Zoetis Belgium S.A. (Irish Branch)
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Laragh Road
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10th July, 2018

Ms Maeve Rochford
EPA Office of Environmental Enforcement
South East Region,
Environmental Protection Agency Headquarters
PO Box 3000
Johnstown Castle Estate
Wexford.

Ref: P0015-5

Ref: Approval request for new process.

Dear Ms Rochford,

In accordance with Condition 1.4 of the Integrated Pollution Control Licence Register number P0015-5, Zoetis, request prior written agreement of the agency to produce a new Product .

Project Name: Code MPT

Manufacturing to begin in Q4 2018, expected to produce approximately 1000 kg of product. Further production campaigns, yet to be confirmed, are also envisaged in following years. The company will ensure that the operations shall be carried out in a manner that all emissions shall conform to all emission limit values and conditions of the IPPC license shall be complied with.

We would appreciate the Agency's urgent attention as there is a commitment to manufacture this by October / November to satisfy customer requirements.

Should you require any additional information, please do not hesitate to contact me.
All relevant details shall be retained on file.

A response from the Agency to this request would be greatly appreciated.

Yours sincerely,

Dora Forde
EHS lead

zoetis

EPA Approval Request for "Mpt "project

10th July 2018

Introduction

Zoetis Belgium,S.A. Ireland branch, is planning to produce and to supply a material to be used in Veterinary production as follows:

Project Code: Mpt

This product will be manufactured on site. This production run is expected to produce approximately 1000kg of product (is this based on annual volumes expected). The Mpt API will be packed off in sealed double-lined polythene bags. Further production is anticipated in the future. This product will be made in Production buildings P5 and P6.

Class of the Activity

Class 5.16: The use of a chemical or biological process for the production of basic pharmaceutical products.
Class 11.1: The recovery or disposal of waste in a facility, within the meaning of the Act of 1996, which facility is connected or associated with another activity specified in this Schedule in respect of which a license or revised license under Part IV is in force or in respect of which a license under the said part is or will be required.

Description of the Activity

The product will be produced in a combination of the production building areas and the process is similar to Legacy chemical processes at the Zoetis Belgium S.A. facility (Irish branch under License P0015-5).

Pre- existing Utilities will be utilised. The services required to support production are a combination of existing services. The existing services are listed below:

- Electricity
- Nitrogen
- Process water
- Air and instrument air
- Cooling water
- Chilled water
- Vacuum
- Process vent header to Liquid Vapor Incinerator (LVI)
- Wastewater treatment plant
- Low pressure Steam

There no new services required for the production of this product.

In Hydrogenation Mode the hydrogenator vent piping is configured such that a blind flange is installed at the tee connection point to the LVI and vacuum pump line and the hydrogenation vessel is connected by swing elbow to the fast and slow vent line which are then routed to atmosphere via the disengagement tank (TA602). Proximity switches ensure that the swing elbow is installed correctly and without this set-up, hydrogen cannot flow.

The Non-Hydrogenation Mode provides for process operations (other than hydrogenation) and provides for cleaning. This mode does not allow for the delivery of gasses under pressure to the hydrogenator. In this mode the vent piping is configured so that the hydrogenation vessel is connected to the vacuum pump line and to the LVI via the inert header.

During inertion of the hydrogenator vent lines the disengagement tank (TA602) vent valve YCV600707 is opened by the control system.

During purging of the hydrogenator the disengagement tank (TA602) vent valve YCV600707 is closed initially but then operated automatically during the control function.

The equipment to be used is connected into the vent header.

(a) RS-503 is clean, empty and under a nitrogen blanket. RS-503 is venting to atmosphere via vent regulator PCV-00388 (to maintain the nitrogen blanket) and scrubber SC-1301.
(b) FT-503 is clean, empty and venting to atmosphere via scrubber SC-1301 (regulator on vent-line, is bypassed.

Mpt
An assessment of the calculations for the Mpt process was completed , we have calculated the emissions from the reactor for each purge step, of the process
The quantity of isopropyl alcohol (IPA) released from the vessel per purge step. This is summarised below.

Table 1: Potential IPA release in the Mpt process.

Purges 1 – 3 (Nitrogen)	A potential release of up to 0.60 kg of IPA from the reactor across *all three* purge steps.
Purges 4 – 6 (Hydrogen)	A potential release of up to 7.77 kg of IPA from the reactor *for each* purge step.
Purges 7 – 9 (Nitrogen)	A potential release of up to 0.60 kg of IPA from the reactor *for each* purge step.

It is notable that the mass emissions from the reactor are significantly higher for the hydrogen purges than for the nitrogen purges. This can be explained by the high temperature of the reactor vessel during these purge steps. The increased temperature in the vessel increases the vapour pressure of the IPA, thus increasing the quantity of solvent in the headspace.
The effects of the condenser were also examined to see how much it would reduce the atmospheric emissions. Using the same approach as for previous assessments, the cooling effect that the condenser would have on the emission was calculated and, from this, calculated the % of IPA that would be condensed.

PTS 511	Powder transfer system (RS503)	Hastelloy C-22	N/A

Note: SS= stainless steel GLCS= Glass lined carbon steel
GMP All items meet GMP standard.
Explosion protection All motors are of E Ex dIIA + IIB standard and Hydrogenator IIC standard.
All reactors can be linked by flexible pipes to inlets and outlets within the plant.

Bund Register

No change

Raw Materials and Product.

Details are attached on the following pages

							H336 May cause drowsiness or dizziness. H361 Suspected of damaging fertility or the unborn child. H373 May cause damage to organs through prolonged or repeated exposure. H401 Toxic to aquatic life.	P243 Take precautionary measures against static discharge. P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. P264 Wash skin thoroughly after handling. P271 Use only outdoors or in a well-ventilated area. P273 Avoid release to the environment. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor. P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. P308 + P313 IF exposed or concerned: Get medical attention P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor. P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. P308 + P313 IF exposed or concerned: Get medical advice/ attention. P331 Do NOT induce vomiting. P332 + P313 If skin irritation occurs: Get medical advice/ attention. P362 Take off contaminated clothing and wash before reuse. P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish. P403 + P233 Store in a well-ventilated place. Keep container tightly closed. P403 + P235 Store in a well-ventilated place. Keep cool. P405 Store locked up. P501 Dispose of contents/ container to an approved waste disposal plant.
RM	MTBE	634-04-4	Flammable liquid	12.1		Manufacture of API	H225 Highly flammable liquid and vapour. H315 Causes skin irritation	P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking. P233 Keep container tightly closed. P240 Ground/bond container and receiving equipment. P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment. P242 Use only non-sparking tools. P243 Take precautionary measures against static discharge. P264 Wash skin thoroughly after handling. P280 Wear protective gloves/ eye protection/ face protection. P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower. P332 + P313 If skin irritation occurs: Get medical advice/ attention. P362 Take off contaminated clothing and wash before reuse. P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction. P403 + P235 Store in a well-ventilated place. Keep cool. P501 Dispose of contents/ container to an approved waste disposal plant
RM	LPW low pyrogen water		Not hazardous	0.5		Manufacture of API		

								P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing P337 + P313 - If eye irritation persists: Get medical advice/attention P501 - Dispose of contents/container in accordance with all local and national regulations
RM	RSM-2		Xi irritant	0.570		Manufacture of API	H317 - May cause an allergic skin reaction H411 - Toxic to aquatic life with long lasting effects May form combustible dust concentrations in air	P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking P264 - Wash hands thoroughly after handling P270 - Do not eat, drink or smoke when using this product P280 - Wear protective gloves/protective clothing/eye protection/face protection P301+ P312 - IF SWALLOWED: Call a POISON CENTRE or doctor/physician if you feel unwell P330 - Rinse mouth P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing P337 + P313 - If eye irritation persists: Get medical advice/attention P501 - Dispose of contents/container in accordance with all local and national regulations
RM	IPA	67-63-0	Flammable Liquid	4.500		Manufacture of API	H225 Highly flammable liquid and vapour. H319 Causes serious eye irritation. H336 May cause drowsiness or dizziness.	P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking. P233 Keep container tightly closed. P240 Ground/bond container and receiving equipment. P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment. P242 Use only non-sparking tools. P243 Take precautionary measures against static discharge. P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray P264 Wash skin thoroughly after handling. P271 Use only outdoors or in a well-ventilated area. P280 Wear protective gloves/ eye protection/ face protection. P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 If eye irritation persists: Get medical advice/ attention. P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish. P403 + P233 Store in a well-ventilated place. Keep container tightly closed. P403 + P235 Store in a well-ventilated place. Keep cool. P405 Store locked up. P501 Dispose of contents/ container to an approved waste disposal plant.
RM	NaOH (50%)	1310-73-2	Corrosive	0.190		Nature of use	H290 May be corrosive to metals. H314 Causes severe skin burns and eye damage.	P234 Keep only in original container. P260 Do not breathe dust or mist. P264 Wash skin thoroughly after handling. P273 Avoid release to the environment.

Table G.1 (ii) Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site

Table G.1 (ii) – Table 1 of 1									
Ref. Nº or Code	Material/ Substance[1]	TA Luft Class 1, 2 or 3	Odour			EU Lists I and II (Tick and specify Group/Family Number)			
			Odourous Yes/No	Description	Threshold µg/m³	Dangerous Substances Directive 76/464/EEC		Groundwater Directive 80/68/EEC	
						List I	List II +129[2]	List I	List II
RM	Acetone	Class III	No	Clear colourless liquid	Not available	√	√		
RM	Citric acid	-	Yes	-	No data available	√	√		
RM	Toluene	Class II	Yes	Aromatic	No data available	√	√		
RM	MTBE	Class III	No	No data available	No data available	√	√		
RM	LPW	-	No	No data available	No data available	-	-		
RM	2- Propanol	Class III	Yes	alcohol-like	No data available	-	-		
RM	5%Pd/c	-	-	-	No data available	-	-		
RM	Hydrogen gas	-	No	No data available	No data available	-	-		
RM	RSM-1	-	No	No data available	No data available	-	-		
RM	RSM-2	-	No	No data available	No data available	-	-		
RM	IPA	Class III	Yes	alcohol-like	No data available	-	-		
RM	Sodium Hydroxide	-	-	-	-	-	-	-	
Product	Mpt	No	No	Not applicable	Not applicable	No	No	As a "Hydrocarbon", this product, in common with all organic compounds is list I. See note 4	

070504 Non Halogenated organic solvents
070508 Other still bottoms and reaction residues

Recovered solvent may be stored in a dedicated tank pending re-use on site or customer call-off. Supply Chain and EHS department personnel will generate the appropriate documentation.

These wastes were already generated on site and are transported to an approved Hazardous waste facility in accordance with license requirements.

The manufacturing steps produce the following waste streams:

(a) Water phase containing some dissolved IPA, produced by the washing of the catalyst cake captured by filtration.

(b) A single phase IPA – water mixture, collected as distillate from distillation operations.

(c) Toluene, collected as distillate from distillation operations. Contains the methyl-oxy-benzene by-product.

(d) Dilute sodium hydroxide solution, collected by decantation, containing dissolved by-product: ketone-sulphite species with MW of 217 and some dissolved product intermediate formula Ib compound.

(e) IPA, collected as liquid phase from centrifugation operations. Contains excess dissolved CP-123,328 feedstock and some dissolved product intermediate formula I compound.

(f) A single phase mixture of acetone, MTBE and water containing dissolved excess citric acid, collected as liquid phase from centrifugation operations.

(g) Spent CIP water. This will contain traces of solvent, by-product, excess feedstock and MPT product and intermediates.

(h) Washed catalyst collected from filtration operations which will be returned to the supplier for regeneration

Emissions during a Malfunction.

- Bursting disc rupture
- Failure of the cooling medium to condensers
- Failure of cooling medium to reactor.
- Emissions during a conservation vent failure.
- Any potential new malfunctions shall be identified as part of the HAZOP.

Emissions Monitoring

As all process vents are connected to the scrubber system emission monitoring of the proposed expansion shall take place at LVI-and vent numbers 6001 and 6002. Any samples shall be taken and analysed as per routine method.

Emissions to Surface Water

There are no additional emissions to surface water as a result of this process.

Emissions to Sewer

There are no emissions to sewer as a result of this process.

Emissions to Ground

There will be no additional emissions to ground as a result of this process.

Noise

There will be no additional noise sources added as part of this process.

Waste Management

Although a new process is being produced, the type of wastes generated will not vary from the waste historically generated on site. There will therefore be no new requirements for the handling, storage, and disposal of waste. There should not therefore, be any significant adverse environmental impact resulting from the disposal of waste from this project. As the proposed new process will be run in existing equipment, there will not be an increase in the amount of overall waste being produced.

Environmental Considerations

Where appropriate, Zoetis Belgium S.A. (Irish branch), has sought to use the most cost effective methods of reducing its environmental impact.

The following waste minimization technologies as outlined in the relevant Guidance Note for the Chemical Sector will be used.

a) Technologies for load minimization

I **Optimisation of Condenser Efficiency.**
Checks will be carried out before each distillation on major items of equipment to ensure air leakage is kept to a minimum.

II. **Inventory Control**
Where possible, only the amount of chemical used in the process will be ordered.
There are regular stock checks done on raw materials inventory
There is a computerised inventory listing
Quantities of raw materials used are specified on batch sheets to avoid overuse of materials.
Catalysts used will be recycled for re use

Details of storage of all raw materials, products and wastes such as segregation, labelling, designation and impervious surface;
Details of spill or emergency containment measures and structures such as bunds, high level alarms, absorbent materials;
Details of fire detection and fire-water retention facilities in the event of emergencies or other measures to contain fire-water;
Details of transport of material within the site, solid, liquid or sludge transported by pipe, vehicle or conveyor; etc.,

Training

Process training will be carried out on- site and fully documented.

Cessation of Activity

The site's Decommissioning Management Programme (Closure, Restoration and Aftercare Management plan) will not be affected as a result of this new process.

Site Management and Control
A copy of the following is available:

- Zoetis Corporation Environmental Protection, Health and Safety Policy.
- Organisational charts