste for disposal	
This substance is consumed during use and no waste of the substance is generated.	
Conditions and measures related to external recovery of waste	
This substance is consumed during use and no waste of the substance is generated.	
Section 3 Exposure Estimation	
3.1 Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
3.2 Environment	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.	
Section 4 Guidance to check compliance with the Exposure Scenario	
4.1 Health	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation.	
4.2 Environment	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).	

3. Distribution of substance - Industrial

Section 1 Exposure Scenario Vacuum or Hydrocracked Gas Oils and Distillate Fuels	
Title Distribution of substance	
Use Descriptor	
Sector(s) of Use	3
Process Category(ies)	1, 2, 3, 4, 8a, 8b, 9, 15
Environmental Release Category(ies)	1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7
Specific Environmental Release Category	ESVOC SpERC 1.1b.v1
Processes, tasks, activities covered	
Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading distribution and associated laboratory activities.	

Section 2 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting exposure	Assumes use at not more than 20°C above ambient temperatures, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.
Contributing Scenarios	
Contributing Scenarios / Product Category	**Specific Risk Management Measures & Operating Conditions**
General measures applicable to all activities	Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
General exposures (closed systems)	Handle substance within a closed system.
General exposures (open systems)	Wear suitable gloves tested to EN374.
Process sampling	No other specific measures identified.
Laboratory activities	No other specific measures identified.
Bulk closed loading and unloading	Handle substance within a closed system. Wear suitable gloves tested to EN374.
Bulk open loading and unloading	Wear suitable gloves tested to EN374.
Drum and small package filling	Wear suitable gloves tested to EN374.
Equipment cleaning and maintenance	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Storage	Store substance within a closed system.
Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits acute inhalation toxicity and is classified R20 (Harmful by inhalation) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary / additional RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits irritation to the skin and is classified R38 (Irritating to skin) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels is classified R65 (Harmful: may cause lung damage if swallowed). The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aims to define the appropriate RMMs necessary to protect from this adverse effect. There is limited evidence of carcinogenic effects in Vacuum or Hydrocracked Gas Oils and Distillate Fuels and it is classified R40 (May cause cancer) accordingly. The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aim to define the appropriate RMMs necessary to protect from these adverse effects.	
2.2 Control of environmental exposure	
Product Characteristics Substance is complex UVCB. Predominantly hydrophobic.	

Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tonnes/year)	2.8e7
Fraction of regional tonnage used locally	0.002
Frequency and duration of use Continuous release.	
Emission days (days/year)	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given operational conditions affecting environmental exposure	
Release fraction to air from process (initial release prior to RMM)	1.0e-3
Release fraction to wastewater from process (initial release prior to RMM)	1.0e-6
Release fraction to soil from process (initial release prior to RMM)	0.00001
Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater.	
Treat air emission to provide a typical removal efficiency of (%):	90
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency >= (%):	9.6
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):	0
Organisation measures to prevent/limit release from site Prevent discharge of undissolved substance to or recover from onsite wastewater Do not apply industrial sludge to natural soils Sludge should be incinerated, contained or reclaimed.	
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%):	94.1
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	94.1
Maximum allowable site tonnage (Msafe) based on release following total wastewater treatment removal (kg/d):	4.1e5
Assumed domestic sewage treatment plant flow (m³/d):	2000
Conditions and measures related to external treatment of waste for disposal	
This substance is consumed during use and no waste of the substance is generated.	
Conditions and measures related to external recovery of waste	
This substance is consumed during use and no waste of the substance is generated.	
Section 3 Exposure Estimation	
3.1 Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
3.2 Environment	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.	
Section 4 Guidance to check compliance with the Exposure Scenario	
4.1 Health	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation.	
4.2 Environment	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).	

4. Formulation & (Re)packing of substance - Industrial

Section 1 Exposure Scenario Vacuum or Hydrocracked Gas Oils and Distillate Fuels	
Title Formulation & (re)packing of substances and mixtures	
Use Descriptor	
Sector(s) of Use	3, 10
Process Category(ies)	1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15
Environmental Release Category(ies)	2
Specific Environmental Release Category	ESVOC SpERC 2.2.v1
Processes, tasks, activities covered	
Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.	
Section 2 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting exposure	Assumes use at not more than 20°C above ambient temperatures, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.
Contributing Scenarios	
Contributing Scenarios / Product Category	**Specific Risk Management Measures & Operating Conditions**
General measures applicable to all activities	Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
General exposures (closed systems)	Handle substance within a closed system.
General exposures (open systems)	Wear suitable gloves tested to EN374.
Process sampling	No other specific measures identified.
Drum/batch transfers	Use drum pumps or carefully pour from container. Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.
Bulk transfers	Handle substance within a closed system. Wear suitable gloves tested to EN374.
Mixing operations (open systems)	Provide extract ventilation to points where emissions occur. Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.

Production or preparation or articles by tabletting, compression, extrusion or pelletisation	Wear suitable gloves tested to EN374.
Drum/batch transfers	Wear suitable gloves tested to EN374.
Laboratory activities	No other specific measures identified.
Equipment cleaning and maintenance	Drain down system prior to equipment break-in or maintenance. Wear suitable gloves tested to EN374.
Storage	Store substance within a closed system.

Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits acute inhalation toxicity and is classified R20 (Harmful by inhalation) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary / additional RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits irritation to the skin and is classified R38 (Irritating to skin) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels is classified R65 (Harmful: may cause lung damage if swallowed). The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aims to define the appropriate RMMs necessary to protect from this adverse effect. There is limited evidence of carcinogenic effects in Vacuum or Hydrocracked Gas Oils and Distillate Fuels and it is classified R40 (May cause cancer) accordingly. The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aim to define the appropriate RMMs necessary to protect from these adverse effects.

2.2 Control of environmental exposure

Product Characteristics
Substance is complex UVCB. Predominantly hydrophobic.

Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tonnes/year)	2.8e7
Fraction of regional tonnage used locally	0.0011

Frequency and duration of use
Continuous release.

Emission days (days/year)	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given operational conditions affecting environmental exposure	
Release fraction to air from process (initial release prior to RMM)	1.0e-2
Release fraction to wastewater from process (initial release prior to RMM)	2.0e-5
Release fraction to soil from process (initial release prior to RMM)	0.0001

Technical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater.

Treat air emission to provide a typical removal efficiency of (%):	0
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency >= (%):	60.0
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):	0

Organisation measures to prevent/limit release from site
Prevent discharge of undissolved substance to or recover from onsite wastewater
Do not apply industrial sludge to natural soils
Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%):	91.1
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	94.1
Maximum allowable site tonnage (Msafe) based on release following total wastewater treatment removal (kg/d):	6.8e5
Assumed domestic sewage treatment plant flow (m³/d):	2000

Conditions and measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or national regulations.
Section 3 Exposure Estimation
3.1 Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2 Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.
Section 4 Guidance to check compliance with the Exposure Scenario
4.1 Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation.
4.2 Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

5. Use of substance in Metal working fluids / rolling oils - Industrial

Section 1 Exposure Scenario Vacuum or Hydrocracked Gas Oils and Distillate Fuels	
Title Metal working fluids / rolling oils	
Use Descriptor	
Sector(s) of Use	3
Process Category(ies)	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 17
Environmental Release Category(ies)	4
Specific Environmental Release Category	ESVOC SpERC 4.7a.v1
Processes, tasks, activities covered	
Covers the use in formulated MWFs/rolling oils including transfer operations, rolling and annealing activities, cutting/machining activities, automated and manual application of corrosion protections (including brushing, dipping and spraying), equipment maintenance, draining and disposal of waste oils.	
Section 2 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting exposure	Assumes use at not more than 20°C above ambient temperatures, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.
Contributing Scenarios	
Contributing Scenarios / Product Category	**Specific Risk Management Measures & Operating Conditions**

General measures applicable to all activities	Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
General exposures (closed systems)	Handle substance within a closed system.
General exposures (open systems)	Provide extract ventilation to points where emissions occur.
Bulk transfers	Handle substance within a closed system. Wear suitable gloves tested to EN374.
Filling / preparation of equipment from drums or containers	Wear suitable gloves tested to EN374.
Process sampling	No other specific measures identified.
Metal machining operations	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
Treatment by dipping and pouring	Wear suitable gloves tested to EN374.
Spraying	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Wear suitable gloves (tested to EN374), coverall and eye protection.
Manual Roller, spreader, flow application	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Automated metal rolling/forming	Handle substance within a predominantly closed system provided with extract ventilation.
Semi-automated metal rolling/forming	Provide extract ventilation to points where emissions occur.
Equipment cleaning and maintenance	Drain down and flush system prior to equipment break-in or maintenance. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Storage	Store substance within a closed system.
Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits acute inhalation toxicity and is classified R20 (Harmful by inhalation) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary / additional RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits irritation to the skin and is classified R38 (Irritating to skin) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels is classified R65 (Harmful: may cause lung damage if swallowed). The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aims to define the appropriate RMMs necessary to protect from this adverse effect. There is limited evidence of carcinogenic effects in Vacuum or Hydrocracked Gas Oils and Distillate Fuels and it is classified R40 (May cause cancer) accordingly. The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aim to define the appropriate RMMs necessary to protect from these adverse effects.	
2.2 Control of environmental exposure	

Product Characteristics Substance is complex UVCB. Predominantly hydrophobic.	
Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tonnes/year)	1.0e4
Fraction of regional tonnage used locally	0.01
Frequency and duration of use Continuous release.	
Emission days (days/year)	20
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given operational conditions affecting environmental exposure	
Release fraction to air from process (initial release prior to RMM)	0.02
Release fraction to wastewater from process (initial release prior to RMM)	3.0e-6
Release fraction to soil from process (initial release prior to RMM)	0
Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Risk from environmental exposure is driven by freshwater sediment. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%):	70
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency >= (%):	8.3
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):	0
Organisation measures to prevent/limit release from site Prevent discharge of undissolved substance to or recover from onsite wastewater Do not apply industrial sludge to natural soils Sludge should be incinerated, contained or reclaimed.	
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%):	94.1
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	94.1
Maximum allowable site tonnage (Msafe) based on release following total wastewater treatment removal (kg/d):	7.8e4
Assumed domestic sewage treatment plant flow (m^3/d):	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable local and/or national regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or national regulations.	
Section 3 Exposure Estimation	
3.1 Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
3.2 Environment	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.	
Section 4 Guidance to check compliance with the Exposure Scenario	
4.1 Health	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation.	
4.2 Environment	

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

6. Use of substance as Release agents or binders - Industrial

Section 1 Exposure Scenario Vacuum or Hydrocracked Gas Oils and Distillate Fuels	
Title Use as binders and release agents	
Use Descriptor	
Sector(s) of Use	3
Process Category(ies)	1, 2, 3, 4, 6, 7, 8b, 10, 13, 14
Environmental Release Category(ies)	4
Specific Environmental Release Category	ESVOC SpERC 4.10a.v1
Processes, tasks, activities covered	
Covers the use as binders and release agents including material transfers, mixing, application (including spraying and brushing), mould forming and casting, and handling of waste.	
Section 2 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting exposure	Assumes use at not more than 20°C above ambient temperatures, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenarios	
Contributing Scenarios / Product Category	**Specific Risk Management Measures & Operating Conditions**
General measures applicable to all activities	Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.
Bulk transfers	Handle substance within a closed system.
Drum/batch transfers	Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.
Mixing operations (closed systems)	No other specific measures identified.

Mixing operations (open systems)	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Mold forming	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Casting operations (open systems)	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Wear suitable gloves tested to EN374.
Machine Spraying	Minimise exposure by extracted full enclosure for the operation or equipment. Wear suitable gloves tested to EN374.
Manual Spraying	Wear a full face respirator conforming to EN140 with Type A/P2 filter or better. Wear suitable gloves (tested to EN374), coverall and eye protection. Ensure operatives are trained to minimise exposures.
Manual Roller, spreader, flow application	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Equipment cleaning and maintenance	Drain down system prior to equipment break-in or maintenance. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Storage	Store substance within a closed system.

Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits acute inhalation toxicity and is classified R20 (Harmful by inhalation) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary / additional RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits irritation to the skin and is classified R38 (Irritating to skin) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels is classified R65 (Harmful: may cause lung damage if swallowed). The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aims to define the appropriate RMMs necessary to protect from this adverse effect. There is limited evidence of carcinogenic effects in Vacuum or Hydrocracked Gas Oils and Distillate Fuels and it is classified R40 (May cause cancer) accordingly. The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aim to define the appropriate RMMs necessary to protect from these adverse effects.

2.2 Control of environmental exposure

Product Characteristics
Substance is complex UVCB. Predominantly hydrophobic.

Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tonnes/year)	1.4e4
Fraction of regional tonnage used locally	0.18

Frequency and duration of use
Continuous release.

Emission days (days/year)	100
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given operational conditions affecting environmental exposure	
Release fraction to air from process (initial release prior to RMM)	1.0
Release fraction to wastewater from process (initial release prior to RMM)	3.0e-7
Release fraction to soil from process (initial release prior to RMM)	0

Technical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater sediment. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.

Treat air emission to provide a typical removal efficiency of (%):	80
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency >= (%):	59.2
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):	0

Organisation measures to prevent/limit release from site Prevent discharge of undissolved substance to or recover from onsite wastewater Do not apply industrial sludge to natural soils Sludge should be incinerated, contained or reclaimed.	
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%):	94.1
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	94.1
Maximum allowable site tonnage (Msafe) based on release following total wastewater treatment removal (kg/d):	1.7e5
Assumed domestic sewage treatment plant flow (m^3/d):	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable local and/or national regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or national regulations.	
Section 3 Exposure Estimation	
3.1 Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
3.2 Environment	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.	
Section 4 Guidance to check compliance with the Exposure Scenario	
4.1 Health	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation.	
4.2 Environment	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).	

7. Use of substance as Release agents or binders - Professional

Section 1 Exposure Scenario Vacuum or Hydrocracked Gas Oils and Distillate Fuels	
Title Use as binders and release agents	
Use Descriptor	
Sector(s) of Use	22
Process Category(ies)	1, 2, 3, 4, 6, 8a, 8b, 10, 11, 14
Environmental Release Category(ies)	8a, 8d
Specific Environmental Release Category	ESVOC SpERC 8.10b.v1
Processes, tasks, activities covered	
Covers the use as binders and release agents including material transfers, mixing, application by spraying, brushing, and handling of waste.	
Section 2 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting exposure	Assumes use at not more than 20°C above ambient temperatures, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenarios	
Contributing Scenarios / Product Category	**Specific Risk Management Measures & Operating Conditions**
General measures applicable to all activities	Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.
Material transfers (closed systems)	No other specific measures identified.
Drum/batch transfers	Wear suitable gloves tested to EN374.
Mixing operations (closed systems)	No other specific measures identified.
Mixing operations (open systems)	Wear suitable gloves tested to EN374.
Mold forming	Provide extract ventilation to points where emissions occur. Wear suitable gloves tested to EN374.
Casting operations With local exhaust ventilation	Provide extract ventilation to points where emissions occur. Wear suitable gloves tested to EN374.
Casting operations Without local exhaust ventilation	Wear a respirator conforming to EN140 with Type A/P2 filter or better. Wear suitable gloves (tested to EN374), coverall and eye protection.
Spraying Manual Without local exhaust ventilation	Carry out in a vented booth or extracted enclosure. Wear suitable gloves (tested to EN374), coverall and eye protection. Ensure operatives are trained to minimise exposures.
Spraying Manual Without local exhaust ventilation	Wear a full face respirator conforming to EN140 with Type A/P2 filter or better. Wear suitable gloves (tested to EN374), coverall and eye protection. Ensure operatives are trained to minimise exposures.
Manual Roller, spreader, flow application	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Equipment cleaning and maintenance	Drain down system prior to equipment break-in or maintenance. Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.
Storage	Store substance within a closed system.

Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits acute inhalation toxicity and is classified R20 (Harmful by inhalation) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary / additional RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits irritation to the skin and is classified R38 (Irritating to skin) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels is classified R65 (Harmful: may cause lung damage if swallowed). The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aims to define the appropriate RMMs necessary to protect from this adverse effect. There is limited evidence of carcinogenic effects in Vacuum or Hydrocracked Gas Oils and Distillate Fuels and it is classified R40 (May cause cancer) accordingly. The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aim to define the appropriate RMMs necessary to protect from these adverse effects.	
2.2 Control of environmental exposure	
Product Characteristics Substance is complex UVCB. Predominantly hydrophobic.	
Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tonnes/year)	2.9e3
Fraction of regional tonnage used locally	0.0005
Frequency and duration of use Continuous release.	
Emission days (days/year)	365
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given operational conditions affecting environmental exposure	
Release fraction to air from process (initial release prior to RMM)	0.95
Release fraction to wastewater from process (initial release prior to RMM)	0.025
Release fraction to soil from process (initial release prior to RMM)	0.025
Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Risk from environmental exposure is driven by freshwater sediment. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%):	N/A
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency >= (%):	8.3
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):	0
Organisation measures to prevent/limit release from site Do not apply industrial sludge to natural soils Sludge should be incinerated, contained or reclaimed.	
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%):	94.1
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	94.1
Maximum allowable site tonnage (Msafe) based on release following total wastewater treatment removal (kg/d):	6.2e1
Assumed domestic sewage treatment plant flow (m^3/d):	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable local and/or national regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or national regulations.	
Section 3 Exposure Estimation	
3.1 Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
3.2 Environment	

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.
Section 4 Guidance to check compliance with the Exposure Scenario
4.1 Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation.
4.2 Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

8. Use of substance as a Fuel - Industrial

Section 1 Exposure Scenario Vacuum or Hydrocracked Gas Oils and Distillate Fuels	
Title Use as a fuel	
Use Descriptor	
Sector(s) of Use	3
Process Category(ies)	1, 2, 3, 8a, 8b, 16
Environmental Release Category(ies)	7
Specific Environmental Release Category	ESVOC SpERC 7.12a.v1
Processes, tasks, activities covered	
Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.	
Section 2 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting exposure	Assumes use at not more than 20°C above ambient temperatures, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.
Contributing Scenarios	
Contributing Scenarios / Product Category	**Specific Risk Management Measures & Operating Conditions**
General measures applicable to all activities	Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.

General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
Bulk transfers	Wear suitable gloves tested to EN374.
Drum/batch transfers	Wear suitable gloves tested to EN374.
Use as a fuel (closed systems)	No other specific measures identified.
Equipment cleaning and maintenance	Drain down system prior to equipment break-in or maintenance. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Storage	Store substance within a closed system.

Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits acute inhalation toxicity and is classified R20 (Harmful by inhalation) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary / additional RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits irritation to the skin and is classified R38 (Irritating to skin) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels is classified R65 (Harmful: may cause lung damage if swallowed). The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aims to define the appropriate RMMs necessary to protect from this adverse effect. There is limited evidence of carcinogenic effects in Vacuum or Hydrocracked Gas Oils and Distillate Fuels and it is classified R40 (May cause cancer) accordingly. The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aim to define the appropriate RMMs necessary to protect from these adverse effects.

2.2 Control of environmental exposure

Product Characteristics
Substance is complex UVCB. Predominantly hydrophobic.

Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tonnes/year)	4.5e6
Fraction of regional tonnage used locally	0.34

Frequency and duration of use
Continuous release.

Emission days (days/year)	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given operational conditions affecting environmental exposure	
Release fraction to air from process (initial release prior to RMM)	5.0e-3
Release fraction to wastewater from process (initial release prior to RMM)	0.00001
Release fraction to soil from process (initial release prior to RMM)	0

Technical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater sediment. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.

Treat air emission to provide a typical removal efficiency of (%):	95
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency >= (%):	97.7
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):	60.4

Organisation measures to prevent/limit release from site
Prevent discharge of undissolved substance to or recover from onsite wastewater
Do not apply industrial sludge to natural soils
Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%):	94.1
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	97.7
Maximum allowable site tonnage (Msafe) based on release following total wastewater treatment removal (kg/d):	5.5e6
Assumed domestic sewage treatment plant flow (m³/d):	2000
Conditions and measures related to external treatment of waste for disposal	
Combustion emissions considered in regional exposure assessment.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or national regulations.	
Section 3 Exposure Estimation	
3.1 Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
3.2 Environment	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.	
Section 4 Guidance to check compliance with the Exposure Scenario	
4.1 Health	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation.	
4.2 Environment	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).	

9. Use of substance as a Fuel - Professional

Section 1 Exposure Scenario Vacuum or Hydrocracked Gas Oils and Distillate Fuels	
Title Use as a fuel	
Use Descriptor	
Sector(s) of Use	22
Process Category(ies)	1, 2, 3, 8a, 8b, 16
Environmental Release Category(ies)	9a, 9b
Specific Environmental Release Category	ESVOC SpERC 9.12b.v1
Processes, tasks, activities covered	
Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.	
Section 2 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting exposure	Assumes use at not more than 20°C above ambient temperatures, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.
Contributing Scenarios	
Contributing Scenarios / Product Category	**Specific Risk Management Measures & Operating Conditions**

General measures applicable to all activities	Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
Bulk transfers	Wear suitable gloves tested to EN374.
Drum/batch transfers	Use drum pumps or carefully pour from container. Wear suitable gloves tested to EN374.
Refuelling	Wear suitable gloves tested to EN374.
Use as a fuel (closed systems)	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). or Ensure operation is undertaken outdoors.
Equipment cleaning and maintenance	Drain down system prior to equipment break-in or maintenance. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Storage	Store substance within a closed system.

Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits acute inhalation toxicity and is classified R20 (Harmful by inhalation) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary / additional RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits irritation to the skin and is classified R38 (Irritating to skin) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels is classified R65 (Harmful: may cause lung damage if swallowed). The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aims to define the appropriate RMMs necessary to protect from this adverse effect. There is limited evidence of carcinogenic effects in Vacuum or Hydrocracked Gas Oils and Distillate Fuels and it is classified R40 (May cause cancer) accordingly. The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aim to define the appropriate RMMs necessary to protect from these adverse effects.

2.2 Control of environmental exposure

Product Characteristics
Substance is complex UVCB. Predominantly hydrophobic.

Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tonnes/year)	6.7e6
Fraction of regional tonnage used locally	0.0005

Frequency and duration of use
Continuous release.

Emission days (days/year)	365
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given operational conditions affecting environmental exposure	
Release fraction to air from process (initial release prior to RMM)	1.0e-4
Release fraction to wastewater from process (initial release prior to RMM)	0.00001

Release fraction to soil from process (initial release prior to RMM)	0.00001
Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Risk from environmental exposure is driven by freshwater sediment. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%):	N/A
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency >= (%):	8.3
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):	0
Organisation measures to prevent/limit release from site Prevent discharge of undissolved substance to or recover from onsite wastewater Do not apply industrial sludge to natural soils Sludge should be incinerated, contained or reclaimed.	
Conditions and measures related to municipal sewage treatment plant	
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	94.1
Maximum allowable site tonnage (Msafe) based on release following total wastewater treatment removal (kg/d):	1.4e5
Assumed domestic sewage treatment plant flow (m³/d):	2000
Conditions and measures related to external treatment of waste for disposal	
Combustion emissions limited by required exhaust emission controls Combustion emissions considered in regional exposure assessment.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or national regulations.	
Section 3 Exposure Estimation	
3.1 Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
3.2 Environment	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.	
Section 4 Guidance to check compliance with the Exposure Scenario	
4.1 Health	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation.	
4.2 Environment	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).	

10. Use of substance as a Fuel - Consumer

Section 1 Exposure Scenario Vacuum or Hydrocracked Gas Oils and Distillate Fuels	
Title Use as a fuel	
Use Descriptor	
Sector(s) of Use	21
Product Category(ies)	13
Environmental Release Category(ies)	9a, 9b
Specific Environmental Release Category	ESVOC SpERC 9.12c.v1
Processes, tasks, activities covered	
Covers consumer uses in liquid fuels.	

Section 2 Operational conditions and risk management measures	
2.1 Control of consumer exposure	
Product Characteristics	
Physical form of product	Liquid, vapour pressure > 10 Pa at STP
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Frequency and duration of use	For each use event, covers use amounts up to (g): 37500 Covers skin contact area up to (cm2): 420
Other operational conditions affecting exposure	Covers use up to (times/day of use): 0.143 Covers exposure up to (hours/event): 2 hours per event

Contributing Scenarios

Contributing Scenarios / Product Category	**Specific Risk Management Measures & Operating Conditions**
Liquid: Automotive Refuelling	Covers concentrations up to (%): 100%. Covers use up to (days/year): 52. Covers use up to (times/day of use): 1. Covers skin contact area up to (cm2): 210.00. For each use event, covers use amounts up to (g): 37500. Covers use in room size of (m^3): 100. Covers exposure up to (hours/event): 0.05. Covers outdoor use. No specific risk management measure identified beyond those operational conditions stated.
Liquid Garden Equipment - Use	Covers concentrations up to (%): 100%. Covers use up to (days/year): 26. Covers use up to (times/day of use): 1. For each use event, covers use amounts up to (g): 750. Covers outdoor use. Covers use in room size of (m^3): 100. Covers exposure up to (hours/event): 2.00. No specific risk management measure identified beyond those operational conditions stated.
Liquid: Garden Equipment - Refueling	Covers concentrations up to (%): 100%. Covers use up to (days/year): 26. Covers use up to (times/day of use): 1. Covers skin contact area up to (cm2): 420.00. For each use event, covers use amounts up to (g): 750. Covers use in a one car garage (34 m^3) under typical ventilation. Covers use in room size of (m^3): 34. Covers exposure up to (hours/event): 0.03. No specific risk management measure identified beyond those operational conditions stated.

Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits acute inhalation toxicity and is classified R20 (Harmful by inhalation) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary / additional RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits irritation to the skin and is classified R38 (Irritating to skin) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels is classified R65 (Harmful: may cause lung damage if swallowed). The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aims to define the appropriate RMMs necessary to protect from this adverse effect. There is limited evidence of carcinogenic effects in Vacuum or Hydrocracked Gas Oils and Distillate Fuels and it is classified R40 (May cause cancer) accordingly. The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aim to define the appropriate RMMs necessary to protect from these adverse effects.

2.2 Control of environmental exposure	
Product Characteristics Substance is complex UVCB. Predominantly hydrophobic.	
Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tonnes/year)	1.6e7
Fraction of regional tonnage used locally	0.0005
Frequency and duration of use Continuous release.	
Emission days (days/year)	365
Environmental factors not influenced by risk management	

Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given operational conditions affecting environmental exposure	
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%):	94.1
Maximum allowable site tonnage (Msafe) based on release following total wastewater treatment removal (kg/d):	3.5e5
Assumed domestic sewage treatment plant flow (m^3/d):	2000
Conditions and measures related to external treatment of waste for disposal	
Combustion emissions limited by required exhaust emission controls Combustion emissions considered in regional exposure assessment.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or national regulations.	
Section 3 Exposure Estimation	
3.1 Health	
The ECETOC TRA tool has been used to estimate consumer exposures, consistent with the content of ECETOC report #107 and the Chapter R15 of the IR&CSA TGD. Where exposure determinants differ to these sources, then they are indicated.	
3.2 Environment	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.	
Section 4 Guidance to check compliance with the Exposure Scenario	
4.1 Health	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	
4.2 Environment	
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).	

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Name: Fuels, Diesel

Synonyms/Other Means of Identification: DERV
Ultra Low Sulphur Diesel (ULSD)
Distillates (petroleum), hydro treated middle

MARPOL Annex I Category: Gas Oils, Including Ship's Bunkers

REACH Registration Number: 01-2119484664-27-0006

1.2 Relevant identified uses of the substance or mixture and uses advised against

Intended Use: Transport Fuel

Uses Advised Against: Uses other than those covered by the exposure scenarios appended to this Safety Data Sheet are not supported.

1.3 Details of the supplier of the substance or mixture

Manufacturer: Emo Oil Ltd.
Clonminam Ind Est, Portlaoise, Laois

SDS Information: http://www.emo.ie/Products/ProductsSheets.aspx

Email: operations@emo.ie

1.4 Emergency telephone number

+353 (0)57 8674700

Section 2: Hazards Identification

2.1 Classification of the substance or mixture

CLP Classification (EC No 1272/2008):
H304 -- Aspiration Hazard -- Category 1
H315 -- Skin corrosion/irritation -- Category 2
H332 -- Acute toxicity, Inhalation -- Category 4
H350 -- Carcinogenicity -- Category 1B
H373 -- Specific target organ toxicity (repeated exposure) -- Category 2
H411 -- Hazardous to the aquatic environment, chronic toxicity -- Category 2

Superseded DSD Classification (67/548/EEC and 1999/45/EC):
Xn;R20 , Xi;R38 , Carc. Cat. 1;R45 , Xn;R48/21 , Xn;R65 , N;R51/53

2.2 Label Elements

DANGER

H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H332: Harmful if inhaled.
H351:Suspected of causing cancer.
H373: May cause damage to organs through prolonged or repeated exposure.
H411: Toxic to aquatic life with long lasting effects.

P201: Obtain special instructions before use.
P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P260: Do not breathe dust/fume/gas/mist/vapours/spray.
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P331: Do NOT induce vomiting.
P501: Dispose of contents/container to approved disposal facility.

2.3 Other hazards

Combustible liquid.
Does not meet the criteria for persistent, bioaccumulative and toxic (PBT) or very persistent, very bioaccumulative (vPvB) substances

Section 3: Composition / Information on Ingredients

3.1 Substance

Component	CASRN	EINECS	REACH Registration No.	Concentration[1]	CLP Classification[2]	DSD Classification[3]
Diesel Oil ..C9-20	68334-30-5	269-822-7	01-2119484664-27	100	H351	Carc.Cat.3;R40
Naphthalene	91-20-3	202-049-5	Not Applicable	<1	H351 H302 H410	Carc.Cat.3;R40 Xn;R22 N;R50-53

[1] All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume
[2] Regulations EC 1272/2008
[3] Superseded Directives 67/548/EEC and 1999/45/EC

Total Sulphur: < 0.1 wt%

Section 4: First Aid Measures

4.1 Description of first aid measures

Eye Contact: If irritation or redness develops from exposure, flush eyes with clean water. If symptoms persist, seek medical attention.

Skin Contact: Remove contaminated shoes and clothing, and flush affected area(s) with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. If skin surface is not damaged, cleanse affected area(s) thoroughly by washing with mild soap and water or a waterless hand cleaner. If irritation or redness develops, seek medical attention. Wash contaminated clothing before reuse.

Inhalation (Breathing): If respiratory symptoms develop, move victim away from source of exposure and into fresh air in a position comfortable for breathing. If breathing is difficult, oxygen or artificial respiration should be administered by qualified personnel. If symptoms persist, seek medical attention.

Ingestion (Swallowing): Aspiration hazard: Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. If victim is drowsy or unconscious and vomiting, place on the left side with the head down. If possible, do not leave victim unattended and observe closely for adequacy of breathing. Seek medical attention.

4.2 Most important symptoms and effects

Acute: Minor respiratory irritation at high vapour concentrations.

Delayed: Dry skin and possible irritation with repeated or prolonged exposure

4.3 Indication of immediate medical attention and special treatment needed

Other Comments: None

Section 5: Fire-Fighting Measures

5.1 Extinguishing media

Dry chemical, carbon dioxide, or foam is recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam. Water may be ineffective for extinguishment, unless used under favourable conditions by experienced fire fighters.

5.2 Special hazards arising from the substance or mixture

Unusual Fire & Explosion Hazards: Flammable. This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Vapours may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapour/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. This product will float and can be reignited on surface water. Vapours are heavier than air and can accumulate in low areas. If container is not properly cooled, it can rupture in the heat of a fire.

Hazardous Combustion Products: Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion. Oxides of nitrogen and sulphur may also be formed.

5.3 Special protective actions for fire-fighters

For fires beyond the initial stage, emergency responders in the immediate hazard area should wear protective clothing. When the potential chemical hazard is unknown, in enclosed or confined spaces, a self-contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8). Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapours and to protect personnel. Avoid spreading burning liquid with water used for cooling purposes. Cool equipment exposed to fire with water, if it can be done safely.

See Section 9 for Flammable Properties including Flash Point and Flammable (Explosive) Limits

Section 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Flammable. Spillages of liquid product will create a fire hazard and may form an explosive atmosphere. Keep all sources of ignition and hot metal surfaces away from spill/release if safe to do so. The use of explosion-proof electrical equipment is recommended. Stay upwind and away from spill/release. Avoid direct contact with material. For larges spillages, notify persons downwind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.

6.2 Environmental precautions

Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Use foam on spills to minimize vapours. Use water sparingly to minimize environmental contamination and reduce disposal requirements. If spill occurs on water notify appropriate authorities and advise shipping of any hazard.

6.3 Methods and material for containment and cleaning up

Notify relevant authorities in accordance with all applicable regulations. Immediate clean-up of any spill is recommended. Dike far ahead of spill for later recovery or disposal. Absorb spill with inert material such as sand

or vermiculite, and place in suitable container for disposal. If spilled on water remove with appropriate methods (e.g. skimming, booms or absorbents). In case of soil contamination, remove contaminated soil for remediation or disposal, in accordance with local regulations.

Recommended measures are based on the most likely spillage scenarios for this material; however local conditions and regulations may influence or limit the choice of appropriate actions to be taken.

Section 7: Handling and Storage

7.1 Precautions for safe handling

Keep away from ignition sources such as heat/sparks/open flame – No smoking. Take precautionary measures against static discharge. Nonsparking tools should be used. Wear protective gloves/clothing and eye/face protection. Wash thoroughly after handling. Use good personal hygiene practices and wear appropriate personal protective equipment.

Flammable. May vaporize easily at ambient temperatures. The vapour is heavier than air and may create an explosive mixture of vapour and air. Beware of accumulation in confined spaces and low lying areas. Open container slowly to relieve any pressure. Electrostatic charge may accumulate and create a hazardous condition when handling or processing this material. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. The use of explosion-proof electrical equipment is recommended and may be required (see appropriate fire codes for specific bonding/grounding requirements). Do not enter confined spaces such as tanks or pits without following proper entry procedures. Do not wear contaminated clothing or shoes. Keep contaminated clothing away from sources of ignition such as sparks or open flames.

The use of hydrocarbon fuel in an area without adequate ventilation may result in hazardous levels of incomplete combustion products (e.g. carbon monoxide, oxides of sulphur and nitrogen, benzene and other hydrocarbons) and/or dangerously low oxygen levels.

7.2 Conditions for safe storage, including any incompatibilities

Keep container(s) tightly closed and properly labelled. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Store only in approved containers. Post area "No Smoking or Open Flame." Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. Before working on or in tanks which contain or have contained this material, refer to appropriate guidance pertaining to cleaning, repairing, welding, or other contemplated operations. Outdoor or detached storage is preferred. Indoor storage should meet Country or Committee standards and appropriate fire codes.

7.3 Specific end use(s)

Refer to supplemental exposure scenarios if attached.

Section 8: Exposure Controls / Personal Protection

8.1 Control parameters

Occupational Exposure Limits			
Component	**US-ACGIH**	**Ireland-HSA**	**Other**
Diesel Oil ..C9-20	TWA: 100 mg/m3 Skin	None	None
Naphthalene	STEL: 15 ppm TWA: 10 ppm Skin	TWA: 10 ppm TWA: 50 mg/m3 STEL: 15 ppm STEL: 75 mg/m3	TWA: 0.2 mg/m3

STEL = Short Term Exposure Limit (15 minutes): TWA – Time Weighted Average (8 hours): None – No Occupational Exposure Limit

Biological Limit Values		
Component	**US-ACGIH**	**EU 98/24/EC**
Diesel Oil ..C9-20	None	None
Naphthalene	None	None

None = No Biological Limit Value

Relevant DNEL and PNEC: Pending

8.2 Exposure controls

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

Eye/Face Protection: The use of eye protection that meets or exceeds EN 166 is recommended to protect against potential eye contact, irritation, or injury. Depending on conditions of use, close fitting eye protection and a face shield may be necessary.

Skin/Hand Protection: The use of gloves impervious to the specific material handled is advised to prevent skin contact. Users should check with manufacturers to confirm the breakthrough performance of their products. Depending on exposure and use conditions, additional protection may be necessary to prevent skin contact including use of items such as chemical resistant boots, aprons, arm covers, hoods, coveralls, or encapsulated suits. Suggested protective materials: Nitrile

Respiratory Protection: Where there is potential for airborne exposure above the exposure limit an approved air purifying respirator equipped with Type A, organic gases and vapour filters (as specified by the manufacturer) may be used.

A respiratory protection program that follows recommendations for the selection, use, care and maintenance of respiratory protective devices in EN 529:2005 should be followed whenever workplace conditions warrant a respirator's use. Air purifying respirators provide limited protection and cannot be used in atmospheres that exceed the maximum use concentration (as directed by regulation or the manufacturer's instructions), in oxygen deficient (less than 19.5 percent oxygen) situations, or under conditions that are immediately dangerous to life and health.

Other Protective Equipment: Eye wash and quick-drench shower facilities should be available in the work area. Thoroughly clean shoes and wash contaminated clothing before reuse.

Environmental Exposure Controls: Refer to Sections 6, 7, 12 and 13.

Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their

protective equipment. Specific situations may require consultation with industrial hygiene, safety, or engineering professionals.

Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties
Data represent typical values and are not intended to be specifications. N/A = Not Applicable; N/D = Not Determined

Appearance:	Colourless/Marker Dye Green
Physical Form:	Liquid
Odour:	Pungent Petroleum
Odour Threshold:	N/D
pH:	N/A
Melting/Freezing Point:	N/D
Initial Boiling Point/Range:	180-390°C
Flash Point:	>60°C
Evaporation Rate (nBuAc=1):	N/D
Flammability (solid, gas):	Flammable
Upper Explosive Limits (vol % in air):	5.0
Lower Explosive Limits (vol % in air):	0.5
Vapour Pressure:	<0.1 kPa @20°C
Relative Vapour Density (air=1):	>1
Relative Density (water=1):	0.82-0.88 @ 15°C
Solubility (ies):	Solubility in water: Negligible
Partition Coefficient (n-octanol/water) (Kow):	N/D
Auto-ignition Temperature:	250°C
Decomposition Temperature:	N/D
Viscosity:	1.5-5.5 mm^2/s @ 20°C
Explosive Properties:	N/A
Oxidising Properties:	N/A

9.2 Other Information

Pour Point:	-24°C

Section 10: Stability and Reactivity

10.1 Reactivity:	Not chemically reactive.
10.2 Chemical stability:	Stable under normal ambient and anticipated conditions of use.
10.3 Possibility of hazardous reactions:	Hazardous reactions not anticipated.
10.4 Conditions to avoid:	Avoid high temperatures and all sources of ignition. Prevent vapour accumulation.
10.5 Incompatible materials:	Avoid contact with strong oxidizing agents and strong reducing agents.
10.6 Hazardous decomposition products:	Not anticipated under normal conditions of use.

Section 11: Toxicological Information

11.1 Information on Toxicological Effects of Substance/Mixture

Substance / Mixture

Acute Toxicity	Hazard	Additional Information	LC50/LD50 Data
Inhalation	Unlikely to be harmful		> 4.65 mg/L (mist)
Skin Absorption	Unlikely to be harmful		> 4.1 g/kg
Ingestion (Swallowing)	Unlikely to be harmful		> 5 g/kg

Aspiration Hazard: May be fatal if swallowed and enters airways.

Skin Corrosion/Irritation: Causes skin irritation. Repeated exposure may cause skin dryness or cracking.

Serious Eye Damage/Irritation: Causes mild eye irritation.

Signs and Symptoms: While significant vapour concentrations are not likely, high concentrations can cause minor respiratory irritation, headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue. Ingestion can cause irritation of the digestive tract, nausea, diarrhoea, and vomiting.

Skin Sensitization: Not expected to be a skin sensitizer.

Respiratory Sensitization: No information available.

Specific Target Organ Toxicity (Single Exposure): May cause drowsiness and dizziness.

Specific Target Organ Toxicity (Repeated Exposure): Not expected to cause organ effects from repeated exposure.

Carcinogenicity: Not expected to cause cancer. Petroleum middle distillates have been shown to cause skin tumours in mice following repeated and prolonged skin contact. Follow-up studies have shown that these tumours are produced through a nongenotoxic mechanism associated with frequent cell damage and repair, and that they are not likely to cause tumours in the absence of prolonged skin irritation. Middle distillates with low polynuclear aromatic hydrocarbon content have not been identified as a carcinogen by IARC.

Germ Cell Mutagenicity: Not expected to cause heritable genetic effects.

Reproductive Toxicity: Not expected to cause reproductive toxicity.

11.2 Information on Hazardous Components

Naphthalene

Carcinogenicity: Naphthalene has been evaluated in two year inhalation studies in both rats and mice. The US National Toxicology Program (NTP) concluded that there is clear evidence of carcinogenicity in male and female rats based on increased incidences of respiratory epithelial adenomas and olfactory epithelial neuroblastomas of the nose. NTP found some evidence of carcinogenicity in female mice (alveolar adenomas) and no evidence of carcinogenicity in male mice. Naphthalene has been identified as a carcinogen by IARC and NTP.

Section 12: Ecological Information

12.1 Toxicity

Acute aquatic toxicity studies on samples of jet fuel and kerosene streams show acute toxicity values greater than 1 mg/L and mostly in the range 1-100 mg/L. These tests were carried out on water accommodated fractions, in closed systems to prevent evaporative loss. Results are consistent with the predicted aquatic toxicity of these substances based on their hydrocarbon composition. Desiels should be regarded as toxic to aquatic organisms, with the potential to cause long term adverse effects in the aquatic environment. Classification: H411; Chronic Cat 2.

12.2 Persistence and degradability

The hydrocarbons in this material are not readily biodegradable but are regarded as inherently biodegradable since their hydrocarbon components can be degraded by microorganisms.

Persistence per IOPC Fund definition: Non-Persistent

12.3 Bioaccumulative potential

Hydrocarbon constituents of kerosene show measured or predicted Log Kow values ranging from 3 to 6 and above and therefore would be regarded as having the potential to bioaccumulate. In practice, metabolic processes may reduce bioconcentration.

12.4 Mobility in soil and environmental fate

On release to water, hydrocarbons will float on the surface and since they are sparingly soluble, the only significant loss is volatilization to air. It is possible that some of the higher molecular weight hydrocarbons will be adsorbed on sediment. Biodegradation in water is a minor loss process. In air, these hydrocarbons are photo degraded by reaction with hydroxyl radicals with half-lives varying from 0.1 to 0.7 days.

12.5 Results of PBT and vPvB Assessment

Not a PBT or vPvB substance.

12.6 Other Adverse Effects

None anticipated.

Section 13: Disposal Considerations

13.1 Waste treatment methods

European Waste Code: 13 07 01* fuel oil and diesel

This material, if discarded as produced, would be considered as hazardous waste pursuant to Directive 91/689/EEC on hazardous waste, and subject to the provisions of that Directive unless Article 1(5) of that Directive applies. This code has been assigned based upon the most common uses for this material and may not reflect contaminants resulting from actual use. Waste generators/producers are responsible for assessing the actual process used when generating the waste and it's contaminants in order to assign the proper waste disposal code.

Disposal must be in accordance with Directive 2006/12/EC and other applicable national or regional provisions, and based upon material characteristics at time of disposal. For incineration of waste, follow Directive 2000/76/EC. For landfill of waste, follow Directive 1999/31/EC. Product is suitable for burning in an enclosed controlled burner for fuel value if >5000 BTU, or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Follow Directive 2000/76/EC.

Empty Containers: Container contents should be completely used and containers emptied prior to discard. Empty drums should be properly sealed and promptly returned to a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with applicable regulations.

Section 14: Transport Information

14.1 UN number	UN1202
14.2 UN proper shipping name	HE DIESEL FUEL ***or*** GASOIL ***or*** HEATING OIL, LIGHT
14.3 Transport hazard class(es)	3
14.4 Packing group	III
14.5 Environmental hazards	Marine pollutant
14.6 Special precautions for user	***If transported in bulk by marine vessel in international waters, product is being carried under the scope of MARPOL Annex I.***

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not Applicable

Section 15: Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EC 1272/2008 - Classification, labelling and packaging of substances and mixtures
EN166:2002 Eye Protection
EN 529:2005 Respiratory Protective devices
BS EN 374-1:2003 Protective gloves against chemicals and micro-organisms
Occupational Exposure Limits, Health and Safety Authority
Federal Water Act on the Classification of Substances Hazardous to Waters
Directive 91/689/EEC on hazardous waste (European Waste Codes)
Directive 2000/76/EC on incineration of waste
Directive 1999/31/EC on landfill of waste
Export Rating: NLR (No License Required)

15.2 Chemical Safety Assessment

A chemical safety assessment has been carried out for the substance/mixture.

Section 16: Other Information

Date of Issue:	01-Dec-2011
Status:	FINAL
Previous Issue Date:	01-Aug-2008
Revised Sections or Basis for Revision:	Format change Composition (Section 3)
Language:	English

List of Relevant Hazard Statements:

H226: Flammable liquid and vapour
H304: May be fatal if swallowed and enters airways
H315: Causes skin irritation
H336: May cause drowsiness or dizziness
H411: Toxic to aquatic life with long lasting effects
R10: Flammable.
R38: Irritating to skin.
R65: Harmful: may cause lung damage if swallowed.
R67: Vapours may cause drowsiness and dizziness.
R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Guide to Abbreviations:

ACGIH = American Conference of Governmental Industrial Hygienists; ADR = Agreement on Dangerous Goods by Road; BMGV = Biological Monitoring Guidance Value; CASRN = Chemical Abstracts Service Registry Number; CEILING = Ceiling Limit (15 minutes); EINECS – European Inventory of Existing Commercial Chemical Substances; EPA = [US] Environmental Protection Agency; Germany-TRGS = Technical Rules for Dangerous Substances; IARC = International Agency for Research on Cancer; ICAO/IATA = International Civil Aviation Organization / International Air Transport Association; IMDG = International Maritime Dangerous Goods; Ireland-HSA = Ireland's National Health and Safety Authority; LEL = Lower Explosive Limit; N/A = Not Applicable; N/D = Not Determined; NTP = [US] National Toxicology Program; PBT = Persistent, Bioaccumulative and Toxic; RID = Regulations Concerning the International Transport of Dangerous Goods by Rail; STEL = Short Term Exposure Limit (15 minutes); TLV = Threshold Limit Value; TWA = Time Weighted Average (8 hours); UEL = Upper Explosive Limit; UK-EH40 = United Kingdom EH40/2005 Workplace Exposure Limits; vPvB = very Persistent, very Bioaccumulative

Disclaimer of Expressed and implied Warranties:

The information presented in this Material Safety Data Sheet is based on data believed to be accurate as of the date this Material Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE.

No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.

Appendix B

EPA Application Form

4. Activity and Capacity

4.6.2 - Raw Materials, Intermediates and Products - Attachment

Organisation Name: *

College Proteins

Application I.D.: *

LA001647

4. Activity and Capacity

4.6. Raw Materials, Intermediates and Products

Raw Materials, Intermediates and Products cont…

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site *

Complete the table below for all process related raw materials, intermediates, products, etc., used or generated on the site Note 1 - See notes below table for further information additional

Ref. No. or Code	Material/ Substance[2]	CAS Number	Danger Category[3]	Amount Stored (tonnes)	Annual Usage (tonnes)	Nature of Use	Hazard Statement [4]	Odour			Ref. No. or Code (repeated)	Pollutants (Tick and specify Group/Family Number)				Controlled Substances REACH SVHC[6]	Relevant hazardous substance?[7] Yes/No
								Odourous Yes/No	Description	Threshold µg/m3		EC EO (Surface Waters) Regulations 2009		EC EO (Groundwater) Regulations 2010			
												Specific pollutants	Priority (hazardous) substances	Hazardous[5]	Non-hazardous[5]		
1	Methanol (Proposed)	67-56-1	F, T, O	100	2,550	Biodiesel	Hazard Statement (2,3 and 1)	Yes	Characteristic Odour	Not Available	*1*	N/A	N/A	N/A	N/A	01-2119433307-44	Yes
2	Soda Ash (Sodium Carbonate Light)	497-19-8	None	1	5	WWTP	H319 Causes serious eye irritation	No	Odourless	N/A	*2*	N/A	N/A	Undetermined	Undetermined	01-2119485498-19-0007	No
3	Liquid Poly Zetag 9068 FS	64742-47-8, 69011-36-5, 64742-47-8, 69011-36-5	I	1	12	WWTP	H319 Causes serious eye irritation. H315 Causes skin irritation.	Yes	Mineral -oil like	N/A	*3*	N/A	N/A			01-2119485032-45, 01-211945341443	No
4	Powder Poly Zetag 8185	124-04-9	None	1	4	WWTP	None	No	odourless	N/A	*4*	N/A	N/A	N/A	N/A	01-2119457561-38	No
5	Ferric Sulphate	10028-22-5	C	1	10	WWTP	None	No	N/A	N/A	*5*	N/A	N/A	N/A	N/A	N/A	No
6	TerraBent Agro (Bentonite)	1302-78-9	None	7	20	WWTP	None	No	N/A	N/A	*6*	N/A	N/A	N/A	N/A	N/A	No
7	TerraBent SW (Active Bentonite) Proposed	1302-78-9	None	25	625	Biodiesel	H317 – May cause an allergic skin reaction	No	N/A	N/A	*7*	N/A	N/A	N/A	N/A	N/A	No
8	Phosphoric acid (81.5%)	7664-38-2	C	1	6	WWTP	H314: Causes severe skin burns and eye	Yes	Irritating odour	Not Available	*8*	N/A	N/A	Non-Hazardous	Non-Hazardous	None	Yes
9	Sulphuric acid (96%) Proposed	7664-93-9	C	10	250	Biodiesel	H314: Causes severe skin burns and eye	Yes	Slightly pungent odour	Not Available	*9*	N/A	N/A	Undetermined	Undetermined	01-2119458838-20-0096	Yes
10	Antifoam 2500	None	None	0.05	0.3	WWTP	None	No	Odourless	N/A	*10*	N/A	N/A	N/A	N/A	None	No
11	Wood flour (Wood Cellulose)	N/A	None	7	74	Production		Yes	Pine	Not Available	*11*	N/A	N/A	N/A	N/A	None	No
12	Glyceryl Triheptanoate T (GHT)	620-67-7	None	1	3	Production	None	Yes	Characteristic	Not Available	*12*	N/A	N/A	N/A	N/A	Not Available	No

4.6. Raw Materials, Intermediates and Products

Raw Materials, Intermediates and Products cont…

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site *

Complete the table below for all process related raw materials, intermediates, products, etc., used or generated on the site Note 1 - See notes below table for further information
additional

Ref. No. or Code	Material/ Substance[2]	CAS Number	Danger Category[3]	Amount Stored (tonnes)	Annual Usage (tonnes)	Nature of Use	Hazard Statement [4]	Odour			Ref. No. or Code (repeated)	Pollutants (Tick and specify Group/Family Number)				Controlled Substances REACH SVHC[6]	Relevant hazardous substance?[7] Yes/No
								Odourous Yes/No	Description	Threshold µg/m3		EC EO (Surface Waters) Regulations 2009		EC EO (Groundwater) Regulations 2010			
												Specific pollutants	Priority (hazardous) substances	Hazardous[5]	Non-hazardous[5]		
13	OXL	7681-57-4, 1310-73-2, 10124-43-3	C	0.2	1.5	Boiler Waste Treatment	EUH031: Contact with acids liberates toxic gas. H302: Harmful if swallowed. H314: Causes severe skin burns and eye damage. H315: Causes skin irritation. H317: May cause an allergic skin reaction. H318: Causes serious eye damage. H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled H341: Suspected of causing genetic defects H350: May cause cancer H350i: May cause cancer by	Yes	Characteristic odour	Not Available	*13*			Undetermined	Undetermined	01- 2119531326-45-XXXX , 01-2119457892- 27	No
14	JP10	79-10-7	None	0.4	5	Boiler and Cooling tower Treatment	H315: Causes skin irritation. H319: Causes serious eye irritation. R36/38: Irritating to eyes and skin	Yes	Perceptible odour	Not Available	*14*	N/A	N/A	Undetermined	Undetermined	Not Available	No
15	TC52	1310-73-2,72854-27-4	C	0	0	Boiler Waste Treatment	H314: Causes severe skin burns and eye	Yes	Slight characteristic	Not Available	*15*	N/A	N/A	Undetermined	Undetermined	01-211945798-27	No
16	TA20	72854-27-4	None	0.3	1.4	Boiler Waste Treatment	None	Yes	Characteristic odour	Not Available	*16*	N/A	N/A	N/A	N/A	N/A	No
17	AF-1	None	None	0.05	0.15	Boiler Waste Treatment	None	No	Odourless	N/A	*17*	N/A	N/A	N/A	N/A	N/A	No

4.6. Raw Materials, Intermediates and Products

Raw Materials, Intermediates and Products cont…

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site *

Complete the table below for all process related raw materials, intermediates, products, etc., used or generated on the site Note 1 - See notes below table for further information additional

Ref. No. or Code	Material/ Substance[2]	CAS Number	Danger Category[3]	Amount Stored (tonnes)	Annual Usage (tonnes)	Nature of Use	Hazard Statement [4]	Odour			Ref. No. or Code (repeated)	Pollutants (Tick and specify Group/Family Number)				Controlled Substances REACH SVHC[6]	Relevant hazardous substance?[7] Yes/No
								Odourous Yes/No	Description	Threshold µg/m3		EC EO (Surface Waters) Regulations 2009		EC EO (Groundwater) Regulations 2010			
												Specific pollutants	Priority (hazardous) substances	Hazardous[5]	Non-hazardous[5]		
18	Salt (esco PDV)	7647-14-5	None	5	50	Fresh water Treatment	Void	No	Salt	N/A	*18*	N/A	N/A	Undetermined	Undetermined	Not Available	No
19	Biochem HS	1310-73-2, 7681-52-9, 28519-02-01	N, C	0.05	0.2	Cooling Towere Treatment Chemical	None	Yes	Characteristic odour	Not Available	*19*	N/A	N/A	Undetermined	Undetermined	N/A	No
20	Biochem SBR	Undetermined	None	0.05	0.2	Cooling Towere Treatment Chemical	None	No	Odourless	N/A	*20*	N/A	N/A	N/A	N/A	N/A	No
21	Biochem WT3	10377-60-3, 55965-84-9, 7758-98-7	I	0	0	Cooling Towere Treatment Chemical	H319: Causes seri	Yes	Characteristic odour	N/A	*21*			Non-Hazardous	Non-Hazardous	N/A	No
22	Grime beat (Vehicle Wash)	6834-92-0, 50-00-0, 34590-94-8, 61789-40-0	None	1	3.5	Cleaning Chemicals - Vehicles	None	Yes	Slight	Not Available	*22*	N/A	N/A	Undetermined	Undetermined	N/A	No
23	Clean Air	None	None	0.1	0.15	Cleaning Chemicals	None	Yes	Slight	Not Available	*23*	N/A	N/A	N/A	N/A	N/A	No
24	Nitric Acid (55-60%)	7697-37-2	C	1	0.005	Cleaning Chemicals	EUH071: Corrosive to the	Yes	Pungent	Not Available	*24*	N/A	N/A	Undetermined	Undetermined	01-2119487297-23	Yes
25	Sodium Hydroxide (caustic soda liquor) Proposed	001310-73-2	C	30	610	Biodiesel (Cleaning)	H314: Causes severe skin burns and eye damage, H290: May be corrosive to metals	No	Odourless	N/A	*25*	N/A	N/A	Undetermined	Undetermined	01-2119457892-27-XXXX	Yes

4.6. Raw Materials, Intermediates and Products

Raw Materials, Intermediates and Products cont…

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site *

Complete the table below for all process related raw materials, intermediates, products, etc., used or generated on the site Note 1 - See notes below table for further information additional

Ref. No. or Code	Material/ Substance[2]	CAS Number	Danger Category[3]	Amount Stored (tonnes)	Annual Usage (tonnes)	Nature of Use	Hazard Statement [4]	Odour			Ref. No. or Code (repeated)	Pollutants (Tick and specify Group/Family Number)				Controlled Substances REACH SVHC[6]	Relevant hazardous substance?[7] Yes/No
								Odourous Yes/No	Description	Threshold µg/m3		EC EO (Surface Waters) Regulations 2009		EC EO (Groundwater) Regulations 2010			
												Specific pollutants	Priority (hazardous) substances	Hazardous[5]	Non-hazardous[5]		
26	Sodium Hypochloride (bleach)	7681-52-9	C, I, N	0	0	Cleaning Chemicals	H271 May cause fire or explosion, stong oxidiser, H290: May be corrosive to metals, H314: Causes severe skin burns and eye damage, H318 Causes serious eye damage, H319 May cause eye irritation, H335: May cause respiratory irritation, H400 Very toxic to aquatic life, H401 Toxic to auquatic life with loong lasting effects, H302 harmful if swallowed	Yes	Pungent - Chlorine	Not Available	*26*			Non-Hazardous	Non-Hazardous	01-2119488154-34-0047	Yes
27	Hydrochloric acid	007647-01-0	C, I	0	0	Cleaning Chemicals	H314: Causes severe skin burns and eye damage, H335: May cause respiratory irritation, H290: May be corrosive to metals	Yes	characteristicall y pungent	Not Available	*27*	N/A	N/A			01-2119484862-27	Yes

4.6. Raw Materials, Intermediates and Products

Raw Materials, Intermediates and Products cont…

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site *

Complete the table below for all process related raw materials, intermediates, products, etc., used or generated on the site Note 1 - See notes below table for further information additional

Ref. No. or Code	Material/ Substance[2]	CAS Number	Danger Category[3]	Amount Stored (tonnes)	Annual Usage (tonnes)	Nature of Use	Hazard Statement [4]	Odour			Ref. No. or Code (repeated)	Pollutants (Tick and specify Group/Family Number)				Controlled Substances REACH SVHC[6]	Relevant hazardous substance?[7] Yes/No
								Odourous Yes/No	Description	Threshold µg/m3		EC EO (Surface Waters) Regulations 2009		EC EO (Groundwater) Regulations 2010			
												Specific pollutants	Priority (hazardous) substances	Hazardous[5]	Non-hazardous[5]		
28	Osmodex (Bimodex)	68439-45-2, 7664-93-9, 7664-38-2, 7553-56-2	C	0.0025	0.01	Cleaning Chemicals	H302 Harmful if swallowed. H312 Harmful in contact with skin. H314 Causes severe skin burns and eye damage. H315 Causes skin irritation. H318 Causes serious eye damage. H319 Causes serious eye irritation. H332 Harmful if inhaled. H335 May cause respiratory irritation. H400 Very toxic to aquatic life	Yes	Faint surfactant / Faint Iodine	Not Available	*28*			Undetermined	Undetermined	None	Yes
29	Hyperox	79-21-0, 7722-84-1 , 64-19-7,	C, O		0.01	Cleaning Chemicals	H226 Flammable liquid and	Yes	Stinging	Not Available	*29*	Not applicable	Not applicable	Undetermined	Undetermined	Not Available	Yes

4.6. Raw Materials, Intermediates and Products

Raw Materials, Intermediates and Products cont…

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site *

Complete the table below for all process related raw materials, intermediates, products, etc., used or generated on the site Note 1 - See notes below table for further information additional

Ref. No. or Code	Material/ Substance[2]	CAS Number	Danger Category[3]	Amount Stored (tonnes)	Annual Usage (tonnes)	Nature of Use	Hazard Statement [4]	Odour			Ref. No. or Code (repeated)	Pollutants (Tick and specify Group/Family Number)				Controlled Substances REACH SVHC[6]	Relevant hazardous substance?[7] Yes/No
								Odourous Yes/No	Description	Threshold µg/m3		EC EO (Surface Waters) Regulations 2009		EC EO (Groundwater) Regulations 2010			
												Specific pollutants	Priority (hazardous) substances	Hazardous[5]	Non-hazardous[5]		
30	Antifoam Agitan DF6338 (Univar)	9016-45-9, 52-51-7, 55965-84-9	C	0.0025	0.005	WWTP	H301 Toxic if swallowed. H302 Harmful if swallowed. H311 Toxic in contact with skin. H312 Harmful in contact with skin. H314 Causes severe skin burns and eye damage. H315 Causes skin irritation. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H331 Toxic if inhaled. H335 May cause respiratory irritation. H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects. H411 Toxic to aquatic life with long	Yes	Slight	Not Available	*30*	Not applicable	Not applicable	Undetermined	Undetermined	Not Available	Yes
31	Heavy Duty Mint Cleaner	6834-92-0	C, I	1	1	Cleaning Chemicals	H314: Causes severe skin	Yes	Characteristic odour	Not Available	*31*	Not applicable	Not applicable	Undetermined	Undetermined	Not Available	No

4.6. Raw Materials, Intermediates and Products

Raw Materials, Intermediates and Products cont…

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site *

Complete the table below for all process related raw materials, intermediates, products, etc., used or generated on the site Note 1 - See notes below table for further information additional

Ref. No. or Code	Material/ Substance[2]	CAS Number	Danger Category[3]	Amount Stored (tonnes)	Annual Usage (tonnes)	Nature of Use	Hazard Statement [4]	Odour			Ref. No. or Code (repeated)	Pollutants (Tick and specify Group/Family Number)				Controlled Substances REACH SVHC[6]	Relevant hazardous substance?[7] Yes/No
								Odourous Yes/No	Description	Threshold µg/m3		EC EO (Surface Waters) Regulations 2009		EC EO (Groundwater) Regulations 2010			
												Specific pollutants	Priority (hazardous) substances	Hazardous[5]	Non-hazardous[5]		
32	Methene Sulphonic Acid (MSA)	75-75-2, 7732-	C, I	30	500	Biodiesel	H290 May be corrosive to metals. H312 Harmful in contact with skin. H302 Harmful if swallowed. H335 May cause respiratory irritation. H314 Causes severe skin burns and eye damage.	Yes	product specific	Not Determined	*32*	Not applicable	Not applicable	Not applicable	Not applicable	012119491166-34	Yes
33	Green diesel - Plant Diesel	68334-30-5, 91-20-3	O, N, I	2	17	Plant/ Machinery e.g. forktrucks for rendering & biodiesel	H302: Harmful if swallowed, H304: May be fatal if swallowed and enters airways H315: Causes skin irritation H332: Harmful if inhaled H351:Suspected of causing cancer H373: May cause damage to organs through prolonged or repeated exposure. H411: Toxic to aquatic life with long lasting effects.	Yes	Pungent Petroleum	N/D	*33*	Not applicable	Not applicable	Hazardous	Hazardous	01-2119484664-27-0006	Yes

4.6. Raw Materials, Intermediates and Products

Raw Materials, Intermediates and Products cont…

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site *

Complete the table below for all process related raw materials, intermediates, products, etc., used or generated on the site Note 1 - See notes below table for further information additional

Ref. No. or Code	Material/ Substance[2]	CAS Number	Danger Category[3]	Amount Stored (tonnes)	Annual Usage (tonnes)	Nature of Use	Hazard Statement [4]	Odour			Ref. No. or Code (repeated)	Pollutants (Tick and specify Group/Family Number)				Controlled Substances REACH SVHC[6]	Relevant hazardous substance?[7] Yes/No
								Odourous Yes/No	Description	Threshold µg/m3		EC EO (Surface Waters) Regulations 2009		EC EO (Groundwater) Regulations 2010			
												Specific pollutants	Priority (hazardous) substances	Hazardous[5]	Non-hazardous[5]		
34	White diesel - Road Diesel - DERV	68334-30-5	I, C, N	42	500	Transport Rendering & biodiesel	H304 -- Aspiration Hazard -- Category 1 H315 -- Skin corrosion/irritation -- Category 2 H332 -- Acute toxicity, Inhalation -- Category 4 H350 -- Carcinogenicity -- Category 1B H373 -- Specific target organ toxicity (repeated exposure) -- Category 2 H411 -- Hazardous to the aquatic environment, chronic toxicity -- Category 2 H304: May be fatal if swallowed and enters airways. H315: Causes skin irritation. H332: Harmful if inhaled. H351:Suspected	Yes	Pungent Petroleum	N/D	*34*	Not applicable	Not applicable	Hazardous Previously List 1 Substance (Subject to Review)	Hazardous Previously List 1 Substance (Subject to Review)	01-2119484664-27-0006	Yes

4.6. Raw Materials, Intermediates and Products

Raw Materials, Intermediates and Products cont…

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site *

Complete the table below for all process related raw materials, intermediates, products, etc., used or generated on the site additional Note 1 - See notes below table for further information

Ref. No. or Code	Material/ Substance[2]	CAS Number	Danger Category[3]	Amount Stored (tonnes)	Annual Usage (tonnes)	Nature of Use	Hazard Statement [4]	Odour			Ref. No. or Code (repeated)	Pollutants (Tick and specify Group/Family Number)				Controlled Substances REACH SVHC[6]	Relevant hazardous substance?[7] Yes/No
								Odourous Yes/No	Description	Threshold µg/m3		EC EO (Surface Waters) Regulations 2009		EC EO (Groundwater) Regulations 2010			
												Specific pollutants	Priority (hazardous) substances	Hazardous[5]	Non-hazardous[5]		

Notes:

1 The details provided should be very comprehensive, all materials used, fuels, intermediates, laboratory chemicals and product should be included. Particular attention should be paid to materials and product consisting of, or containing, dangerous substances as described in the EU (Classification, Packaging, Labelling and Notification of Dangerous Substances) Regulations 2003 [SI 116/2003] as amended and Regulation (EC) No. 1272/2008. The list must classify these materials in accordance with both of these Regulations, and must specify the designated Hazard Statements. Hazard statements for each substance should be in accordance with Article 21 of the EC Regulation 1272/2008.
The list must identify any Substances of Very High Concern (SVHC) listed in Annex XIV of the REACH Regulations (Regulation (EC) No 1907/2006) as amended and indicate whether the use has been authorised or is exempted in accordance with the Regulation. In the case(s) of exempted use(s) the list must state the basis for each intended exempted use concerned.

2 In cases where a material comprises a number of distinct and available dangerous substances, please give details for each component substance.

3 Article 2(2) of S.I. No. 116/2003.

4 EC Regulation 1272/2008 (Chemicals Act 2008 (13 of 2008) and 2010)

5 The EPA Classification of Hazardous and Non-Hazardous Substances in Groundwater, December 2010.

6 Where relevant, specify whether the substance is on the Authorisation List (Annex XIV Regulation (EC) No 1907/2006 as amended) or Restriction List (Annex XVII Regulation (EC) No 1907/2006 as amended). Also, indicate whether the use has been authorised or exempted in accordance with Regulation (EC) No 1907/2006 as amended.

7 Relevant hazardous substances are those substances or mixtures defined within Article 3 of Regulation (EC) No 1272/2008 on the classification, labelling and packaging of substances and mixtures which, as a result of their hazardousness, mobility, persistence and biodegradability (as well as other characteristics), are capable of contaminating soil or groundwater.

Appendix C

Enviroguide Consulting,
3D Core C, Block 71,
The Plaza,
Park West Business Park,
Dublin
D12F9TN
www.enviroguide.ie

TRIAL PIT LOG

Trial Pit No: TP01

Client: College Proteins **Project:** Environmental Assessment **Site Location:** College Rd., Nobber, Co. Meath

Depth (m)	Legend	Description	Comments	Water	Sample Depth
0		Ground Level			
		MADE GROUND. Grey, loose, slightly silty, slightly clayey GRAVEL with occassional cobbles. Wet.		0.4mBGL Water seepage and resting water level	
1		Brown, slightly silty, gravelly CLAY with some cobbles. Wet.			TP01 1-1.5mBGL
		End of hole: 1.5mBGL	Excavation completed at 1.5mBGL due to pit collapse and water ingress.		
2					
3					
4					

Contractor: College Proteins.
Method: Mini-digger.
Pit Dimensions: 2m x 2m x 1.5m
Date: 19/02/2020

Reference Point: Ground Level.
Elevation: 87.53mOD
Easting: 681890.1
Northing: 789249.3

Water Strike: 0.4mBGL
Water Level: 0.4mBGL
Logged by: FJ
Checked by: CC
Sheet: 1 of 1

Enviroguide Consulting,
3D Core C, Block 71,
The Plaza,
Park West Business Park,
Dublin
D12F9TN
www.enviroguide.ie

TRIAL PIT LOG

Trial Pit No: TP02

Client: College Proteins **Project:** Environmental Assessment **Site Location:** College Rd., Nobber, Co. Meath

Depth (m)	Legend	Description	Comments	Water	Sample Depth
0		Ground Level			
		MADE GROUND. Brown, loose, slightly silty, slightly clayey GRAVEL. Wet.			
		Grey, loose, slightly silty, slightly clayey GRAVEL with frequent cobbles and boulders.Damp.			
1			Increase of boulders at 1.1mBGL.		
		Orange/brown, stiff, slightly silty, slightly gravelly CLAY. Damp.			TP02 1.6-2mBGL
2		End of hole: 2.0mBGL			
3					
4					

Contractor: College Proteins.
Method: Mini-digger.
Pit Dimensions: 1.5m x 2m x 2m
Date: 19/02/2020

Reference Point: Ground Level.
Elevation: 87.87mOD
Easting: 681986.6
Northing: 789211.4

Water Strike: N/A
Water Level: N/A
Logged by: FJ
Checked by: CC
Sheet: 1 of 1

Enviroguide Consulting,
3D Core C, Block 71,
The Plaza,
Park West Business Park,
Dublin
D12F9TN
www.enviroguide.ie

TRIAL PIT LOG

Trial Pit No: TP03

Client: College Proteins **Project: Environmental Assessment.** **Site Location: College Rd., Nobber, Co. Meath**

Depth (m)	Legend	Description	Comments	Water	Sample Depth
0		Ground Level			
		Grey, loose, slightly silty, slightly clayey GRAVEL. Moist/damp.			
		Orange/brown, soft, slightly silty, slightly gravelly CLAY with some cobbles and rare pockets of mottled clay. Damp.			TP03 0.4-1mBGL
1			Increase of boulders between 1.2-1.3mBGL		
2		End of hole: 2mBGL			
3					
4					

Contractor: College Proteins.
Method: Mini-digger.
Pit Dimensions: 1m x 2m x 2m
Date: 19/02/2020

Reference Point: Ground Level.
Elevation: 89.33mOD
Easting: 682084.6
Northing: 789219.9

Water Strike: N/A
Water Level: N/A
Logged by: FJ
Checked by: CC
Sheet: 1 of 1

Enviroguide Consulting,
3D Core C, Block 71,
The Plaza,
Park West Business Park,
Dublin
D12F9TN
www.enviroguide.ie

TRIAL PIT LOG

Trial Pit No: TP04

Client: College Proteins **Project: Environmental Assessment** **Site Location: College Rd., Nobber, Co. Meath**

Depth (m)	Legend	Description	Comments	Water	Sample Depth
		Ground Level			
0		Grey, loose, slightly silty, slightly clayey GRAVEL. Damp.			
		Brown, soft, slightly silty, slightly gravelly CLAY with some cobbles and boulders. Damp.			TP04 0.3-1mBGL
1		Dark brown/grey, stiff, CLAY with few boulders, rare pockets of black sand and rare rootlets. Damp.			
2		End of hole: 2mBGL			
3					
4					

Contractor: College Proteins.
Method: Mini-digger.
Pit Dimensions: 1m x 2m x 2m
Date: 19/02/2020

Reference Point: Ground Level.
Elevation: 87.06mOD
Easting: 682078.5
Northing: 789103.2

Water Strike: N/A
Water Level: N/A
Logged by: FJ
Checked by: CC
Sheet: 1 of 1

Enviroguide Consulting,
3D Core C, Block 71,
The Plaza,
Park West Business Park,
Dublin
D12F9TN
www.enviroguide.ie

TRIAL PIT LOG

Trial Pit No: TP05

Client: College Proteins **Project:** Environmental Assessment **Site Location:** College Rd., Nobber, Co. Meath

Depth (m)	Legend	Description	Comments	Water	Sample Depth
0		Ground Level			
		MADE GROUND. Brown, soft, slightly silty CLAY with rootlets and vegetation. Damp.			
		MADE GROUND. Brown, loose, slightly gravelly, slightly silty CLAY. Damp.			
		MADE GROUND. Brown, loose,reworked slightly clayey, slightly sandy GRAVEL with some cobbles. Damp.			
1		Brown, stiff, slightly gravelly, slightly silty CLAY with some cobbles, few boulders and rare pockets of mottled clay. Damp.			
		Dark brown, stiff, slightly silty CLAY with some cobbles. Damp.		Minor water seepage at 1.9mBGL	
2		End of hole: 2mBGL			
3					
4					

Contractor: College Proteins.
Method: Mini-digger.
Pit Dimensions: 1m x 2m x 2m
Date: 19/02/2020

Reference Point: Ground Level.
Elevation: 87.58mOD
Easting: 682080.5
Northing: 788990.9

Water Strike: 1.9mBGL
Water Level: N/A
Logged by: FJ
Checked by: CC
Sheet: 1 of 1

Enviroguide Consulting,
3D Core C, Block 71,
The Plaza,
Park West Business Park,
Dublin
D12F9TN
www.enviroguide.ie

TRIAL PIT LOG

Trial Pit No: TP06

Client: College Proteins **Project: Environmental Assessment** **Site Location: College Rd., Nobber, Co. Meath**

Depth (m)	Legend	Description	Comments	Water	Sample Depth
		Ground Level			
0		Brown, soft, slightly gravelly, silty CLAY with roots, rootlets and vegetation. Moist.			
		Brown, soft, slightly gravelly, slightly silty CLAY with rare pockets of orange mottled clay and rare boulders. Moist/damp.			TP06 0.2-0.8mBGL
1		Dark brown/grey, stiff, slightly gravelly CLAY with some cobbles, rare pockets of black clay. Damp.			
		Orange/brown, stiff, slightly silty CLAY with some cobbles and boulders. Damp.			
2		End of hole: 2mBGL			
3					
4					

Contractor: College Proteins.
Method: Mini-digger.
Pit Dimensions: 1m x 2m x 2m
Date: 19/02/2020

Reference Point: Ground Level.
Elevation: 87.24mOD
Easting: 682030.8
Northing: 788955.7

Water Strike: N/A
Water Level: N/A
Logged by: FJ
Checked by: CC
Sheet: 1 of 1

Appendix D

	Reference Datum (TOC)	Groundwater Level		Total Depth	
Date		**19/02/2020***			
Well ID	mAOD	mBTOC	mAOD	mBTOC	mAOD
GW1	87.78	>50"	"	-	-
GW2	88.49	43.16	45.33	-	-
GW3/MW1	88.27	19.03	69.24	33.09	55.18
GW4	87.86	24.00	63.86	-	-
GW4b	87.82	~	~	~	~
GW5	90.02	16.96	73.06	-	-

Notes:
"= could not measure groundwater level and total depth as dip meter was not long enough.
~= Well data could not be measured as well had collapsed.
*= The pump located at the meat-rendering plant at the Site operates continuously and was switched on when groundwater levels were measured at the Site on 19/02/2020.
-= Data not recorded
TOC - Top of Casing
mAOD - Elevation in Meters above Ordnance Datum
mBTOC - Meters below Top of Casing

Appendix E

Element Materials Technology
Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

P: +44 (0) 1244 833780
F: +44 (0) 1244 833781
W: www.element.com

Enviroguide
3D Core C
Block 71
The Plaza
Park West
Ireland
D12F 9TN

Attention :	Gareth Carroll
Date :	3rd April, 2020
Your reference :	College Protein
Our reference :	Test Report 20/2623 Batch 1
Location :	College, Nobber, Co. Meath,
Date samples received :	20th February, 2020
Status :	Final report
Issue :	2

Five samples were received for analysis on 20th February, 2020 of which four were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Simon Gomery BSc
Project Manager

Client Name: Enviroguide
Reference: College Protein
Location: College, Nobber, Co. Meath,
Contact: Gareth Carroll
EMT Job No: 20/2623

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	1-7,35	15-21	22-28	29-34							LOD/LOR	Units	Method No.
Sample ID	GW1	GW3	GW4	GW5									
Depth													
COC No / misc													
Containers	V H P BOD G	V H P BOD G	V H P BOD G	V H P BOD G									
Sample Date	19/02/2020	19/02/2020	19/02/2020	19/02/2020									
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1	1									
Date of Receipt	20/02/2020	20/02/2020	20/02/2020	20/02/2020									
Dissolved Arsenic #	<2.5	<2.5	<2.5	<2.5							<2.5	ug/l	TM30/PM14
Dissolved Barium #	49	20	45	52							<3	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM30/PM14
Dissolved Cadmium #	<0.5	3.4	<0.5	<0.5							<0.5	ug/l	TM30/PM14
Total Dissolved Chromium #	<1.5	<1.5	<1.5	<1.5							<1.5	ug/l	TM30/PM14
Dissolved Copper #	<7	<7	<7	<7							<7	ug/l	TM30/PM14
Dissolved Lead #	<5	<5	<5	<5							<5	ug/l	TM30/PM14
Dissolved Mercury #	<1	<1	<1	<1							<1	ug/l	TM30/PM14
Dissolved Nickel #	<2	<2	<2	16							<2	ug/l	TM30/PM14
Dissolved Selenium #	<3	<3	<3	<3							<3	ug/l	TM30/PM14
Dissolved Sodium #	16.4	14.9	18.8	15.5							<0.1	mg/l	TM30/PM14
Dissolved Vanadium #	<1.5	<1.5	<1.5	<1.5							<1.5	ug/l	TM30/PM14
Dissolved Zinc #	<3	14	<3	<3							<3	ug/l	TM30/PM14
VOC TICs	ND	ND	ND	ND								None	TM15/PM10
Acrylic acid	<100	<100	<100	<100							<100	ug/l	TM15/PM10
Acrolein	<100	<100	<100	<100							<100	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1	<0.1							<0.1	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM15/PM10
Toluene #	<5	<5	<5	<5							<5	ug/l	TM15/PM10
Ethylbenzene #	<1	<1	<1	<1							<1	ug/l	TM15/PM10
m/p-Xylene #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
o-Xylene #	<1	<1	<1	<1							<1	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	104	103	102	104							<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	101	100	99	101							<0	%	TM15/PM10
SVOC TICs	ND	ND	ND	ND								None	TM16/PM30
Bronopol	<100	<100	<100	<100							<100	ug/l	TM16/PM30
Chloro-2-methyl-3(2H)-isothiazolone	<100	<100	<100	<100							<100	ug/l	TM16/PM30
2-methyl-3(2H)-isothiazolone	<100	<100	<100	<100							<100	ug/l	TM16/PM30
TPH CWG													
Aliphatics													
>C5-C6 #	<10	<10	<10	<10							<10	ug/l	TM36/PM12
>C6-C8 #	<10	<10	<10	<10							<10	ug/l	TM36/PM12
>C8-C10 #	<10	<10	<10	<10							<10	ug/l	TM36/PM12
>C10-C12 #	<5	<5	<5	<5							<5	ug/l	TM5/PM16/PM30
>C12-C16 #	<10	<10	<10	<10							<10	ug/l	TM5/PM16/PM30
>C16-C21 #	<10	<10	<10	<10							<10	ug/l	TM5/PM16/PM30
>C21-C35 #	<10	<10	<10	<10							<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 #	<10	<10	<10	<10							<10	ug/l	TM5/TM36/PM12/PM16/PM30

Client Name: Enviroguide
Reference: College Protein
Location: College, Nobber, Co. Meath,
Contact: Gareth Carroll
EMT Job No: 20/2623

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	1-7,35	15-21	22-28	29-34							LOD/LOR	Units	Method No.
Sample ID	GW1	GW3	GW4	GW5									
Depth													
COC No / misc													
Containers	V H P BOD G	V H P BOD G	V H P BOD G	V H P BOD G									
Sample Date	19/02/2020	19/02/2020	19/02/2020	19/02/2020									
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1	1									
Date of Receipt	20/02/2020	20/02/2020	20/02/2020	20/02/2020									
TPH CWG													
Aromatics													
>C5-EC7 #	<10	<10	<10	<10							<10	ug/l	TM36/PM12
>EC7-EC8 #	<10	<10	<10	<10							<10	ug/l	TM36/PM12
>EC8-EC10 #	<10	<10	<10	<10							<10	ug/l	TM36/PM12
>EC10-EC12 #	<5	<5	<5	<5							<5	ug/l	TM5/PM16/PM30
>EC12-EC16 #	<10	<10	<10	<10							<10	ug/l	TM5/PM16/PM30
>EC16-EC21 #	<10	<10	<10	<10							<10	ug/l	TM5/PM16/PM30
>EC21-EC35 #	<10	<10	<10	<10							<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35 #	<10	<10	<10	<10							<10	ug/l	TM5/TM36/PM12/PM16/PM30
Total aliphatics and aromatics(C5-35) #	<10	<10	<10	<10							<10	ug/l	TM5/TM36/PM12/PM16/PM30
Alcohols/Acetates													
Methyl Alcohol (Methanol)	<500	<500	<500	<500							<500	ug/l	TM83/PM10
Ethyl Alcohol (Ethanol)	<500	<500	<500	<500							<500	ug/l	TM83/PM10
i-Propyl Alcohol (Isopropanol)	<100	<100	<100	<100							<100	ug/l	TM83/PM10
n-Propyl Alcohol	<100	<100	<100	<100							<100	ug/l	TM83/PM10
n-Butyl Alcohol	<100	<100	<100	<100							<100	ug/l	TM83/PM10
n-Pentyl Alcohol	<100	<100	<100	<100							<100	ug/l	TM83/PM10
n-Hexyl Alcohol	<100	<100	<100	<100							<100	ug/l	TM83/PM10
n-Heptyl Alcohol	<100	<100	<100	<100							<100	ug/l	TM83/PM10
Methyl Acetate	<100	<100	<100	<100							<100	ug/l	TM83/PM10
Ethyl Acetate	<100	<100	<100	<100							<100	ug/l	TM83/PM10
i-Propyl Acetate	<100	<100	<100	<100							<100	ug/l	TM83/PM10
n-Propyl Acetate	<100	<100	<100	<100							<100	ug/l	TM83/PM10
n-Butyl Acetate	<100	<100	<100	<100							<100	ug/l	TM83/PM10
Chloride #	20.3	19.1	26.1	20.7							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2	<0.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/l	TM38/PM0
Ortho Phosphate as P #	<0.03	<0.03	<0.03	<0.03							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as N #	0.14	0.06	0.06	0.12							<0.03	mg/l	TM38/PM0
Acetic Acid	<10	<10	<10	<10							<10	mg/l	TM127/PM0
Propanoic Acid	<1	<1	<1	<1							<1	mg/l	TM127/PM0
2-methyl propanoic acid / Butanoic acid	<1	<1	<1	<1							<1	mg/l	TM127/PM0
3-methyl butanoic acid	<0.5	<0.5	<0.5	<0.5							<0.5	mg/l	TM127/PM0
Pentanoic acid	<0.5	<0.5	<0.5	<0.5							<0.5	mg/l	TM127/PM0
4-methyl pentanoic acid	<0.5	<0.5	<0.5	<0.5							<0.5	mg/l	TM127/PM0
Hexanoic acid	<0.5	<0.5	<0.5	<0.5							<0.5	mg/l	TM127/PM0
Heptanoic acid	<0.5	<0.5	<0.5	<0.5							<0.5	mg/l	TM127/PM0
BOD (Settled) #	<1	<1	1	<1							<1	mg/l	TM58/PM0

Element Materials Technology

Client Name: Enviroguide
Reference: College Protein
Location: College, Nobber, Co. Meath,
Contact: Gareth Carroll
EMT Job No: 20/2623

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

EMT Sample No.	1-7,35	15-21	22-28	29-34							LOD/LOR	Units	Method No.
Sample ID	GW1	GW3	GW4	GW5									
Depth													
COC No / misc													
Containers	V H P BOD G	V H P BOD G	V H P BOD G	V H P BOD G									
Sample Date	19/02/2020	19/02/2020	19/02/2020	19/02/2020									
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1	1									
Date of Receipt	20/02/2020	20/02/2020	20/02/2020	20/02/2020									
COD (Settled) #	17	7	<7	17							<7	mg/l	TM57/PM0
Acidity as H2SO4	27.6	21.6	<5	<5							<5	mg/l	in house
Iodine	<7	<7	<7	<7							<7	mg/l	in house
Hydrogen Peroxide	<10	<10	<10	<10							<10	mg/l	TM117/PM0

Please see attached notes for all abbreviations and acronyms

Client Name: Enviroguide
Reference: College Protein
Location: College, Nobber, Co. Meath,
Contact: Gareth Carroll
EMT Job No: 20/2623

SVOC Report : **Liquid**

EMT Sample No.	1-7,35	15-21	22-28	29-34							LOD/LOR	Units	Method No.
Sample ID	GW1	GW3	GW4	GW5									
Depth													
COC No / misc													
Containers	V H P BOD G	V H P BOD G	V H P BOD G	V H P BOD G									
Sample Date	19/02/2020	19/02/2020	19/02/2020	19/02/2020									
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1	1									
Date of Receipt	20/02/2020	20/02/2020	20/02/2020	20/02/2020									
SVOC MS													
Phenols													
2-Chlorophenol #	<1	<1	<1	<1							<1	ug/l	TM16/PM30
2-Methylphenol #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
2-Nitrophenol	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
2,4-Dichlorophenol #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
2,4-Dimethylphenol	<1	<1	<1	<1							<1	ug/l	TM16/PM30
2,4,5-Trichlorophenol #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
2,4,6-Trichlorophenol	<1	<1	<1	<1							<1	ug/l	TM16/PM30
4-Chloro-3-methylphenol #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
4-Methylphenol	<1	<1	<1	<1							<1	ug/l	TM16/PM30
4-Nitrophenol	<10	<10	<10	<10							<10	ug/l	TM16/PM30
Pentachlorophenol	<1	<1	<1	<1							<1	ug/l	TM16/PM30
Phenol	<1	<1	<1	<1							<1	ug/l	TM16/PM30
PAHs													
2-Chloronaphthalene #	<1	<1	<1	<1							<1	ug/l	TM16/PM30
2-Methylnaphthalene #	<1	<1	<1	<1							<1	ug/l	TM16/PM30
Naphthalene #	<1	<1	<1	<1							<1	ug/l	TM16/PM30
Acenaphthylene #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Acenaphthene #	<1	<1	<1	<1							<1	ug/l	TM16/PM30
Fluorene #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Phenanthrene #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Anthracene #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Fluoranthene #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Pyrene #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Benzo(a)anthracene #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Chrysene #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Benzo(bk)fluoranthene #	<1	<1	<1	<1							<1	ug/l	TM16/PM30
Benzo(a)pyrene	<1	<1	<1	<1							<1	ug/l	TM16/PM30
Indeno(123cd)pyrene	<1	<1	<1	<1							<1	ug/l	TM16/PM30
Dibenzo(ah)anthracene #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Benzo(ghi)perylene #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Phthalates													
Bis(2-ethylhexyl) phthalate	<5	<5	<5	<5							<5	ug/l	TM16/PM30
Butylbenzyl phthalate	<1	<1	<1	<1							<1	ug/l	TM16/PM30
Di-n-butyl phthalate #	<1.5	<1.5	<1.5	<1.5							<1.5	ug/l	TM16/PM30
Di-n-Octyl phthalate	<1	<1	<1	<1							<1	ug/l	TM16/PM30
Diethyl phthalate #	<1	<1	<1	<1							<1	ug/l	TM16/PM30
Dimethyl phthalate	<1	<1	<1	<1							<1	ug/l	TM16/PM30

Please see attached notes for all abbreviations and acronyms

Client Name: Enviroguide
Reference: College Protein
Location: College, Nobber, Co. Meath,
Contact: Gareth Carroll
EMT Job No: 20/2623

SVOC Report : **Liquid**

EMT Sample No.	1-7,35	15-21	22-28	29-34									
Sample ID	GW1	GW3	GW4	GW5									
Depth											Please see attached notes for all abbreviations and acronyms		
COC No / misc													
Containers	V H P BOD G	V H P BOD G	V H P BOD G	V H P BOD G									
Sample Date	19/02/2020	19/02/2020	19/02/2020	19/02/2020									
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1	1									
Date of Receipt	20/02/2020	20/02/2020	20/02/2020	20/02/2020									
SVOC MS											LOD/LOR	Units	Method No.
Other SVOCs													
1,2-Dichlorobenzene #	<1	<1	<1	<1							<1	ug/l	TM16/PM30
1,2,4-Trichlorobenzene #	<1	<1	<1	<1							<1	ug/l	TM16/PM30
1,3-Dichlorobenzene #	<1	<1	<1	<1							<1	ug/l	TM16/PM30
1,4-Dichlorobenzene #	<1	<1	<1	<1							<1	ug/l	TM16/PM30
2-Nitroaniline	<1	<1	<1	<1							<1	ug/l	TM16/PM30
2,4-Dinitrotoluene #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
2,6-Dinitrotoluene	<1	<1	<1	<1							<1	ug/l	TM16/PM30
3-Nitroaniline	<1	<1	<1	<1							<1	ug/l	TM16/PM30
4-Bromophenylphenylether #	<1	<1	<1	<1							<1	ug/l	TM16/PM30
4-Chloroaniline	<1	<1	<1	<1							<1	ug/l	TM16/PM30
4-Chlorophenylphenylether #	<1	<1	<1	<1							<1	ug/l	TM16/PM30
4-Nitroaniline	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Azobenzene #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Bis(2-chloroethoxy)methane #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Bis(2-chloroethyl)ether #	<1	<1	<1	<1							<1	ug/l	TM16/PM30
Carbazole #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Dibenzofuran #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Hexachlorobenzene #	<1	<1	<1	<1							<1	ug/l	TM16/PM30
Hexachlorobutadiene #	<1	<1	<1	<1							<1	ug/l	TM16/PM30
Hexachlorocyclopentadiene	<1	<1	<1	<1							<1	ug/l	TM16/PM30
Hexachloroethane #	<1	<1	<1	<1							<1	ug/l	TM16/PM30
Isophorone #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
N-nitrosodi-n-propylamine #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Nitrobenzene #	<1	<1	<1	<1							<1	ug/l	TM16/PM30
Surrogate Recovery 2-Fluorobiphenyl	123	110	124	118							<0	%	TM16/PM30
Surrogate Recovery p-Terphenyl-d14	122	114	126	148							<0	%	TM16/PM30

Element Materials Technology

Client Name: Enviroguide
Reference: College Protein
Location: College, Nobber, Co. Meath,
Contact: Gareth Carroll
EMT Job No: 20/2623

VOC Report : **Liquid**

EMT Sample No.	1-7,35	15-21	22-28	29-34									
Sample ID	GW1	GW3	GW4	GW5									
Depth											Please see attached notes for all abbreviations and acronyms		
COC No / misc													
Containers	V H P BOD G	V H P BOD G	V H P BOD G	V H P BOD G									
Sample Date	19/02/2020	19/02/2020	19/02/2020	19/02/2020									
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1	1									
Date of Receipt	20/02/2020	20/02/2020	20/02/2020	20/02/2020									
VOC MS											LOD/LOR	Units	Method No.
Dichlorodifluoromethane	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1	<0.1							<0.1	ug/l	TM15/PM10
Chloromethane #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Vinyl Chloride #	<0.1	<0.1	<0.1	<0.1							<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1	<1	<1							<1	ug/l	TM15/PM10
Chloroethane #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	<5	<5	<5	<5							<5	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1	<1	<1							<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Chloroform #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Toluene #	<5	<5	<5	<5							<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2	<2	<2							<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Dibromochloromethane #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Ethylbenzene #	<1	<1	<1	<1							<1	ug/l	TM15/PM10
m/p-Xylene #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
o-Xylene #	<1	<1	<1	<1							<1	ug/l	TM15/PM10
Styrene	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Bromoform #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Isopropylbenzene #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4	<4	<4							<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Propylbenzene #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
n-Butylbenzene #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2	<2							<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Naphthalene	<2	<2	<2	<2							<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	104	103	102	104							<0	%	TM15/PM10

All solid results are expressed on a dry weight basis unless stated otherwise.

Surrogate Recovery 4-Bromofluorobenzene	101	100	99	101							<0	%	TM15/PM10

Client Name: Enviroguide
Reference: College Protein
Location: College, Nobber, Co. Meath,
Contact: Gareth Carroll

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 20/2623						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.
Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 20/2623

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 20/2623

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.	Yes			
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.	Yes			

EMT Job No: 20/2623

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM57	Modified US EPA Method 410.4. Comparable with ISO 15705:2002. Chemical Oxygen Demand is determined by hot digestion with Potassium Dichromate and measured spectrophotometerically.	PM0	No preparation is required.	Yes			
TM58	APHA Standard Methods for the extraction of water and waste water (SMEWW) 5210B. Comparible with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When cBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as ammonia, nitrite and organic nitrogen which exert a nitrogenous demand. Determination of	PM0	No preparation is required.	Yes			
TM83	Modified USEPA method 8260. Determination of Alcohols, Acetates, Acetone, Fuel Oxygenates, THF and Cyclohexane by Headspace GC-MS	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM127	Determination of specific Volatile Fatty Acids with Liquid Chromatography and Mass Spectroscopy detection.	PM0	No preparation is required.				

Element Materials Technology
Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

P: +44 (0) 1244 833780
F: +44 (0) 1244 833781
W: www.element.com

Enviroguide
3D Core C
Block 71
The Plaza
Park West
Ireland
D12F 9TN

Attention :	Gareth Carroll
Date :	3rd April, 2020
Your reference :	COLLEGE PROTEIN
Our reference :	Test Report 20/2764 Batch 1
Location :	College, Nobber, Co Meath
Date samples received :	21st February, 2020
Status :	Final report
Issue :	3

Twenty samples were received for analysis on 21st February, 2020 of which five were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Simon Gomery BSc
Project Manager

Element Materials Technology

Client Name: Enviroguide
Reference: COLLEGE PROTEIN
Location: College, Nobber, Co Meath
Contact: Gareth Carroll
EMT Job No: 20/2764

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	5-8	17-20	37-40	45-48	69-72							
Sample ID	TP04	TP03	TP02	TP01	TP06							
Depth	0.30-1.00	0.40-1.00	1.60-2.00	1.00-1.50	0.20-0.80							
COC No / misc												
Containers	V J T B	V J T B	V J T B	V J T B	V J T B							
Sample Date	19/02/2020	19/02/2020	19/02/2020	19/02/2020	19/02/2020							
Sample Type	Soil	Soil	Soil	Soil	Soil							
Batch Number	1	1	1	1	1							
Date of Receipt	21/02/2020	21/02/2020	21/02/2020	21/02/2020	21/02/2020							

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
Arsenic #	34.7	5.5	5.6	24.0	12.3						<0.5	mg/kg	TM30/PM15
Barium #	177	242	190	118	120						<1	mg/kg	TM30/PM15
Beryllium	1.6	1.8	2.0	1.4	1.3						<0.5	mg/kg	TM30/PM15
Cadmium #	<0.1	0.1	<0.1	0.5	<0.1						<0.1	mg/kg	TM30/PM15
Chromium #	57.1	75.1	51.0	45.8	61.5						<0.5	mg/kg	TM30/PM15
Copper #	53	46	43	39	30						<1	mg/kg	TM30/PM15
Lead #	35	15	16	12	41						<5	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM30/PM15
Nickel #	79.1	74.6	69.9	49.9	47.6						<0.7	mg/kg	TM30/PM15
Selenium #	3	<1	<1	<1	<1						<1	mg/kg	TM30/PM15
Sodium	231	542	249	268	195						<5	mg/kg	TM30/PM15
Vanadium	34	63	59	33	44						<1	mg/kg	TM30/PM15
Zinc #	100	81	93	57	106						<5	mg/kg	TM30/PM15
Acrylic Acid	<100	<100	<100	<100	<100						<100	ug/kg	TM15/PM10
Acrolein	<100	<100	<100	<100	<100						<100	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether #	<2	<2	<2	<2	<2						<2	ug/kg	TM15/PM10
Benzene #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
Toluene #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
Ethylbenzene #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
m/p-Xylene #	<5	<5	<5	<5	<5						<5	ug/kg	TM15/PM10
o-Xylene #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	94	89	89	88	86						<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	98	81	83	78	78						<0	%	TM15/PM10
Bronopol	<100	<100	<100	<100	<100						<100	ug/kg	TM16/PM8
5-chloro-2-methyl-3(2H)-isothiazolone	<100	<100	<100	<100	<100						<100	ug/kg	TM16/PM8
2-methyl-3(2H)-isothiazolone	<100	<100	<100	<100	<100						<100	ug/kg	TM16/PM8
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	<0.2	<0.2	<0.2	<0.2						<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 #	<4	<4	<4	<4	<4						<4	mg/kg	TM5/PM8/PM16
>C16-C21 #	<7	<7	<7	<7	<7						<7	mg/kg	TM5/PM8/PM16
>C21-C35 #	<7	<7	9	<7	<7						<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35	<19	<19	<19	<19	<19						<19	mg/kg	TM5/TM36/PM8/PM12/PM16

Client Name: Enviroguide
Reference: COLLEGE PROTEIN
Location: College, Nobber, Co Meath
Contact: Gareth Carroll
EMT Job No: 20/2764

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	5-8	17-20	37-40	45-48	69-72							
Sample ID	TP04	TP03	TP02	TP01	TP06							
Depth	0.30-1.00	0.40-1.00	1.60-2.00	1.00-1.50	0.20-0.80							
COC No / misc												
Containers	V J T B	V J T B	V J T B	V J T B	V J T B							
Sample Date	19/02/2020	19/02/2020	19/02/2020	19/02/2020	19/02/2020							
Sample Type	Soil	Soil	Soil	Soil	Soil							
Batch Number	1	1	1	1	1							
Date of Receipt	21/02/2020	21/02/2020	21/02/2020	21/02/2020	21/02/2020							

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
TPH CWG													
Aromatics													
>C5-EC7 #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	<0.2	<0.2	<0.2	<0.2	<0.2						<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 #	<4	<4	<4	<4	<4						<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	<7	<7	<7	<7	<7						<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 #	<7	<7	<7	<7	<7						<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 #	<19	<19	<19	<19	<19						<19	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-35)	<38	<38	<38	<38	<38						<38	mg/kg	TM5/TM36/PM8/PM12/PM16
Alcohols/Acetates													
Methyl Alcohol	<500	<500	<500	<500	<500						<500	ug/kg	TM83/PM10
Ethyl Alcohol	<500	<500	<500	<500	<500						<500	ug/kg	TM83/PM10
i-Propyl Alcohol	<100	<100	<100	<100	<100						<100	ug/kg	TM83/PM10
n-Propyl Alcohol	<100	<100	<100	<100	<100						<100	ug/kg	TM83/PM10
n-Butyl Alcohol	<100	<100	<100	<100	<100						<100	ug/kg	TM83/PM10
n-Pentyl Alcohol	<100	<100	<100	<100	<100						<100	ug/kg	TM83/PM10
n-Hexyl Alcohol	<100	<100	<100	<100	<100						<100	ug/kg	TM83/PM10
n-Heptyl Alcohol	<100	<100	<100	<100	<100						<100	ug/kg	TM83/PM10
Methyl Acetate	<100	<100	<100	<100	<100						<100	ug/kg	TM83/PM10
Ethyl Acetate	<100	<100	<100	<100	<100						<100	ug/kg	TM83/PM10
i-Propyl Acetate	<100	<100	<100	<100	<100						<100	ug/kg	TM83/PM10
n-Propyl Acetate	<100	<100	<100	<100	<100						<100	ug/kg	TM83/PM10
n-Butyl Acetate	<100	<100	<100	<100	<100						<100	ug/kg	TM83/PM10
Natural Moisture Content	7.7	15.7	13.9	15.3	28.3						<0.1	%	PM4/PM0
Ammoniacal Nitrogen as N	<0.6	<0.6	<0.6	<0.6	<0.6						<0.6	mg/kg	TM38/PM20
Chloride #	6	6	4	8	4						<2	mg/kg	TM38/PM20
Nitrate as NO3	<2.5	<2.5	<2.5	<2.5	36.8						<2.5	mg/kg	TM38/PM20
Nitrite as NO2	<0.05	<0.05	<0.05	<0.05	0.36						<0.05	mg/kg	TM38/PM20
Ortho Phosphate as PO4	<0.3	<0.3	<0.3	<0.3	<0.3						<0.3	mg/kg	TM38/PM20
Organic Matter	0.6	0.9	1.0	0.8	2.3						<0.2	%	TM21/PM24
Acetic Acid	<15	<15	<15	<15	<15						<15	mg/kg	TM127/PM108
Propanoic Acid	<15	<15	<15	<15	<15						<15	mg/kg	TM127/PM108
2-methyl propanoic acid / Butanoic acid	<2	<2	<2	<2	<2						<2	mg/kg	TM127/PM108
3-methyl butanoic acid	<1	<1	<1	<1	<1						<1	mg/kg	TM127/PM108
Pentanoic acid	<1	<1	<1	<1	<1						<1	mg/kg	TM127/PM108
4-methyl pentanoic acid	<1	<1	<1	<1	<1						<1	mg/kg	TM127/PM108
Hexanoic acid	<1	<1	<1	<1	<1						<1	mg/kg	TM127/PM108

Element Materials Technology

Client Name: Enviroguide
Reference: COLLEGE PROTEIN
Location: College, Nobber, Co Meath
Contact: Gareth Carroll
EMT Job No: 20/2764

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	5-8	17-20	37-40	45-48	69-72							
Sample ID	TP04	TP03	TP02	TP01	TP06							
Depth	0.30-1.00	0.40-1.00	1.60-2.00	1.00-1.50	0.20-0.80							
COC No / misc												
Containers	V J T B	V J T B	V J T B	V J T B	V J T B							
Sample Date	19/02/2020	19/02/2020	19/02/2020	19/02/2020	19/02/2020							
Sample Type	Soil	Soil	Soil	Soil	Soil							
Batch Number	1	1	1	1	1							
Date of Receipt	21/02/2020	21/02/2020	21/02/2020	21/02/2020	21/02/2020							
Heptanoic acid	<1	<1	<1	<1	<1						<1	mg/kg	TM127/PM108
pH#	7.82	8.00	8.58	8.59	6.92						<0.01	pH units	TM73/PM11
Acidity as H2SO4	215	153	187	161	216						<5	mg/kg	in house
Iodine	<32	<32	<32	<32	<32						<32	mg/kg	in house
Hydrogen Peroxide	<15	<15	<15	<15	<15						<15	mg/kg	in house

Please see attached notes for all abbreviations and acronyms

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Enviroguide
Reference: COLLEGE PROTEIN
Location: College, Nobber, Co Meath
Contact: Gareth Carroll
EMT Job No: 20/2764

SVOC Report : **Solid**

EMT Sample No.	5-8	17-20	37-40	45-48	69-72							
Sample ID	TP04	TP03	TP02	TP01	TP06							
Depth	0.30-1.00	0.40-1.00	1.60-2.00	1.00-1.50	0.20-0.80							
COC No / misc												
Containers	V J T B	V J T B	V J T B	V J T B	V J T B							
Sample Date	19/02/2020	19/02/2020	19/02/2020	19/02/2020	19/02/2020							
Sample Type	Soil	Soil	Soil	Soil	Soil							
Batch Number	1	1	1	1	1							
Date of Receipt	21/02/2020	21/02/2020	21/02/2020	21/02/2020	21/02/2020							

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
SVOC MS													
Phenols													
2-Chlorophenol #	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
2-Methylphenol	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
2-Nitrophenol	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
2,4-Dichlorophenol #	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
2,4-Dimethylphenol	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
2,4,5-Trichlorophenol	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
2,4,6-Trichlorophenol	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
4-Chloro-3-methylphenol	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
4-Methylphenol	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
4-Nitrophenol	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Pentachlorophenol	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Phenol #	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
PAHs													
2-Chloronaphthalene #	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
2-Methylnaphthalene #	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Naphthalene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Acenaphthylene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Acenaphthene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Fluorene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Phenanthrene #	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Anthracene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Fluoranthene #	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Pyrene #	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Benzo(a)anthracene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Chrysene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Benzo(bk)fluoranthene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Benzo(a)pyrene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Indeno(123cd)pyrene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Dibenzo(ah)anthracene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Benzo(ghi)perylene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Benzo(b)fluoranthene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Benzo(k)fluoranthene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Phthalates													
Bis(2-ethylhexyl) phthalate	<100	<100	<100	<100	<100						<100	ug/kg	TM16/PM8
Butylbenzyl phthalate	<100	<100	<100	<100	<100						<100	ug/kg	TM16/PM8
Di-n-butyl phthalate	<100	<100	<100	<100	<100						<100	ug/kg	TM16/PM8
Di-n-Octyl phthalate	<100	<100	<100	<100	<100						<100	ug/kg	TM16/PM8
Diethyl phthalate	<100	<100	<100	<100	<100						<100	ug/kg	TM16/PM8
Dimethyl phthalate #	<100	<100	<100	<100	<100						<100	ug/kg	TM16/PM8

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Enviroguide
Reference: COLLEGE PROTEIN
Location: College, Nobber, Co Meath
Contact: Gareth Carroll
EMT Job No: 20/2764

SVOC Report : **Solid**

EMT Sample No.	5-8	17-20	37-40	45-48	69-72						LOD/LOR	Units	Method No.
Sample ID	TP04	TP03	TP02	TP01	TP06								
Depth	0.30-1.00	0.40-1.00	1.60-2.00	1.00-1.50	0.20-0.80								
COC No / misc													
Containers	V J T B	V J T B	V J T B	V J T B	V J T B								
Sample Date	19/02/2020	19/02/2020	19/02/2020	19/02/2020	19/02/2020								
Sample Type	Soil	Soil	Soil	Soil	Soil								
Batch Number	1	1	1	1	1								
Date of Receipt	21/02/2020	21/02/2020	21/02/2020	21/02/2020	21/02/2020								
SVOC MS													
Other SVOCs													
1,2-Dichlorobenzene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
1,2,4-Trichlorobenzene #	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
1,3-Dichlorobenzene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
1,4-Dichlorobenzene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
2-Nitroaniline	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
2,4-Dinitrotoluene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
2,6-Dinitrotoluene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
3-Nitroaniline	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
4-Bromophenylphenylether #	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
4-Chloroaniline	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
4-Chlorophenylphenylether	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
4-Nitroaniline	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Azobenzene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Bis(2-chloroethoxy)methane	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Bis(2-chloroethyl)ether	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Carbazole	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Dibenzofuran #	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Hexachlorobenzene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Hexachlorobutadiene #	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Hexachlorocyclopentadiene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Hexachloroethane	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Isophorone #	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
N-nitrosodi-n-propylamine #	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Nitrobenzene #	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Surrogate Recovery 2-Fluorobiphenyl	116	113	112	115	115						<0	%	TM16/PM8
Surrogate Recovery p-Terphenyl-d14	102	100	97	103	100						<0	%	TM16/PM8

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Enviroguide
Reference: COLLEGE PROTEIN
Location: College, Nobber, Co Meath
Contact: Gareth Carroll
EMT Job No: 20/2764

VOC Report : **Solid**

EMT Sample No.	5-8	17-20	37-40	45-48	69-72						LOD/LOR	Units	Method No.
Sample ID	TP04	TP03	TP02	TP01	TP06								
Depth	0.30-1.00	0.40-1.00	1.60-2.00	1.00-1.50	0.20-0.80								
COC No / misc													
Containers	V J T B	V J T B	V J T B	V J T B	V J T B								
Sample Date	19/02/2020	19/02/2020	19/02/2020	19/02/2020	19/02/2020								
Sample Type	Soil	Soil	Soil	Soil	Soil								
Batch Number	1	1	1	1	1								
Date of Receipt	21/02/2020	21/02/2020	21/02/2020	21/02/2020	21/02/2020								
VOC MS													
Dichlorodifluoromethane	<2	<2	<2	<2	<2						<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether #	<2	<2	<2	<2	<2						<2	ug/kg	TM15/PM10
Chloromethane #	<3	<3	<3	<3	4						<3	ug/kg	TM15/PM10
Vinyl Chloride	<2	<2	<2	<2	<2						<2	ug/kg	TM15_A/PM10
Bromomethane	<1	<1	<1	<1	<1						<1	ug/kg	TM15/PM10
Chloroethane #	<2	<2	<2	<2	<2						<2	ug/kg	TM15/PM10
Trichlorofluoromethane #	<2	<2	<2	<2	<2						<2	ug/kg	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<6	<6	<6	<6	<6						<6	ug/kg	TM15/PM10
Dichloromethane (DCM) #	<30	42	<30	<30	<30						<30	ug/kg	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
2,2-Dichloropropane	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
Bromochloromethane #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
Chloroform #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
Carbon tetrachloride #	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
1,2-Dichloroethane #	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
Benzene #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
1,2-Dichloropropane #	<6	<6	<6	<6	<6						<6	ug/kg	TM15/PM10
Dibromomethane #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
Bromodichloromethane #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
cis-1-3-Dichloropropene	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
Toluene #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
trans-1-3-Dichloropropene	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
1,3-Dichloropropane #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
Dibromochloromethane #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
1,2-Dibromoethane #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
Chlorobenzene #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
Ethylbenzene #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
m/p-Xylene #	<5	<5	<5	<5	<5						<5	ug/kg	TM15/PM10
o-Xylene #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
Styrene	<3	<3	<3	<3	<3						<3	ug/kg	TM15_A/PM10
Bromoform	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
Isopropylbenzene #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
Bromobenzene	<2	<2	<2	<2	<2						<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane #	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
Propylbenzene #	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
tert-Butylbenzene #	<5	<5	<5	<5	<5						<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene #	<6	<6	<6	<6	<6						<6	ug/kg	TM15/PM10
sec-Butylbenzene #	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
4-Isopropyltoluene #	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene #	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene #	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
n-Butylbenzene #	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene #	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane #	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene #	<7	<7	<7	<7	<7						<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
Naphthalene	<27	<27	<27	<27	<27						<27	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene #	<7	<7	<7	<7	<7						<7	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	94	89	89	88	86						<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Surrogate Recovery 4-Bromofluorobenzene	98	81	83	78	78						<0	%	TM15/PM10

Element Materials Technology

Notification of Deviating Samples

Client Name: Enviroguide
Reference: COLLEGE PROTEIN
Location: College, Nobber, Co Meath
Contact: Gareth Carroll

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 20/2764						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.
Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 20/2764

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 20/2764

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.			AR	
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details	Yes		AR	Yes
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.			AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes

EMT Job No: 20/2764

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.			AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.			AR	Yes
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM83	Modified USEPA method 8260. Determination of Alcohols, Acetates, Acetone, Fuel Oxygenates, THF and Cyclohexane by Headspace GC-MS	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM127	Determination of specific Volatile Fatty Acids with Liquid Chromatography and Mass Spectroscopy detection.	PM108	Water extraction for Volatile Fatty Acids			AR	Yes
TM15_A	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds, Vinyl Chloride & Styrene by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes

Appendix F

Enviroguide Consulting
Table 1: Groundwater Analytical Results
Client: College Proteins
Location: College Proteins, College Rd., College, Nobber, Co. Meath

Parameter	Units	LOD	European Communities Environmental Objectives (Groundwater) Regulations, 2010 (S.I. No. 9 of 2010) and amendments S.I. No. 366/2016	*European Communities Enviornmental Objectives (Surface Waters) Regulations 2009 (S.I. No. 272/2009 and amendments SI No. 327/2012, 386/2015 and 77/2019*		European Union (Drinking water) Regulations 2014 SI No. 122/2015 and ammendment S.I. No. 464 of 2017	Sample ID	GW1	GW3	GW4	GW5
				AA-EQS Inland Surface Waters	*MAC-EQS Inland Surface Waters*		Sampled Date	19/02/2020	19/02/2020	19/02/2020	19/02/2020
							Exova/ Element Job Number	20/2623	20/2623	20/2623	20/2623
Field Observations											
Colour	--	--	--	--	--	--		Clear	Light brown	Clear	Light brown
Odour	--	--	--	--	--	--		None	None	None	None
Field measures											
Conductivity	us/cm	--	800-1875	--	--	2500		184	585	680	642.8
pH	pH units	--	--	Soft Water 4.5< pH < 9.0 or Hard Water 6.0< pH < 9.0		6.5-9.5		7.78	7.12	7.56	7.59
Temperature	°C	--	--	Not greater than a 1.5°C rise in ambient temperature outside the mixing zone		--		12.2	10.8	12	10.5
Oxidation-Reduction Potential	mV	--	--	--	--	--		20.6	-4.1	-19.4	-67.9
Laboratory measured											
Dissolved Arsenic	ug/l	<2.5	7.5	25	--	--		<2.5	<2.5	<2.5	<2.5
Dissolved Barium	ug/l	<3	--	--	--	--		49	20	45	52
Dissolved Beryllium	ug/l	<0.5	--	--	--	--		<0.5	<0.5	<0.5	<0.5
Dissolved Cadmium	ug/l	<0.5	3.75	0.25 (Class 5)*	1.5 (Class 5)*	--		<0.5	3.4	<0.5	<0.5
Total Dissolved Chromium	ug/l	<1.5	37.5	3.4	--	--		<1.5	<1.5	<1.5	<1.5
Dissolved Copper	ug/l	<7	1500	5 or 30~	--	--		<7	<7	<7	<7
Dissolved Lead	ug/l	<5	7.5	1.2	14	--		<5	<5	<5	<5
Dissolved Mercury	ug/l	<1	0.75	--	0.07	--		<1	<1	<1	<1
Dissolved Nickel	ug/l	<2	15	4	34	--		<2	<2	<2	16
Dissolved Selenium	ug/l	<3	--	--	--	--		<3	<3	<3	<3
Dissolved Sodium	mg/l	<0.1	150	--	--	200*		16.4	14.9	18.8	15.5
Dissolved Vanadium	ug/l	<1.5	--	--	--	--		<1.5	<1.5	<1.5	<1.5
Dissolved Zinc	ug/l	<3	75	8 or 50 or 100~	--	--		<3	14	<3	<3
Chloride	mg/l	<0.3	187.5	--	--	250		20.3	19.1	26.1	20.7
Nitrate as NO3	mg/l	<0.2	37.5	--	--	50		<0.2	<0.2	<0.2	<0.2
Nitrite as NO2	mg/l	<0.02	3.745	--	--	0.5		<0.02	<0.02	<0.02	<0.02
Ortho Phosphate as P	mg/l	<0.03	0.035	High status ≤ 0.025 (mean) and ≤ 0.045 (95%ile) Good status ≤ 0.035 (mean) and ≤ 0.075 (95%ile)		--		<0.03	<0.03	<0.03	<0.03
Ammoniacal Nitrogen as N	mg/l	<0.03	--	High status <= 0.04 (mean)or <=0.090 (95%ile) or Good status <= 0.065 (mean) or <= 0.14 (95%ile)		0.23		*0.14*	0.06	0.06	*0.12*
Ammonium as NH4	mg/l	<0.03	0.065-0.175	--	--	0.3		**0.18**	0.08	0.08	0.15
Volatile Organic Compounds and Tentatively Identified Compounds (VOCs + TICs)	None	-	--	--	--	--		ND	ND	ND	ND
Acrylic acid	ug/l	<100	--	--	--	--		<100	<100	<100	<100
Acrolein	ug/l	<100	--	--	--	--		<100	<100	<100	<100
BTEX and MTBE											
Methyl Tertiary Butyl Ether	ug/l	<0.1	10	--	--	--		<0.1	<0.1	<0.1	<0.1
Benzene	ug/l	<0.5	0.75	10	50	1.1		<0.5	<0.5	<0.5	<0.5
Toluene	ug/l	<5	525	10	--	--		<5	<5	<5	<5
Ethylbenzene	ug/l	<1	--	--	--	--		<1	<1	<1	<1
m/p-Xylene	ug/l	<2	--	10	--	--		<2	<2	<2	<2
o-Xylene	ug/l	<1	--	10	--	--		<1	<1	<1	<1
Total Petroleum Hydrocarbon Criteria Working Group (TPH CWG)											
Aliphatics											
>C5-C6	ug/l	<10	--	--	--	--		<10	<10	<10	<10
>C6-C8	ug/l	<10	--	--	--	--		<10	<10	<10	<10
>C8-C10	ug/l	<10	--	--	--	--		<10	<10	<10	<10
>C10-C12	ug/l	<5	--	--	--	--		<5	<5	<5	<5
>C12-C16	ug/l	<10	--	--	--	--		<10	<10	<10	<10
>C16-C21	ug/l	<10	--	--	--	--		<10	<10	<10	<10
>C21-C35	ug/l	<10	--	--	--	--		<10	<10	<10	<10
Total aliphatics C5-35	ug/l	<10	--	--	--	--		<10	<10	<10	<10
Aromatics											
>C5-EC7	ug/l	<10	--	--	--	--		<10	<10	<10	<10
>EC7-EC8	ug/l	<10	--	--	--	--		<10	<10	<10	<10
>EC8-EC10	ug/l	<10	--	--	--	--		<10	<10	<10	<10
>EC10-EC12	ug/l	<5	--	--	--	--		<5	<5	<5	<5
>EC12-EC16	ug/l	<10	--	--	--	--		<10	<10	<10	<10
>EC16-EC21	ug/l	<10	--	--	--	--		<10	<10	<10	<10
>EC21-EC35	ug/l	<10	--	--	--	--		<10	<10	<10	<10
Total aromatics C5-35	ug/l	<10	--	--	--	--		<10	<10	<10	<10
Total aliphatics and aromatics(C5-35)	ug/l	<10	7.5	--	--	--		<10	<10	<10	<10
Semivolatile Organic Compounds and Tentatively Identified Compounds (SVOCs + TICs)	None	-	--	--	--	--		ND	ND	ND	ND
Bronopol	ug/l	<100	--	--	--	--		<100	<100	<100	<100
Chloro-2methyl-3(2H)isothiazione	ug/l	<100	--	--	--	--		<100	<100	<100	<100
2-methyl-3(2H)-isothiazolone	ug/l	<100	--	--	--	--		<100	<100	<100	<100
								<100	<100	<100	<100
Alcohols/Acetates											
Methyl Alcohol (Methanol)	ug/l	<500	--	--	--	--		<500	<500	<500	<500
Ethyl Alcohol (Ethanol)	ug/l	<500	--	--	--	--		<500	<500	<500	<500
i-Propyl Alcohol (Isopropanol)	ug/l	<100	--	--	--	--		<100	<100	<100	<100
n-Propyl Alcohol	ug/l	<100	--	--	--	--		<100	<100	<100	<100
n-Butyl Alcohol	ug/l	<100	--	--	--	--		<100	<100	<100	<100
n-Pentyl Alcohol	ug/l	<100	--	--	--	--		<100	<100	<100	<100
n-Hexyl Alcohol	ug/l	<100	--	--	--	--		<100	<100	<100	<100
n-Heptyl Alcohol	ug/l	<100	--	--	--	--		<100	<100	<100	<100
Methyl Acetate	ug/l	<100	--	--	--	--		<100	<100	<100	<100
Ethyl Acetate	ug/l	<100	--	--	--	--		<100	<100	<100	<100
i-Propyl Acetate	ug/l	<100	--	--	--	--		<100	<100	<100	<100
n-Propyl Acetate	ug/l	<100	--	--	--	--		<100	<100	<100	<100
n-Butyl Acetate	ug/l	<100	--	--	--	--		<100	<100	<100	<100
Volatile Fatty Acids (VFAs)											
Acetic Acid	mg/l	<10	--	--	--	--		<10	<10	<10	<10
Propanoic Acid	mg/l	<1	--	--	--	--		<1	<1	<1	<1
2-methyl propanoic acid / Butanoic acid	mg/l	<1	--	--	--	--		<1	<1	<1	<1
3-methyl butanoic acid	mg/l	<0.5	--	--	--	--		<0.5	<0.5	<0.5	<0.5
Pentanoic acid	mg/l	<0.5	--	--	--	--		<0.5	<0.5	<0.5	<0.5
4-methyl pentanoic acid	mg/l	<0.5	--	--	--	--		<0.5	<0.5	<0.5	<0.5
Hexanoic acid	mg/l	<0.5	--	--	--	--		<0.5	<0.5	<0.5	<0.5
Heptanoic acid	mg/l	<0.5	--	--	--	--		<0.5	<0.5	<0.5	<0.5
Acidity as H2So4	mg/l	<5	--	--	--	--		27.6	21.6	<5	<5
Iodine	mg/l	<7	--	--	--	--		<7	<7	<7	<7
Hydrogen Peroxide	mg/l	<10	--	--	--	--		<10	<10	<10	<10

Cells in BOLD exceed European Communities Environmental Objectives (Groundwater) Regulations, 2010 (S.I. No. 9 of 2010) and amendments S.I. No. 366/2016
Cells in *ITALICS* exceed European Communities Enviornmental Objectives (Surface Waters) Regulations 2009 (S.I. No. 272/2009 and amendments SI No. 327/2012, 386/2015 and 77/2019
Cells UNDERLINED exceed SI. No. 122/2015 - European Union (Drinking water) Regs 2014 and ammendment S.I. No. 464 of 2017 (Parametric Values)
*: Drinking Water Parametric Value for Total Sodium
- : Parameter Not Analysed
-- : no applicable standard
ND : None Detected

Enviroguide Consulting

Table 2: Soil Analytical Results
Client: College Proteins
Location: College Proteins, College Rd., College, Nobber, Co. Meath

Parameters	Units	LOD		Sample ID	TP01	TP02	TP03	TP04	TP06
				Depth	1.00-1.50	1.60-2.00	0.40-1.00	0.30-1.00	0.20-0.80
				Sample Type	Soil	Soil	Soil	Soil	Soil
				Sampled Date	19/02/2020	19/02/2020	19/02/2020	19/02/2020	19/02/2020
				Exova Job Number	20/2764	20/2764	20/2764	20/2764	20/2764
Organic Matter	%	<0.2			0.8	1	0.9	0.6	2.3
Natural Moisture Content	%	<0.1			15.3	13.9	15.7	7.7	28.3
pH	pH units	<0.01			8.59	8.58	8	7.82	6.92
Arsenic	mg/kg	<0.5			24	5.6	5.5	34.7	12.3
Barium	mg/kg	<1			118	190	242	177	120
Beryllium	mg/kg	<0.5			1.4	2	1.8	1.6	1.3
Cadmium	mg/kg	<0.1			0.5	<0.1	0.1	<0.1	<0.1
Chromium	mg/kg	<0.5			45.8	51	75.1	57.1	61.5
Copper	mg/kg	<1			39	43	46	53	30
Lead	mg/kg	<5			12	16	15	35	41
Mercury	mg/kg	<0.1			<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	<0.7			49.9	69.9	74.6	79.1	47.6
Selenium	mg/kg	<1			<1	<1	<1	3	<1
Sodium	mg/kg	<5			268	249	542	231	195
Vanadium	mg/kg	<1			33	59	63	34	44
Zinc	mg/kg	<5			57	93	81	100	106
Chloride	mg/kg	<2			8	4	6	6	4
Nitrate as NO3	mg/kg	<2.5			<2.5	<2.5	<2.5	<2.5	36.8
Nitrite as NO2	mg/kg	<0.05			<0.05	<0.05	<0.05	<0.05	0.36
Ortho Phosphate as PO4	mg/kg	<0.3			<0.3	<0.3	<0.3	<0.3	<0.3
Ammoniacal Nitrogen as N	mg/kg	<0.6			<0.6	<0.6	<0.6	<0.6	<0.6
Volatile Organic Compounds and Tentatively Identified Compounds (VOCs + TICs)	None	-			ND	ND	ND	ND	ND
Acrylic acid	ug/kg	<100			<100	<100	<100	<100	<100
Acrolein	ug/kg	<100			<100	<100	<100	<100	<100
BTEX and MTBE									
Methyl Tertiary Butyl Ether	ug/kg	<2							
Benzene	ug/kg	<3			<2	<2	<2	<2	<2
Toluene	ug/kg	<3			<3	<3	<3	<3	<3
Ethylbenzene	ug/kg	<3			<3	<3	<3	<3	<3
m/p-Xylene	ug/kg	<5			<3	<3	<3	<3	<3
o-Xylene	ug/kg	<3			<5	<5	<5	<5	<5
					<3	<3	<3	<3	<3
Total Petroleum Hydrocarbon Criteria Working Group (TPH CWG)									
Aliphatics									
>C5-C6	mg/kg	<0.1			<0.1	<0.1	<0.1	<0.1	<0.1
>C6-C8	mg/kg	<0.1			<0.1	<0.1	<0.1	<0.1	<0.1
>C8-C10	mg/kg	<0.1			<0.1	<0.1	<0.1	<0.1	<0.1
>C10-C12	mg/kg	<0.2			<0.2	<0.2	<0.2	<0.2	<0.2
>C12-C16	mg/kg	<4			<4	<4	<4	<4	<4
>C16-C21	mg/kg	<7			<7	<7	<7	<7	<7
>C21-C35	mg/kg	<7			<7	9	<7	<7	<7
Total aliphatics C5-35	mg/kg	<19			<19	<19	<19	<19	<19
Aromatics									
>C5-EC7	mg/kg	<0.1			<0.1	<0.1	<0.1	<0.1	<0.1
>EC7-EC8	mg/kg	<0.1			<0.1	<0.1	<0.1	<0.1	<0.1
>EC8-EC10	mg/kg	<0.1			<0.1	<0.1	<0.1	<0.1	<0.1
>EC10-EC12	mg/kg	<0.2			<0.2	<0.2	<0.2	<0.2	<0.2
>EC12-EC16	mg/kg	<4			<4	<4	<4	<4	<4
>EC16-EC21	mg/kg	<7			<7	<7	<7	<7	<7
>EC21-EC35	mg/kg	<7			<7	<7	<7	<7	<7
Total aromatics C5-35	mg/kg	<19			<19	<19	<19	<19	<19
Total aliphatics and aromatics(C5-35)	mg/kg	<38			<38	<38	<38	<38	<38
Semivolatile Organic Compounds and Tentatively Identified Compounds (SVOCs + TICs)	None	-			ND	ND	ND	ND	ND
Broponol	ug/kg	<100			<100	<100	<100	<100	<100
Chloro-2methyl-3(2H)isothiazione	ug/kg	<100			<100	<100	<100	<100	<100
2-methyl-3(2H)-isothiazolone	ug/kg	<100			<100	<100	<100	<100	<100
Alcohols/Acetates									
Methyl Alcohol (Methanol)	ug/kg	<500			<500	<500	<500	<500	<500
Ethyl Alcohol	ug/kg	<500			<500	<500	<500	<500	<500
i-Propyl Alcohol	ug/kg	<100			<100	<100	<100	<100	<100
n-Propyl Alcohol	ug/kg	<100			<100	<100	<100	<100	<100
n-Butyl Alcohol	ug/kg	<100			<100	<100	<100	<100	<100
n-Pentyl Alcohol	ug/kg	<100			<100	<100	<100	<100	<100
n-Hexyl Alcohol	ug/kg	<100			<100	<100	<100	<100	<100
n-Heptyl Alcohol	ug/kg	<100			<100	<100	<100	<100	<100
Methyl Acetate	ug/kg	<100			<100	<100	<100	<100	<100
Ethyl Acetate	ug/kg	<100			<100	<100	<100	<100	<100
i-Propyl Acetate	ug/kg	<100			<100	<100	<100	<100	<100
n-Propyl Acetate	ug/kg	<100			<100	<100	<100	<100	<100
n-Butyl Acetate	ug/kg	<100			<100	<100	<100	<100	<100
Volatile Fatty Acids (VFAs)									
Acetic Acid	mg/kg	<15			<15	<15	<15	<15	<15
Propanoic Acid	mg/kg	<15			<15	<15	<15	<15	<15
2-methyl propanoic acid / Butanoic acid	mg/kg	<2			<2	<2	<2	<2	<2
3-methyl butanoic acid	mg/kg	<1			<1	<1	<1	<1	<1
Pentanoic acid	mg/kg	<1			<1	<1	<1	<1	<1
4-methyl pentanoic acid	mg/kg	<1			<1	<1	<1	<1	<1
Hexanoic acid	mg/kg	<1			<1	<1	<1	<1	<1
Heptanoic acid	mg/kg	<1			<1	<1	<1	<1	<1
Acidity as H2SO4	mg/kg	<5			161	187	153	215	216
Iodine	mg/kg	<32			<32	<32	<32	<32	<32
Hydrogen Peroxide	mg/kg	<15			<15	<15	<15	<15	<15

Notes:
ND: None Detected
-- No applicable soil GAC

Appendix G

CHAIN OF COUSTODY

CLIENT: Enviroguide Consulting	If Electronic File Required please select file format below	SAMPLER: Gareth Carroll / Fiona Joyce	
ADDRESS: 3D Core C, Block 71		MOBILE:	
The Plaza, Park West Business Pk	EQUIS	EMAIL REPORT TO: gcarroll@enviroguide.ie	
PROJECT MANAGER (PM):	CROSSTAB	cc REPORT TO: fjoyce@enviroguide.ie	
MOBILE:	CLIENT	INVOICE TO: (if different to report)	
PROJECT ID: College Proteins	AGS (please also fill in AGS SAMP_TYPE & SAMP_REF below)	QUOTE NUMBER: 18343	P.O No: 100006714
SITE: College, Nobber, Co. Meath		ANALYSIS REQUIRED including SUITE names	

element

Chain of Custody sheet page 1 of 1

TURNAROUND - please tick

10 DAY	X	4 DAY		Other	
5 DAY		3 DAY			

All waters - tick for samples to be tested shaken or settled

FOR LABORATORY USE ONLY
AVERAGE COOL BOX TEMP.(if required):
SAMPLE RECIEPT CONDITION:

MATRIX:- S=Soil, GW=GroundWater, SW=SurfaceWater, L/E=Leachate/Effluent, OW=OtherWater, P=Product/Oil)

Sample ID	AGS SAMP TYPE	AGS SAMP REF	Shaken	Settled	S/GW/SW /L/E/OW/P	Date	Time	Depth in Metres	Preservation	Asbestos risk: High	Medium	Low	TPH-CWG	CLEA short	VOC + TICS	SVOCs + TICs	Am N-N	NO3	NO2	BOD + COD	Chloride	Sodium	Alk/acet	VFA (LCMS)	PO4-P
GW1					GW	19-02-20			ICE				X	X	X	X	X	X	X	X	X	X	X	X	X
GW2					↓	↓			↓				X	X	X	X	X	X	X	X	X	X	X	X	X
GW3													X	X	X	X	X	X	X	X	X	X	X	X	X
GW4													X	X	X	X	X	X	X	X	X	X	X	X	X
GW5													X	X	X	X	X	X	X	X	X	X	X	X	X

SOILS -We are MCERTS accredited for samples predominantly made up of sand, loam and clay (no other matrices). Please request an MCERTS report if required.
WATERS - we are accredited for surface and groundwaters (leachates and effluents are accredited for some tests, please see UKAS schedule). Please tick whether analysis is required on settled or shaken samples

RELINQUISHED BY:		RECIEVED BY:		METHOD of SHIPMENT
Name: Fiona Joyce	Date: 19-02-2020	Name:	Date: 19-02-2020	Consignment note No:
Of:	Time:	Of: DHL	Time:	Courier Company:

Health & Safety instructions including known hazards (eg suspected asbestos). Please let us know if samples are heavily contaminated, high PAHs expected, provide PID readings if available

EMT 187294

CHAIN OF CUSTODY

element

CLIENT:	Enviroguide Consulting
ADDRESS:	3D Core C The Plaza, Park West Business Park
PROJECT MANAGER (PM):	
MOBILE:	
PROJECT ID:	College Proteus
SITE:	College, Nobber, Co. Meath

If Electronic File Required please select file format below: EQUIS / CROSSTAB / CLIENT / AGS (please also fill in AGS SAMP_TYPE & SAMP_REF below)

SAMPLER:	Fionnuala Joyce
MOBILE:	
EMAIL REPORT TO:	fjoyce@enviroguide.ie
cc REPORT TO:	gcarroll@enviroguide.ie
INVOICE TO: (if different to report)	
QUOTE NUMBER:	8345
P.O No:	000714

Chain of Custody sheet page ………. of ……….

TURNAROUND - please tick: 10 DAY ☐ 4 DAY ☐ 5 DAY ☐ 3 DAY ☐ Other ☐

All waters - tick for samples to be tested shaken or settled

FOR LABORATORY USE ONLY
AVERAGE COOL BOX TEMP.(if required):
SAMPLE RECIEPT CONDITION:

MATRIX:- S=Soil, GW=GroundWater, SW=SurfaceWater, L/E=Leachate/Effluent, OW=OtherWater, P=Product/Oil)

ANALYSIS REQUIRED including SUITE names

SOILS -We are MCERTS accredited for samples predominantly made up of sand, loam and clay (no other matrices). Please request an MCERTS report if required.
WATERS - we are accredited for surface and groundwaters (leachates and effluents are accredited for some tests, please see UKAS schedule). Please tick whether analysis is required on settled or shaken samples

Sample ID	AGS SAMP TYPE	AGS SAMP REF	Shaken	Settled	S/GW/SW /L/E/OW/P	Date	Time	Depth in Metres	Preservation	Asbestos risk: High	Medium	Low
TP04 0-0.2								0-0.2				X
TP04 0.3-1.0								0.3-1				X
TP04 1-2								1-2				X
TP03 0-0.35								0-0.35				X
TP03 0-1.0								1.0				X
TP03 2								2				X
TP02 0-0.3								0-0.3				X
TP02 0.3-1								0.3-1				X
TP02 1-1.6								1-1.6				X
TP01 1.6-2								1.6-2				X
TP01 0-0.7								0-0.7				X
TP01 1-1.5								1-1.5				X

Handwritten analysis suite names (partly legible): SO4, NH4, Kjeldahl N, NO3, NO2, SO4, pH, Chloride, Ex. Sodium, Al, UK ..., PO4

Notes: Put on same job as COC 187296. Sample jars: 1J 1V 1tub 1bag

RELINQUISHED BY:
Name:
Of:
Date:
Time:

RECIEVED BY:
Name:
Of:
Date:
Time:

METHOD of SHIPMENT
Consignment note No:
Courier Company:

Health & Safety instructions including known hazards (eg suspected asbestos). Please let us know if samples are heavily contaminated, high PAHs expected, provide PID readings if available

Element Materials Technology
Unit 3 Deeside Point, Zone 3 Deeside Industrial Park, Deeside, CH5 2UA Tel: 0044 1244 833 780
Reg Office: Element Materials Technology Environmental UK Limited, 10 Lower Grosvenor Place, London, SW1W 0EN Company Reg No: 11371415

EMT 187295

CHAIN OF CUSTODY

CLIENT: Envirogreen Consulting	If Electronic File Required please select file format below	SAMPLER: Fernando Jyer	
ADDRESS: 3D Core C The Plaza, Park West Business Park	EQUIS	MOBILE:	
PROJECT MANAGER (PM):	CROSSTAB /	EMAIL REPORT TO: f.jyer@envirogreen.ie	
MOBILE:	CLIENT	cc REPORT TO: gconnell@envirogreen.ie	
PROJECT ID: College Proleris	AGS (please also fill in AGS SAMP_TYPE & SAMP_REF below)	INVOICE TO: (if different to report)	
SITE: College Nobber Co Meath		QUOTE NUMBER: 18345	P.O No: 100006714

Chain of Custody sheet page .... of ....

TURNAROUND - please tick					All waters - tick for samples to be tested shaken or settled	FOR LABORATORY USE ONLY
10 DAY		4 DAY		Other		AVERAGE COOL BOX TEMP.(if required):
5 DAY		3 DAY				SAMPLE RECIEPT CONDITION:

MATRIX:- S=Soil, GW=GroundWater, SW=SurfaceWater, L/E=Leachate/Effluent, OW=OtherWater, P=Product/Oil)

Sample ID	AGS SAMP TYPE	AGS SAMP REF	Shaken	Settled	S/GW/SW /L/E/OW/P	Date	Time	Depth in Metres	Preservation	Asbestos risk: High	Medium	Low
TP05 0-0.2m					S	19.07.2020			ICE			✓
TP05 0.3-0.7					↓	↓		0-0.3 09	↓			✓
TP05 1-1.8												
TP05 1.8-2								1.8-2				
TP06 0-0.05								0-0.05				
TP06 1-1.6												
TP06 1.7-2												
TP06								1.7-2				

ANALYSIS REQUIRED including SUITE names

TPH CWG; CLEA Suite; VOC - TIC; SVOC - TIC; Asb; NO3; NO2; SO4; pH; Chloride; Ext Sol ...; Pre ... Std; VFA CCMS; PCU

(Rows TP05 and TP06 marked with X across the analysis columns.)

pH - same job as COC 187295

Sample sent - 1J 1V 1 tub 1 bag

SOILS -We are MCERTS accredited for samples predominantly made up of sand, loam and clay (no other matrices). Please request an MCERTS report if required.
WATERS - we are accredited for surface and groundwaters (leachates and effluents are accredited for some tests, please see UKAS schedule). Please tick whether analysis is required on settled or shaken samples

RELINQUISHED BY:		RECIEVED BY:		METHOD of SHIPMENT
Name: Fernando Jyer	Date:	Name:	Date:	Consignment note No:
Of:	Time: 14.07.2020	Of:	Time:	Courier Company:

Health & Safety instructions including known hazards (eg suspected asbestos). Please let us know if samples are heavily contaminated, high PAHs expected, provide PID readings if available

Element Materials Technology
Unit 3 Deeside Point, Zone 3 Deeside Industrial Park, Deeside, CH5 2UA Tel: 0044 1244 833 780
Reg Office: Element Materials Technology Environmental UK Limited, 10 Lower Grosvenor Place, London, SW1W 0EN Company Reg No: 11371415

EMT 187296