



Pfizer Ireland Pharmaceuticals  
Ringaskiddy Active Pharmaceutical Ingredient Plant  
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## Pfizer Ireland Pharmaceuticals

Enforcement Team B,  
Office of Environmental Enforcement,  
South/South West Region,  
Environmental Protection Agency,  
Inniscarra,  
Co. Cork.

**29-May-2020**

**Ref. IE Licence Register Number P0013-04 (Pfizer Ringaskiddy)**

**Re: For Agency Approval: Update to site inventory of materials**

Dear Sir/Madam,

We wish to note that it is planned to introduce the following new materials onsite. We request Agency approval to introduce the following new materials on site.

- Acti Plus cleaner
- 3-Methyl-3-Oxetanemethanol (Oxetane alcohol)
- 1-Butylimidazole
- Oxetane ester (RSM step 1 product)
- Boron Trifluoride Diethyl etherate
- Cyclic Orthoester (Tafa RSM Step 2 output)

The SDS for the above materials are attached in Appendix 1.

The Acti Plus cleaner will be used as a general-purpose floor cleaner in all production areas site-wide. It will be supplied as a diluted mixture ready to use. The supply of the diluted mixture is to avoid any potential overuse of the material. The quantity to be used will depend on cleaning requirements in accordance with Good Manufacturing Practice requirements. Emissions from the cleaner will be treated in the on-site waste-water treatment plant. Studies were commissioned to confirm that the cleaner can be successfully treated in the on-site waste-water treatment plant. The material is readily biodegradable and does not bio-accumulate. There will be

no emissions to air and to surface water. There will be no environmental impact resulting from the use of the Acti Plus cleaner.

The remaining materials listed above will be used in the manufacture of Tafamidis Second Generation Regulatory Starting Material (RSM). It's planned to conduct a small number of trial batches to manufacture the Cyclic Orthoester material which is the Tafamidis Second Generation RSM material. This RSM material will be used to manufacture Tafamidis, a treatment used to treat a certain type of heart failure – transthyretin mediated amyloidosis.

All of the materials used in the manufacture of the RSM will be used in quantities of <10kg per annum. All liquid waste generated from the manufacture will be appropriately segregated into aqueous and organic waste streams and will be sent off site for treatment. Any air emissions generated from this process are capable of being treated in the dedicated abatement system for the manufacturing facility. There will be no environmental impact resulting from the manufacture of this RSM.

Upon successful completion of the trial batches, it's planned to purchase the RSM from an external supplier. The quantity of RSM purchased will depend on the patient demand for Tafamidis.

We wish to note that Pfizer Ringaskiddy is a multi-product plant with numerous equipment trains to manufacture products. Depending on the product mix at any one time, products may move between equipment trains in the various production plants so batch size will vary during the course of a products lifetime depending on equipment availability and market demand. Considerable flexibility is required for patients needs and the healthcare sector. Irrespective of batch size, there will be no environmental impact resulting from the use of the above materials

In accordance with Agency guidance, the Site Inventory of Materials shall be updated to include the above materials and shall be retained onsite for inspection by the Agency as required.

We trust that this is to the satisfaction of the Agency.

Yours sincerely,

**Pfizer Ireland Pharmaceuticals**  
Ringaskiddy Active Pharmaceutical Ingredient Plant

***Geraldine Rooney***

Geraldine Rooney  
Environment, Health and Safety Department

# Appendix 1:

Product ACTI PLUS READY TO USE  
 Revision date 16 April 2020  
 Revision 1



**Safety Data Sheet (SDS)**  
 according to Regulation (EC) No. 1907/2006

**Section 1: Identification of the substance/preparation and of the company/undertaking**

**1.1 Product identifier**

**Product name** ACTI PLUS READY TO USE  
**Synonyms, Trade names** No information available.

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

**Identified uses** MULTI PURPOSE LOW pH CLEANER.  
**Uses advised against** Any other purpose.

**1.3 Details of the supplier of the safety data sheet**

**Supplier** Enva Ireland  
 66D Heather Road  
 Sandyford Business Park  
 Dublin 18  
 D18W407  
 Ireland  
 Tel: (+353)12941025  
 sales.bio@enva.com

**Contact person**

**1.4 Emergency telephone number**

**Emergency telephone** (+353)12941025

**Section 2: Hazards identification**

**2.1 Classification of the substance or mixture**

**Classification (EC 1272/2008)**  
 Physical and chemical hazards Not classified  
 Human health Eye Irrit.2A - H319  
 Environment Not classified

**2.2 Label elements**

**Contains** l-(+)-lactic acid  
 ALCOHOLS C9-C11, ETHOXYLATED

**Label in accordance with (EC) no. 1272/2008**



**Signal word** Warning

**Hazard statements** H319 Causes serious eye irritation.

**Precautionary statements**

**Prevention**  
 P264 Wash thoroughly after handling.  
 P280 Wear protective gloves/ protective clothing/eye protection/face protection.

**Response**  
 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.

**2.3 Other hazards**

None known.

**Section 3: Composition/identification of ingredients****3.1 Substance**

Not applicable.

**3.2 Mixtures**

Name	Product identifier	Reg. EU 1272/2008	%
l-(+)-lactic acid	CAS-No.: 79-33-4 EC No.: 201-196-2	Skin Irrit.2 - H315, Eye Dam. 1 - H318	0.1-1%
citric acid	CAS-No.: 77-92-9 EC No.: 201-069-1 REACH Reg No.: 01-2119457026-42-XXXX	Eye Irrit.2A - H319	0.1-1%
ALCOHOLS C9-C11, ETHOXYLATED	CAS-No.: 68439-46-3 EC No.: 614-482-0	Acute Tox 4 - H302, Eye Dam. 1 - H318	0.1-1%

The full text for all 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****General information**

As a general rule, in case of doubt or if symptoms persist, always call a doctor. Seek medical attention for all burns and eye injuries, regardless how minor they may seem.

**Inhalation**

Remove patient to fresh air, allow to rest and keep warm. If the exposed person is not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion**

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Rinse mouth thoroughly. Provide fresh air, warmth and rest, preferably in comfortable upright sitting position. Obtain medical advice.

**Skin contact**

Remove contaminated clothes. Wash skin thoroughly with soap and water. Get medical attention if irritation develops.

**Eye contact**

Avoid contaminating unaffected eye. Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Seek medical advice.

**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**

No specific symptoms noted.

**Ingestion**

May cause discomfort if swallowed.

**Skin contact**

Prolonged contact may cause redness, irritation and dry skin.

**Eye contact**

Causes serious eye irritation.

**4.3 Indication of any immediate medical attention and special treatment needed****Notes to the physician**

Treat symptomatically.

**Section 5: Fire-fighting measures****5.1 Extinguishing media****Extinguishing media**

Use fire-extinguishing media appropriate for surrounding materials.

**Unsuitable extinguishing media**

None noted.

**5.2 Special hazards arising from the substance or mixture**

<b>Hazardous combustion products</b>	During fire, gases hazardous to health may be formed. Combustion products may include and are not limited to: Oxides of carbon.
<b>Unusual fire &amp; explosion hazards</b>	No unusual fire or explosion hazards noted.
<b>Specific hazards</b>	No specific hazards are identified for the product.

**5.3 Advice for firefighters**

<b>Special fire fighting procedures</b>	Avoid breathing fire vapours. Keep up-wind to avoid fumes. Fight advanced or massive fires from safe distance or protected location. Ventilate closed spaces before entering them. Water spray should be used to cool containers.
<b>Protective equipment for firefighters</b>	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

**Section 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

<b>Personal precautions</b>	Wear protective clothing as described in Section 8 of this safety data sheet. Ensure adequate ventilation. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material.
<b>For emergency responders</b>	Follow safe handling advice and personal protective equipment recommendations for normal use of product.

**6.2 Environmental precautions**

<b>Environmental precautions</b>	Do not discharge into drains, water courses or onto the ground.
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**6.3 Methods and material for containment and cleaning up**

<b>Spill clean up methods</b>	Wear appropriate personal protective equipment as specified in Section 8. Stop leak if possible without risk. Absorb spillage with non-combustible, inert absorbent material. Ensure that waste and contaminated materials are collected and removed from the work area as soon as possible in a suitably labelled container. Thoroughly clean surrounding area. Wash thoroughly after dealing with a spillage.
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**6.4 Reference to other sections**

<b>Reference to other sections</b>	See section 1 for emergency contact. For personal protection, see section 8. For waste disposal, see section 13.
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**Section 7: Handling and storage****7.1 Precautions for safe handling**

<b>Handling</b>	Use proper personal protection when handling (refer to Section 8). Avoid inhalation of vapours and contact with skin and eyes. Do not eat, drink or smoke when using the product. Remove contaminated work clothing and personal protective equipment before leaving the work area. Always wash hands after handling.
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**7.2 Conditions for safe storage, including any incompatibilities**

<b>Storage precautions</b>	Store in tightly closed original container in a dry, cool and well-ventilated place. Store above 20°C to reduce the possibility of crystallization. Keep away from incompatible materials (see section 10). Keep upright, locked up and out of reach of children.
<b>Storage class</b>	Chemical storage

**7.3 Specific end use(s)**

<b>Specific end use(s)</b>	The identified uses for this product are detailed in Section 1.
<b>Usage description</b>	Use only according to directions. Replace and tighten cap after use.

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**Section 8: Exposure controls/Personal protection**


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**8.1 Control parameters**

<b>Ingredient comments</b>	No exposure limits noted for ingredient(s). Ireland, Occupational Exposure Limits 2020.
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**8.2 Exposure Controls****Protective equipment****Engineering measures**

Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below recommended or statutory limits.

**Respiratory equipment**

No personal respiratory protective equipment normally required. Where risk assessment shows air-purifying respirators are appropriate use a full face respirator conforming to EN143. Use type ABEK (EN 14387) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as CEN (EU).

**Hand protection**

Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374) is recommended. (Suggested suitable materials for longer, direct contact or splash contact) Latex. Vinyl. Minimum layer thickness: 0.4 mm. Breakthrough time: >480 minutes. Consult manufacturer for specific advice.

Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Change gloves regularly.

**Eye protection**

Wear safety glasses if there is risk of eye contact. Safety glasses with side-shields conforming to EN166.

**Other protection**

Protective clothing should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Wear suitable protective clothing, in particular overalls and boots. The selected clothing must satisfy the European norm standard EN 943.

**Hygiene measures**

Work clothing worn by personnel shall be laundered regularly. After contact with the product, all parts of the body that have been soiled must be washed. Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke during use.

**Process conditions**

Ensure that eye flushing systems and safety showers are located close by in the work place.

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**Section 9: Physical and chemical properties**


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**9.1 Information on basic physical and chemical properties**

<b>Appearance</b>	Liquid.
<b>Colour</b>	Green.
<b>Odour</b>	Mint.
<b>Odour threshold - lower</b>	No information available as testing has not been completed.
<b>Odour threshold - upper</b>	No information available as testing has not been completed.
<b>pH-Value, Conc. Solution</b>	No information available as testing has not been completed.
<b>pH-Value, Diluted solution</b>	> 2 - 3.5.
<b>Melting point</b>	No information available as testing has not been completed.
<b>Initial boiling point and boiling range</b>	Appx 100 °C.
<b>Flash point</b>	Not applicable - the product is not classified as flammable.
<b>Evaporation rate</b>	No information available as testing has not been completed.
<b>Flammability state</b>	The product is not classified as flammable.

<b>Flammability limit - lower(%)</b>	The product is not classified as flammable.
<b>Flammability limit - upper(%)</b>	The product is not classified as flammable.
<b>Vapour pressure</b>	No information available as testing has not been completed.
<b>Vapour density (air=1)</b>	No information available as testing has not been completed.
<b>Relative density</b>	No information available as testing has not been completed.
<b>Bulk density</b>	No information available as testing has not been completed.
<b>Solubility</b>	Miscible.
<b>Decomposition temperature</b>	No information available as testing has not been completed.
<b>Partition coefficient; n-Octanol/Water</b>	No information available as testing has not been completed.
<b>Auto ignition temperature (°C)</b>	Not applicable - the product is not self igniting.
<b>Viscosity</b>	No information available as testing has not been completed.
<b>Explosive properties</b>	Not classified as explosive.
<b>Oxidising properties</b>	The product does not meet the criteria to be classified as oxidising.

**9.2 Other information**

<b>Molecular weight</b>	The product is a mixture, molecular weight data is not required.
<b>Volatile organic compound</b>	No information available as testing has not been completed.
<b>Other information</b>	None noted.

**Section 10: Stability and reactivity****10.1 Reactivity**

<b>Reactivity</b>	Stable under recommended transport and storage conditions and under recommended use. See section 10.3 for further information.
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**10.2 Chemical stability**

<b>Stability</b>	Stable product under recommended storage and handling conditions.
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**10.3 Possibility of hazardous reactions**

<b>Hazardous reactions</b>	May react with oxidising agents and strong alkalies.
<b>Hazardous polymerisation</b>	Will not polymerise.
<b>Polymerisation description</b>	Not applicable.

**10.4 Conditions to Avoid**

<b>Conditions to avoid</b>	Avoid extremes of temperature.
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**10.5 Incompatible materials**

<b>Materials to avoid</b>	Avoid strong oxidising substances and strong bases.
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**10.6 Hazardous decomposition products**

<b>Hazardous decomposition products</b>	When heated, vapours/gases hazardous to health may be formed. Combustion products may include and are not limited to: Oxides of carbon.
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**Section 11: Toxicological information**


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**11.1 Information on toxicological effects**

<b>Toxicological information</b>	Not classified based on available information.
<b>Acute toxicity (Oral LD50)</b>	No information available as testing has not been completed.
<b>Acute toxicity (Dermal LD50)</b>	No information available as testing has not been completed.
<b>Acute toxicity (Inhalation LD50)</b>	No information available as testing has not been completed.
<b>Serious eye damage/irritation</b>	Causes serious eye irritation.
<b>Skin corrosion/irritation</b>	The product is not classified as a skin corrosion/irritation hazard.
<b>Respiratory sensitisation</b>	The product is not classified as a respiratory hazard.
<b>Skin sensitisation</b>	The product is not classified as a skin sensitisation hazard.
<b>Germ cell mutagenicity</b>	The product is not classified as a mutagen.
<b>Carcinogenicity</b>	The product is not classified as a carcinogen hazard.
<b>Specific target organ toxicity - Single exposure:</b>	
<b>STOT - Single exposure</b>	The product is not classified as a specific target organ toxin.
<b>Specific target organ toxicity - Repeated exposure:</b>	
<b>STOT - Repeated exposure</b>	The product is not classified as a specific target organ toxin.
<b>Inhalation</b>	No specific symptoms noted.
<b>Ingestion</b>	May cause discomfort if swallowed.
<b>Skin contact</b>	Prolonged contact may cause redness, irritation and dry skin.
<b>Eye contact</b>	Causes serious eye irritation.
<b>Waste management</b>	When handling waste, consideration should be made to the safety precautions applying to handling of the product.
<b>Routes of entry</b>	The product is not classified as a reproductive hazard.
<b>Target organs</b>	Eyes.
<b>Aspiration hazards:</b>	The product is not classified as an aspiration hazard.
<b>Reproductive toxicity:</b>	The product is not classified as a reproductive hazard.

Name	LD50 oral	LD50 dermal	LD50 inhalation
citric acid	5400.00mg/kg Mouse	>2000.00mg/kg Rat	
ALCOHOLS C9-C11, ETHOXYLATED	>300.00mg/kg Rat	>2000.00mg/kg Rabbit	

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**Section 12: Ecological information**


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**12.1 Toxicity**

<b>Acute toxicity - Fish</b>	No information available as testing has not been completed.
<b>Acute toxicity - Aquatic invertebrates</b>	No information available as testing has not been completed.
<b>Acute toxicity - Aquatic plants</b>	No information available as testing has not been completed.
<b>Acute toxicity - Microorganisms</b>	No information available as testing has not been completed.
<b>Chronic toxicity - Fish</b>	No information available as testing has not been completed.
<b>Chronic toxicity - Aquatic invertebrates</b>	No information available as testing has not been completed.
<b>Chronic toxicity - Aquatic plants</b>	No information available as testing has not been completed.
<b>Chronic toxicity - Microorganisms</b>	No information available as testing has not been completed.
<b>Ecotoxicity</b>	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.
<b>Eco toxicological information</b>	No ecological toxicity data available for the overall finished product.

**12.2 Persistence and degradability**

<b>Degradability</b>	The product is readily biodegradable.
<b>Biological oxygen demand</b>	No information available as testing has not been completed.

**Chemical oxygen demand** No information available as testing has not been completed.

### **12.3 Bioaccumulative potential**

**Bioaccumulative potential** Does not bioaccumulate.  
**Bioaccumulation factor** No information available as testing has not been completed.  
**Partition coefficient; n-Octanol/Water** No information available as testing has not been completed.

### **12.4 Mobility in soil**

**Mobility** The product is miscible with water. May spread in water systems.

### **12.5 Results of PBT and vPvB assessment**

**Results of PBT and vPvB assessment** Product is not identified as PBT or vPvB.

### **12.6 Other adverse effects**

**Other adverse effects** None known.

Name	Acute toxicity (Fish)	Acute toxicity (Aquatic invertebrates)	Acute toxicity (Aquatic plants)
citric acid	LC50 48 Hours 440.00mg/l <i>Leuciscus idus</i> (Golden Orfe)		
l-(+)-lactic acid	LC50 48 Hours 320.00mg/l Freshwater Fish	EC50 48 Hours 240.00mg/l <i>Daphnia magna</i>	

## **Section 13: Disposal considerations**

**Waste management** When handling waste, consideration should be made to the safety precautions applying to handling of the product.

### **13.1 Waste treatment methods**

**Disposal methods** Dispose of waste and residues in accordance with local authority requirements, and in accordance with all local, national and international regulations. For waste disposal, use a licensed industrial waste disposal agent.

## **Section 14: Transport information**

### **14.1 UN number**

**UN no. (ADR)** Not applicable.  
**UN no. (IMDG)** Not applicable.  
**UN no. (IATA)** Not applicable.

### **14.2 UN proper shipping name**

**ADR proper shipping name** Not applicable.  
**IMDG proper shipping name** Not applicable.  
**IATA proper shipping name** Not applicable.

### **14.3 Transport hazard class(es)**

**ADR class** Not applicable.  
**IMDG class** Not applicable.  
**IATA class** Not applicable.

**Transport labels** Not applicable

### **14.4 Packing group**

**ADR/RID/ADN packing group** Not applicable.  
**IMDG packing group** Not applicable.  
**IATA packing group** Not applicable.

### **14.5 Environmental hazards**

**ADR** No

<b>IMDG</b>	No
<b>IATA</b>	No

**14.6 Special precautions for user**

<b>EMS</b>	Not applicable.
<b>Emergency action code</b>	Not applicable.
<b>Hazard no. (ADR)</b>	Not applicable.
<b>Tunnel restriction code</b>	Not applicable.

**14.7 Transport in bulk according to annex II of MARPOL73/78 and the IBC code**

Not applicable.

**Section 15: Regulatory information****15.1 Safety, health and environmental regulations/Legislation specific for the substance or mixture**

<b>EU legislation</b>	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, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 with amendments. The UN Globally Harmonized System (GHS) Safety Data Sheet format (Annex IV) is implemented as Annex II of REACH EU No 453/2010 of 20th May 2010 amending regulation (EC) No 1907/2006.
<b>Approved code of practice</b>	2020 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations (2001-2015) and the Safety, Health and Welfare at Work (Carcinogens) Regulations (2001-2019)
<b>Chemical safety assessment</b>	No chemical safety assessment has been carried out.

**Section 16: Other information**

<b>General information</b>	This Safety Data Sheet is in accordance with Reach Regulation (EC) No 453/2010.
<b>Revision comments</b>	This is first issue.
<b>Revision date</b>	16 April 2020
<b>Revision</b>	1
<b>Safety data sheet status</b>	Approved.

**Hazard statements in full**

<b>H315</b>	Causes skin irritation.
<b>H318</b>	Causes serious eye damage.
<b>H319</b>	Causes serious eye irritation.
<b>H302</b>	Harmful if swallowed.

**Disclaimer**

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.

## SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 5.0 Revision Date 05.01.2012

Print Date 27.09.2019

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**1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING****1.1 Product identifiers**

Product name : 3-Methyl-3-oxetanemethanol

Product Number : 277681

Brand : Aldrich

CAS-No. : 3143-02-0

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

Identified uses : Laboratory chemicals, Manufacture of substances

**1.3 Details of the supplier of the safety data sheet**Company : Sigma-Aldrich Ireland Ltd.  
Vale Road  
ARKLOW  
Wicklow  
.  
IRELAND

Telephone : +353 402-20300

Fax : +353 402-31147

E-mail address : EIRProductStewardship@sial.com

**1.4 Emergency telephone number**

Emergency Phone # : +(353)-19014670 (CHEMTREC)

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**2. HAZARDS IDENTIFICATION****2.1 Classification of the substance or mixture****Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]**

Acute toxicity, Oral (Category 4)

Skin sensitization (Category 1)

**Classification according to EU Directives 67/548/EEC or 1999/45/EC**

May cause sensitization by skin contact.

**2.2 Label elements****Labelling according Regulation (EC) No 1272/2008 [CLP]**

Pictogram



Signal word : Warning

Hazard statement(s)

H302

Harmful if swallowed.

H317

May cause an allergic skin reaction.

Precautionary statement(s)

P280

Wear protective gloves.

Supplemental Hazard

none

Statements

According to European Directive 67/548/EEC as amended.

Hazard symbol(s)



R-phrase(s)

R43

May cause sensitization by skin contact.

S-phrase(s)

S36/37

Wear suitable protective clothing and gloves.

### 2.3 Other hazards - none

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## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

Synonyms : 3-Hydroxymethyl-3-methyl-oxetane

Formula : C<sub>5</sub>H<sub>10</sub>O<sub>2</sub>

Molecular Weight : 102.13 g/mol

Component	Concentration
<b>3-Methyl-3-oxetanemethanol</b>	
CAS-No. 3143-02-0	-

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## 4. FIRST AID MEASURES

### 4.1 Description of first aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

#### In case of eye contact

Flush eyes with water as a precaution.

#### If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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

no data available

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## 5. FIREFIGHTING MEASURES

### 5.1 Extinguishing media

#### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

### 5.2 Special hazards arising from the substance or mixture

Carbon oxides

### 5.3 Advice for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

### 5.4 Further information

no data available

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## 6. ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

### 6.2 Environmental precautions

Do not let product enter drains.

### 6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

### 6.4 Reference to other sections

For disposal see section 13.

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## 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.  
Normal measures for preventive fire protection.

### 7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature: 2 - 8 °C

### 7.3 Specific end uses

no data available

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

#### Components with workplace control parameters

Contains no substances with occupational exposure limit values.

### 8.2 Exposure controls

#### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

#### Personal protective equipment

##### Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

##### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

##### Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

##### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

a) Appearance	Form: clear, liquid Colour: colourless
b) Odour	no data available
c) Odour Threshold	no data available
d) pH	no data available
e) Melting point/freezing point	no data available
f) Initial boiling point and boiling range	80 °C at 53 hPa - lit.
g) Flash point	97 °C - closed cup
h) Evaporation rate	no data available
i) Flammability (solid, gas)	no data available
j) Upper/lower flammability or explosive limits	no data available
k) Vapour pressure	no data available
l) Vapour density	no data available
m) Relative density	1.024 g/cm <sup>3</sup> at 25 °C
n) Water solubility	no data available
o) Partition coefficient: n-octanol/water	no data available
p) Autoignition temperature	no data available
q) Decomposition temperature	no data available
r) Viscosity	no data available
s) Explosive properties	no data available
t) Oxidizing properties	no data available

### 9.2 Other safety information

no data available

---

## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

no data available

### 10.2 Chemical stability

no data available

### 10.3 Possibility of hazardous reactions

no data available

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

Oxidizing agents

### 10.6 Hazardous decomposition products

Other decomposition products - no data available

---

## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

**Acute toxicity**

no data available

**Skin corrosion/irritation**

no data available

**Serious eye damage/eye irritation**

no data available

**Respiratory or skin sensitization**

May cause allergic skin reaction.

**Germ cell mutagenicity**

no data available

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**Reproductive toxicity**

no data available

**Specific target organ toxicity - single exposure**

no data available

**Specific target organ toxicity - repeated exposure**

no data available

**Aspiration hazard**

no data available

**Potential health effects****Inhalation**

May be harmful if inhaled. May cause respiratory tract irritation.

**Ingestion**

Harmful if swallowed.

**Skin**

May be harmful if absorbed through skin. May cause skin irritation.

**Eyes**

May cause eye irritation.

**Signs and Symptoms of Exposure**

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Additional Information**

RTECS: Not available

---

## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

no data available

### 12.2 Persistence and degradability

no data available

### 12.3 Bioaccumulative potential

no data available

### 12.4 Mobility in soil

no data available

### 12.5 Results of PBT and vPvB assessment

no data available

### 12.6 Other adverse effects

no data available



## SAFETY DATA SHEET

Version 6.0  
Revision Date 10/24/2019  
Print Date 02/20/2020**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : 1-Butylimidazole

Product Number : 348414  
Brand : Aldrich  
CAS-No. : 4316-42-1**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses : Laboratory chemicals, Synthesis of substances

**1.3 Details of the supplier of the safety data sheet**Company : Sigma-Aldrich Inc.  
3050 Spruce Street  
ST. LOUIS MO 63103  
UNITED STATESTelephone : +1 314 771-5765  
Fax : +1 800 325-5052**1.4 Emergency telephone number**

Emergency Phone # : +1-703-527-3887

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**Skin irritation (Category 2), H315  
Serious eye damage (Category 1), H318  
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335  
Short-term (acute) aquatic hazard (Category 2), H401  
Long-term (chronic) aquatic hazard (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

**2.2 GHS Label elements, including precautionary statements**

Pictogram



Signal word : Danger

Hazard statement(s)  
H315 : Causes skin irritation.

H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H411	Toxic to aquatic life with long lasting effects.
Precautionary statement(s)	
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.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
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.
P310	Immediately call a POISON CENTER/doctor.
P321	Specific treatment (see supplemental first aid instructions on this label).
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

---

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Formula	: C <sub>7</sub> H <sub>12</sub> N <sub>2</sub>
Molecular weight	: 124.18 g/mol
CAS-No.	: 4316-42-1
EC-No.	: 224-335-9

Component	Classification	Concentration
<b>1-Butylimidazole</b>	Acute Tox. 2; Skin Corr. 1B; Eye Dam. 1; Aquatic Acute 2; H330, H314, H318, H401	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

---

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

#### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

#### If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

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

No data available

---

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

### 5.2 Special hazards arising from the substance or mixture

Carbon oxides, Nitrogen oxides (NO<sub>x</sub>)

### 5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

### 5.4 Further information

No data available

---

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. For personal protection see section 8.

### 6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

### 6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

### 6.4 Reference to other sections

For disposal see section 13.

---

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.  
Normal measures for preventive fire protection.  
For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.  
Storage class (TRGS 510): 6.1B: Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

---

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Components with workplace control parameters

Contains no substances with occupational exposure limit values.

### 8.2 Exposure controls

#### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

#### Personal protective equipment

##### Eye/face protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

##### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact

Material: butyl-rubber

Minimum layer thickness: 0.3 mm

Break through time: 480 min

Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact

Material: Nature latex/chloroprene

Minimum layer thickness: 0.6 mm  
Break through time: 238 min  
Material tested: Lapren® (KCL 706 / Aldrich Z677558, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

### **Body Protection**

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

### **Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### **Control of environmental exposure**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

---

## **SECTION 9: Physical and chemical properties**

### **9.1 Information on basic physical and chemical properties**

- |   |  |
|---|--|
| a) Appearance                                   | Form: liquid<br>Colour: light brown        |
| b) Odour  | No data available                          |
| c) Odour Threshold                              | No data available                          |
| d) pH   | No data available                          |
| e) Melting point/freezing point                 | No data available                          |
| f) Initial boiling point and boiling range      | 114 - 116 °C 237 - 241 °F at 16 hPa - lit. |
| g) Flash point                                  | 113 °C (235 °F) - closed cup               |
| h) Evaporation rate                             | No data available                          |
| i) Flammability (solid, gas)                    | No data available                          |
| j) Upper/lower flammability or explosive limits | No data available                          |
| k) Vapour pressure                              | No data available                          |
| l) Vapour density                               | No data available                          |

- |  |  |
|--|--|
| m) Relative density                          | 0.945 g/cm <sup>3</sup> at 25 °C (77 °F) |
| n) Water solubility                          | No data available                        |
| o) Partition coefficient:<br>n-octanol/water | log Pow: 1.141                           |
| p) Auto-ignition<br>temperature              | No data available                        |
| q) Decomposition<br>temperature              | No data available                        |
| r) Viscosity                                 | No data available                        |
| s) Explosive properties                      | No data available                        |
| t) Oxidizing properties                      | No data available                        |

## 9.2 Other safety information

No data available

---

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

No data available

### 10.5 Incompatible materials

Strong oxidizing agents

### 10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NO<sub>x</sub>)

Other decomposition products - No data available

In the event of fire: see section 5

---

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

LC50 Inhalation - Rat - 4 h - 0.11 mg/l

Remarks: (Lit.)

Inhalation: Corrosive to respiratory system.

#### Skin corrosion/irritation

Causes skin burns.

#### Serious eye damage/eye irritation

Causes eye burns.

Causes serious eye damage.

## **Respiratory or skin sensitisation**

## **Germ cell mutagenicity**

## **Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

## **Reproductive toxicity**

### **Specific target organ toxicity - single exposure**

Acute oral toxicity - If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.

Acute inhalation toxicity - mucosal irritations, Cough, Shortness of breath, absorption

### **Specific target organ toxicity - repeated exposure**

### **Aspiration hazard**

### **Additional Information**

RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

---

## **SECTION 12: Ecological information**

### **12.1 Toxicity**

Toxicity to fish LC50 - Carassius auratus (goldfish) - 50 mg/l - 96 h  
Remarks: (ECOTOX Database)

Toxicity to daphnia and other aquatic invertebrates EC50 - Daphnia pulex (Water flea) - 6.6 mg/l - 48 h  
Remarks: (ECOTOX Database)

### **12.2 Persistence and degradability**

### **12.3 Bioaccumulative potential**

### **12.4 Mobility in soil**

### **12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

## 12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Toxic to aquatic life.

Discharge into the environment must be avoided.

---

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

#### Contaminated packaging

Dispose of as unused product.

---

## SECTION 14: Transport information

### DOT (US)

UN number: 2690 Class: 6.1 Packing group: II

Proper shipping name: N-n-Butyl imidazole

Poison Inhalation Hazard: No

### IMDG

UN number: 2690 Class: 6.1 Packing group: II EMS-No: F-A, S-A

Proper shipping name: N,n-BUTYLIMIDAZOLE

### IATA

UN number: 2690 Class: 6.1 Packing group: II

Proper shipping name: N,n-Butylimidazole

---

## SECTION 15: Regulatory information

### SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

### SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

### SARA 311/312 Hazards

Acute Health Hazard

### Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

### Pennsylvania Right To Know Components

1-Butylimidazole

CAS-No.  
4316-42-1

Revision Date  
1994-07-31

## New Jersey Right To Know Components

1-Butylimidazole

CAS-No.  
4316-42-1

Revision Date  
1994-07-31

## California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

---

### SECTION 16: Other information

#### Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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## Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1. Product identifier

<b>Product Name</b>	PF-07296189
<b>Product Code(s)</b>	PF00040
<b>Synonyms</b>	Oxetane ester
<b>Trade Name:</b>	Not established
<b>Chemical Family:</b>	Not determined
<b>PF-07296189</b>	
CAS No	PROPRIETARY

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

<b>Recommended Use</b>	Pharmaceutical intermediate
------------------------	-----------------------------

### 1.3. Details of the supplier of the safety data sheet

Pfizer Worldwide Research & Development  
445 Eastern Point Road  
Groton, Connecticut  
USA  
1-800-879-3477

Pfizer Ltd  
Ramsgate Road  
Sandwich, Kent  
CT13 9NJ  
United Kingdom  
+00 44 (0)1304 616161

### 1.4. Emergency telephone number

<b>Emergency Telephone</b>	Chemtrec 1-800-424-9300 International Chemtrec (24 hours):+1-703-527-3887
<b>E-mail address</b>	pfizer-MSDS@pfizer.com

## Section 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the substance or mixture

Not classified as hazardous

**OSHA Classification**  
**Physical Hazard**

Combustible Dust

### 2.2. Label elements

**Signal word**

Warning

**Hazard statements**

May form combustible dust concentrations in air

**Supplemental Hazard**

Compound, not fully tested, hazards unknown.

### 2.3. Other hazards

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**Other hazards** An Occupational Exposure Value has been established for this substance ( see Section 8 ).

**Note:** This document has been prepared in accordance with standards for workplace safety, which require the inclusion of all known hazards of the product or its ingredients regardless of the potential risk. The precautionary statements and warnings included may not apply in all cases. Your needs may vary depending upon the potential for exposure in your workplace.

## Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

NonHazardous

Chemical Name	EC No	CAS No	Weight-%	Classification according to Regulation (EC) No. 1272/2008 [CLP]	REACH Registration Number
PF-07296189	Not Listed	PROPRIETARY	100	Not Listed	

**Full text of H- and EUH-phrases: see section 16**

**Additional information** Ingredient(s) indicated as hazardous have been assessed under standards for workplace safety.

## Section 4: FIRST AID MEASURES

### 4.1. Description of first aid measures

- Inhalation** Remove to fresh air. Seek immediate medical attention/advice.
- Eye contact** Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
- Skin contact** Remove contaminated clothing. Flush area with large amounts of water. Use soap. Seek medical attention.
- Ingestion** Never give anything by mouth to an unconscious person. Wash out mouth with water. Do not induce vomiting unless directed by medical personnel. Seek medical attention immediately.

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

**Most important symptoms and effects** No data available

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

**Note to physicians** None.

## Section 5: FIRE-FIGHTING MEASURES

### 5.1. Extinguishing media

**Suitable Extinguishing Media** Dry chemical, CO<sub>2</sub>, alcohol-resistant foam or water spray.

### 5.2. Special hazards arising from the substance or mixture

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**Specific hazards arising from the chemical** Dust can form an explosive mixture in air. Fine particles (such as dust and mists) may fuel fires/explosions.

**Hazardous combustion products** May include oxides of carbon and products of chlorine.

## 5.3. Advice for firefighters

**Special protective equipment for fire-fighters** Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

## **Section 6: ACCIDENTAL RELEASE MEASURES**

### 6.1. Personal precautions, protective equipment and emergency procedures

**Personal precautions** Personnel involved in clean-up should wear appropriate personal protective equipment (see Section 8). Minimize exposure.

**For emergency responders** Use personal protection recommended in Section 8.

### 6.2. Environmental precautions

**Environmental precautions** Place waste in an appropriately labeled, sealed container for disposal. Care should be taken to avoid environmental release.

### 6.3. Methods and material for containment and cleaning up

**Methods for containment** Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up** Contain the source of the spill or leak. Collect spilled material by a method that controls dust generation. Avoid use of a filtered vacuum to clean spills of dry solids. Clean spill area thoroughly.

**Prevention of secondary hazards** Clean contaminated objects and areas thoroughly observing environmental regulations.

### 6.4. Reference to other sections

**Reference to other sections** See section 8 for more information. See section 13 for more information.

## **Section 7: HANDLING AND STORAGE**

### 7.1. Precautions for safe handling

#### **Advice on safe handling**

Ground and bond all bulk transfer equipment. Avoid open handling. Minimize dust generation. Use local exhaust ventilation or perform work under hood/fume cupboard. Avoid inhalation and contact with skin, eyes, and clothing. When handling, use appropriate personal protective equipment (see Section 8). Wash hands and any exposed skin after removal of PPE. Releases to the environment should be avoided. Review and implement appropriate technical and procedural waste water and waste disposal measures to prevent occupational exposure or environmental releases. Potential points of process emissions of this material to the atmosphere should be controlled with dust collectors, HEPA filtration systems or other equivalent controls.

**General hygiene considerations** Handle in accordance with good industrial hygiene and safety practice.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage Conditions** Store at room temperature in properly labeled containers. Keep away from heat, sparks and flames.

### 7.3. Specific end use(s)

**Specific use(s)** Pharmaceutical intermediate.

## **Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

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## 8.1. Control parameters

### **Pfizer OEB Statement:**

The purpose of the Occupational Exposure Band (OEB) classification system is to separate substances into different Hazard categories when the available data are sufficient to do so, but inadequate to establish an Occupational Exposure Limit (OEL). The OEB given is based upon an analysis of all currently available data; as such, this value may be subject to revision when new information becomes available.

### **PF-07296189**

Pfizer Occupational Exposure  
Band (OEB):

OEB 3 (control exposure to the range of 10ug/m<sup>3</sup> to < 100ug/m<sup>3</sup>)

## 8.2. Exposure controls

### **Engineering controls**

Engineering controls should be used as the primary means to control exposures. Use process containment, local exhaust ventilation, or other engineering controls to maintain airborne levels to below the OEB range.

### **Environmental exposure controls**

No information available.

### **Personal protective equipment**

Contact your safety and health professional or safety equipment supplier for assistance in selecting the correct protective clothing/equipment based on an assessment of the workplace conditions, other chemicals used or present in the workplace and specific operational processes. Refer to applicable national standards and regulations in the selection and use of personal protective equipment (PPE).

### **Eye/face protection**

Wear safety glasses as minimum protection. (Safety glasses must meet the standards in accordance with EN166, ANSI Z87.1 or international equivalent.).

### **Hand protection**

Wear impervious gloves (e.g. Nitrile, etc.) as minimum protection. (Protective gloves must meet the standards in accordance with EN374, ASTM F1001 or international equivalent.).

### **Skin and body protection**

Wear impervious protective clothing when handling this compound. (Protective clothing must meet the standards in accordance with EN13982, ANSI 103 or international equivalent.).

### **Respiratory protection**

Under normal conditions of use, if the applicable Occupational Exposure Band (OEB) is exceeded, wear an appropriate respirator with a protection factor sufficient to control exposures to below the OEB (e.g. particulate respirator with a full mask, P3 filter). (Respirators must meet the standards in accordance with EN136, EN143, ASTM F2704-10 or international equivalent.).

### **General hygiene considerations**

Handle in accordance with good industrial hygiene and safety practice.

## **Section 9: PHYSICAL AND CHEMICAL PROPERTIES**

### 9.1. Information on basic physical and chemical properties

**Physical state**

Solid

**Color**

White

**Molecular formula (MF):**

C<sub>12</sub>H<sub>12</sub>Cl<sub>2</sub>O<sub>3</sub>

**Molecular weight**

275.13

**Odor**

No data available.

**Odor threshold**

No data available

**Property**

Values

**pH**

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<b>Melting point / freezing point</b>	57 °C
<b>Boiling point / boiling range</b>	No data available
<b>Flash point</b>	No data available
<b>Evaporation rate</b>	No data available
<b>Flammability (solid, gas)</b>	No data available
<b>Flammability Limit in Air</b>	
<b>Upper flammability limit:</b>	No data available
<b>Lower flammability limit:</b>	No data available
<b>Vapor pressure</b>	No data available
<b>Vapor density</b>	No data available
<b>Relative density</b>	No data available
<b>Water solubility</b>	No data available
<b>Solubility(ies)</b>	No data available
<b>Autoignition temperature</b>	No data available
<b>Decomposition temperature</b>	No data available
<b>Kinematic viscosity</b>	No data available
<b>Dynamic viscosity</b>	No data available
<b>Explosive properties</b>	No data available
<b>Oxidizing properties</b>	No data available

## 9.2. Other information

<b>Liquid Density</b>	No data available
<b>Bulk density</b>	No data available

## **Section 10: STABILITY AND REACTIVITY**

### 10.1. Reactivity

**Reactivity** No data available.

### 10.2. Chemical stability

**Stability** Stable under normal conditions.

#### **Explosion data**

**Sensitivity to Mechanical Impact** No data available.

**Sensitivity to Static Discharge** No data available.

### 10.3. Possibility of hazardous reactions

**Possibility of hazardous reactions** No information available.

### 10.4. Conditions to avoid

**Conditions to avoid** Fine particles (such as dust and mists) may fuel fires/explosions.

### 10.5. Incompatible materials

**Incompatible materials** As a precautionary measure, keep away from strong oxidizers.

### 10.6. Hazardous decomposition products

**Hazardous decomposition products** No data available.

## **Section 11: TOXICOLOGICAL INFORMATION**

### 11.1. Information on toxicological effects

**General Information:** Toxicological properties have not been investigated.

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**Carcinogenicity** Not listed as a carcinogen by IARC, NTP or US OSHA.

## Section 12: ECOLOGICAL INFORMATION

**Environmental Overview:** Releases to the environment should be avoided. May persist in the aquatic environment. Environmental properties have not been thoroughly investigated.

### 12.1. Toxicity

**No information available**

### 12.2. Persistence and degradability

**Persistence and degradability** No information available.

### 12.3. Bioaccumulative potential

**Bioaccumulation** . No information available.

### 12.4. Mobility in soil

**Mobility in soil** No information available.

### 12.5. Results of PBT and vPvB assessment

**PBT and vPvB assessment** No information available.

### 12.6. Other adverse effects

**Other adverse effects** No information available.

## Section 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

Dispose of waste in accordance with all applicable laws and regulations. Member State specific and Community specific provisions must be considered. Considering the relevant known environmental and human health hazards of the material, review and implement appropriate technical and procedural waste water and waste disposal measures to prevent occupational exposure and environmental release. It is recommended that waste minimization be practiced. The best available technology should be utilized to prevent environmental releases. This may include destructive techniques for waste and wastewater.

## Section 14: TRANSPORT INFORMATION

**The following refers to all modes of transportation unless specified below.**

This material is regulated for transportation as a hazardous material/dangerous good.

**UN number:** UN 2811  
**UN proper shipping name:** Toxic solid, organic, n.o.s.

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**Technical Shipping Name:** oxetane ester  
**TDG** 6.1  
**Packing group:** III

**Additional Information** Transportation classification is based on data and/or procedures that may not be reflected on this document. The classification was conducted as per defining criteria in the international transportation regulations and the shipper's knowledge of the material.

## Section 15: REGULATORY INFORMATION

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

PF-07296189  
CERCLA/SARA Section 313 de minimus % Not Listed  
California Proposition 65 Not Listed  
EINECS Not Listed

### 15.2. Chemical safety assessment

**Chemical Safety Report** No information available

## Section 16: OTHER INFORMATION

### Key or legend to abbreviations and acronyms used in the safety data sheet

**Data Sources:** Pfizer proprietary drug development information.

**Reason for revision** New data sheet.

**Revision date** 27-May-2020

**Prepared By** Product Stewardship Hazard Communication  
Pfizer Global Environment, Health, and Safety Operations

**Pfizer Inc believes that the information contained in this Safety Data Sheet is accurate, and while it is provided in good faith, it is without warranty of any kind, expressed or implied. If data for a hazard are not included in this document there is no known information at this time.**

## SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 5.5 Revision Date 13.09.2017

Print Date 23.09.2019

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : Boron trifluoride diethyl etherate

Product Number : 216607

Brand : Aldrich

REACH No. : A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

CAS-No. : 109-63-7

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

Identified uses : Laboratory chemicals, Manufacture of substances

**1.3 Details of the supplier of the safety data sheet**

Company : Sigma-Aldrich Ireland Ltd.  
Vale Road  
ARKLOW  
Wicklow  
.  
IRELAND

Telephone : +353 402-20300

Fax : +353 402-31147

E-mail address : EIRProductStewardship@sial.com

**1.4 Emergency telephone number**

Emergency Phone # +(353)-19014670 (CHEMTREC)

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****Classification according to Regulation (EC) No 1272/2008**

Flammable liquids (Category 3), H226

Acute toxicity, Oral (Category 4), H302

Acute toxicity, Inhalation (Category 2), H330

Skin corrosion (Category 1A), H314

Specific target organ toxicity - repeated exposure, Inhalation (Category 1), H372

For the full text of the H-Statements mentioned in this Section, see Section 16.

**2.2 Label elements****Labelling according Regulation (EC) No 1272/2008**

Pictogram



Signal word

Danger

Hazard statement(s)	
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H330	Fatal if inhaled.
H372	Causes damage to organs through prolonged or repeated exposure if inhaled.
Precautionary statement(s)	
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P370 + P378	In case of fire: Use dry powder or dry sand to extinguish.
Supplemental Hazard information (EU)	
EUH014	Reacts violently with water.

### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.  
 Strong hydrogen fluoride-releaser  
 Reacts violently with water.

---

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Synonyms	:	Trifluoro[1,1'-oxybis [ethane]]-(T-4)-boronBoron trifluoride ethyl etherate
Formula	:	BF <sub>3</sub> · C <sub>4</sub> H <sub>10</sub> O
Molecular weight	:	141.93 g/mol
CAS-No.	:	109-63-7
EC-No.	:	203-689-8

#### Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Classification	Concentration
<b>Diethyl ether-boron trifluoride</b>		
CAS-No. 109-63-7 EC-No. 203-689-8	Flam. Liq. 3; Acute Tox. 4; Acute Tox. 2; Skin Corr. 1A; STOT SE 3; STOT RE 2; H226, H302, H330, H314, H335, H373	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

---

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Hydrofluoric (HF) acid burns require immediate and specialized first aid and medical treatment. Symptoms may be delayed up to 24 hours depending on the concentration of HF. After decontamination with water, further damage can occur due to penetration/absorption of the fluoride ion. Treatment should be directed toward binding the fluoride ion as well as the effects of exposure. Skin exposures can be treated with a 2.5% calcium gluconate gel repeated until burning ceases. More serious skin exposures may require subcutaneous calcium gluconate

except for digital areas unless the physician is experienced in this technique, due to the potential for tissue injury from increased pressure. Absorption can readily occur through the subungual areas and should be considered when undergoing decontamination. Prevention of absorption of the fluoride ion in cases of ingestion can be obtained by giving milk, chewable calcium carbonate tablets or Milk of Magnesia to conscious victims. Conditions such as hypocalcemia, hypomagnesemia and cardiac arrhythmias should be monitored for, since they can occur after exposure.

**If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician. First treatment with calcium gluconate paste.

**In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

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

No data available

---

**SECTION 5: Firefighting measures**

**5.1 Extinguishing media**

**Suitable extinguishing media**

Dry powder Dry sand

**Unsuitable extinguishing media**

Do NOT use water jet.

**5.2 Special hazards arising from the substance or mixture**

No data available

**5.3 Advice for firefighters**

Wear self-contained breathing apparatus for firefighting if necessary.

**5.4 Further information**

Water hydrolyzes material liberating acidic gas which in contact with meta hydrogen gas.

---

**SECTION 6: Accidental release measures**

**6.1 Personal precautions, protective equipment and emergency procedures**

Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

For personal protection see section 8.

**6.2 Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

**6.3 Methods and materials for containment and cleaning up**

Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13). Large spills should be collected mechanically (remove by pumping) for disposal. Do not flush with water. Ventilate the area. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Do not flush with water.

## 6.4 Reference to other sections

For disposal see section 13.

---

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

Store under nitrogen. Keep in a cool, well-ventilated place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Keep away from water. Never allow product to get in contact with water during storage.

Recommended storage temperature 2 - 8 °C

Store under inert gas. Do not store in glass

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

---

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Components with workplace control parameters

Contains no substances with occupational exposure limit values.

### 8.2 Exposure controls

#### Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

#### Personal protective equipment

##### Eye/face protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

##### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.4 mm

Break through time: 480 min

Material tested: Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.2 mm

Break through time: 46 min

Material tested: Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

### **Body Protection**

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

### **Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### **Control of environmental exposure**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

---

## **SECTION 9: Physical and chemical properties**

### **9.1 Information on basic physical and chemical properties**

- |   |   |
|---|---|
| a) Appearance                                   | Form: liquid  |
| b) Odour  | No data available   |
| c) Odour Threshold                              | No data available   |
| d) pH   | No data available   |
| e) Melting point/freezing point                 | Melting point/range: -58 °C - lit.                                |
| f) Initial boiling point and boiling range      | 126 - 129 °C - lit.   |
| g) Flash point                                  | 48 °C - closed cup  |
| h) Evaporation rate                             | No data available   |
| i) Flammability (solid, gas)                    | No data available   |
| j) Upper/lower flammability or explosive limits | Upper explosion limit: 36 %(V)<br>Lower explosion limit: 1.9 %(V) |
| k) Vapour pressure                              | 5.6 hPa at 20 °C  |
| l) Vapour density                               | 4.90 - (Air = 1.0)  |
| m) Relative density                             | 1.15 g/cm <sup>3</sup>  |
| n) Water solubility                             | No data available   |
| o) Partition coefficient: n-octanol/water       | No data available   |
| p) Auto-ignition temperature                    | No data available   |
| q) Decomposition temperature                    | No data available   |
| r) Viscosity                                    | No data available   |
| s) Explosive properties                         | No data available   |
| t) Oxidizing properties                         | No data available   |

### **9.2 Other safety information**

Relative vapour density 4.90 - (Air = 1.0)

---

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

Reacts violently with water.

### 10.4 Conditions to avoid

Water hydrolyzes material liberating acidic gas which in contact with meta hydrogen gas. Do not allow water to enter container because of violent reaction.

Heat, flames and sparks. Exposure to moisture

Reacts dangerously with glass.

### 10.5 Incompatible materials

Metals, acids, Bases, Alcohols, Alkali metals, Oxidizing agents, Waterglass

### 10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen fluoride, Borane/boron oxides

Other decomposition products - No data available

In the event of fire: see section 5

---

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - male and female - 326 mg/kg

Remarks: The value is given in analogy to the following substances:

LC50 Inhalation - Rat - 4 h - 1.21 mg/l

(OECD Test Guideline 403)

Remarks: The value is given in analogy to the following substances:

#### Skin corrosion/irritation

Skin - Rabbit

Result: Corrosive

#### Serious eye damage/eye irritation

Eyes - Rabbit

Result: Corrosive

#### Respiratory or skin sensitisation

No data available

#### Germ cell mutagenicity

No data available

#### Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

#### Reproductive toxicity

No data available

#### Specific target organ toxicity - single exposure

May cause respiratory irritation.

The value is given in analogy to the following substances:

**Specific target organ toxicity - repeated exposure**

Inhalation - May cause damage to organs through prolonged or repeated exposure. - Kidney

The value is given in analogy to the following substances:

**Aspiration hazard**

No data available

**Additional Information**

RTECS: Not available

Fluoride ion can reduce serum calcium levels possibly causing fatal hypocalcemia.

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting  
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Liver - Irregularities - Based on Human Evidence

---

**SECTION 12: Ecological information****12.1 Toxicity**

Toxicity to fish                      static test LC50 - Leuciscus idus (Golden orfe) - 22 - 46 mg/l - 96 h  
(DIN 38412)

Remarks: The value is given in analogy to the following substances:

Toxicity to daphnia and              static test EC50 - Daphnia magna (Water flea) - 21.3 mg/l - 48 h  
other aquatic                              (ISO 6341)

invertebrates                          Remarks: The value is given in analogy to the following substances:

**12.2 Persistence and degradability**

Biodegradability                      Result: - Partially biodegradable.

**12.3 Bioaccumulative potential**

No data available

**12.4 Mobility in soil**

No data available

**12.5 Results of PBT and vPvB assessment**

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

**12.6 Other adverse effects**

No data available

---

**SECTION 13: Disposal considerations****13.1 Waste treatment methods****Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

**Contaminated packaging**

Dispose of as unused product.

---

**SECTION 14: Transport information****14.1 UN number**

ADR/RID: 2604

IMDG: 2604

IATA: 2604

**14.2 UN proper shipping name**

ADR/RID: BORON TRIFLUORIDE DIETHYL ETHERATE

IMDG: BORON TRIFLUORIDE DIETHYL ETHERATE

IATA: Boron trifluoride diethyl etherate

**14.3 Transport hazard class(es)**

ADR/RID: 8 (3)

IMDG: 8 (3)

IATA: 8 (3)

**14.4 Packaging group**

ADR/RID: I

IMDG: I

IATA: I

**14.5 Environmental hazards**

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

**14.6 Special precautions for user**

No data available

---

**SECTION 15: Regulatory information**

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

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

**15.2 Chemical safety assessment**

For this product a chemical safety assessment was not carried out

---

**SECTION 16: Other information**

**Full text of H-Statements referred to under sections 2 and 3.**

EUH014	Reacts violently with water.
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H330	Fatal if inhaled.
H335	May cause respiratory irritation.
H372	Causes damage to organs through prolonged or repeated exposure if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure if inhaled.

**Further information**

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.



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## Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1. Product identifier

**Product Name** PF-07296190  
**Product Code(s)** PF00041  
**Synonyms** Cyclic Orthoester  
**Trade Name:** Not established  
**Chemical Family:** Not determined

**PF-07296190**  
CAS No PROPRIETARY

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

**Recommended Use** Pharmaceutical intermediate

### 1.3. Details of the supplier of the safety data sheet

Pfizer Worldwide Research & Development  
445 Eastern Point Road  
Groton, Connecticut  
USA  
1-800-879-3477

Pfizer Ltd  
Ramsgate Road  
Sandwich, Kent  
CT13 9NJ  
United Kingdom  
+00 44 (0)1304 616161

### 1.4. Emergency telephone number

**Emergency Telephone** Chemtrec 1-800-424-9300 International Chemtrec (24 hours):+1-703-527-3887  
**E-mail address** pfizer-MSDS@pfizer.com

## Section 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the substance or mixture

Not classified as hazardous

**OSHA Classification**  
**Physical Hazard** Combustible Dust

### 2.2. Label elements

**Signal word** Warning  
**Hazard statements** May form combustible dust concentrations in air  
**Supplemental Hazard** Compound, not fully tested, hazards unknown.

### 2.3. Other hazards

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**Other hazards** An Occupational Exposure Value has been established for this substance ( see Section 8 ).

**Note:** This document has been prepared in accordance with standards for workplace safety, which require the inclusion of all known hazards of the product or its ingredients regardless of the potential risk. The precautionary statements and warnings included may not apply in all cases. Your needs may vary depending upon the potential for exposure in your workplace.

## Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

NonHazardous

Chemical Name	EC No	CAS No	Weight-%	Classification according to Regulation (EC) No. 1272/2008 [CLP]	REACH Registration Number
PF-07296190	Not Listed	PROPRIETARY	100	Not Listed	

**Full text of H- and EUH-phrases: see section 16**

**Additional information** Ingredient(s) indicated as hazardous have been assessed under standards for workplace safety.

## Section 4: FIRST AID MEASURES

### 4.1. Description of first aid measures

- Inhalation** Remove to fresh air. Seek immediate medical attention/advice.
- Eye contact** Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
- Skin contact** Remove contaminated clothing. Flush area with large amounts of water. Use soap. Seek medical attention.
- Ingestion** Never give anything by mouth to an unconscious person. Wash out mouth with water. Do not induce vomiting unless directed by medical personnel. Seek medical attention immediately.

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

**Most important symptoms and effects** No data available

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

**Note to physicians** None.

## Section 5: FIRE-FIGHTING MEASURES

### 5.1. Extinguishing media

**Suitable Extinguishing Media** Dry chemical, CO<sub>2</sub>, alcohol-resistant foam or water spray.

### 5.2. Special hazards arising from the substance or mixture

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**Specific hazards arising from the chemical** Dust can form an explosive mixture in air. Fine particles (such as dust and mists) may fuel fires/explosions.

**Hazardous combustion products** May include oxides of carbon and products of chlorine

### 5.3. Advice for firefighters

**Special protective equipment for fire-fighters** Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

## **Section 6: ACCIDENTAL RELEASE MEASURES**

### 6.1. Personal precautions, protective equipment and emergency procedures

**Personal precautions** Personnel involved in clean-up should wear appropriate personal protective equipment (see Section 8). Minimize exposure.

**For emergency responders** Use personal protection recommended in Section 8.

### 6.2. Environmental precautions

**Environmental precautions** Place waste in an appropriately labeled, sealed container for disposal. Care should be taken to avoid environmental release.

### 6.3. Methods and material for containment and cleaning up

**Methods for containment** Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up** Contain the source of the spill or leak. Collect spilled material by a method that controls dust generation. Avoid use of a filtered vacuum to clean spills of dry solids. Clean spill area thoroughly.

**Prevention of secondary hazards** Clean contaminated objects and areas thoroughly observing environmental regulations.

### 6.4. Reference to other sections

**Reference to other sections** See section 8 for more information. See section 13 for more information.

## **Section 7: HANDLING AND STORAGE**

### 7.1. Precautions for safe handling

#### **Advice on safe handling**

Ground and bond all bulk transfer equipment. Avoid open handling. Minimize dust generation. Use local exhaust ventilation or perform work under hood/fume cupboard. Avoid inhalation and contact with skin, eyes, and clothing. When handling, use appropriate personal protective equipment (see Section 8). Wash hands and any exposed skin after removal of PPE. Releases to the environment should be avoided. Review and implement appropriate technical and procedural waste water and waste disposal measures to prevent occupational exposure or environmental releases. Potential points of process emissions of this material to the atmosphere should be controlled with dust collectors, HEPA filtration systems or other equivalent controls.

**General hygiene considerations** Handle in accordance with good industrial hygiene and safety practice.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage Conditions** Store at room temperature in properly labeled containers. Keep away from heat, sparks and flames.

### 7.3. Specific end use(s)

**Specific use(s)** Pharmaceutical intermediate.

## **Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

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## 8.1. Control parameters

### **Pfizer OEB Statement:**

The purpose of the Occupational Exposure Band (OEB) classification system is to separate substances into different Hazard categories when the available data are sufficient to do so, but inadequate to establish an Occupational Exposure Limit (OEL). The OEB given is based upon an analysis of all currently available data; as such, this value may be subject to revision when new information becomes available.

### **PF-07296190**

Pfizer Occupational Exposure  
Band (OEB):

OEB 3 (control exposure to the range of 10ug/m<sup>3</sup> to < 100ug/m<sup>3</sup>)

## 8.2. Exposure controls

### **Engineering controls**

Engineering controls should be used as the primary means to control exposures. Use process containment, local exhaust ventilation, or other engineering controls to maintain airborne levels to below the OEB range.

### **Environmental exposure controls**

No information available.

### **Personal protective equipment**

Contact your safety and health professional or safety equipment supplier for assistance in selecting the correct protective clothing/equipment based on an assessment of the workplace conditions, other chemicals used or present in the workplace and specific operational processes. Refer to applicable national standards and regulations in the selection and use of personal protective equipment (PPE).

### **Eye/face protection**

Wear safety glasses as minimum protection. (Safety glasses must meet the standards in accordance with EN166, ANSI Z87.1 or international equivalent.).

### **Hand protection**

Wear impervious gloves (e.g. Nitrile, etc.) as minimum protection. (Protective gloves must meet the standards in accordance with EN374, ASTM F1001 or international equivalent.).

### **Skin and body protection**

Wear impervious protective clothing when handling this compound. (Protective clothing must meet the standards in accordance with EN13982, ANSI 103 or international equivalent.).

### **Respiratory protection**

Under normal conditions of use, if the applicable Occupational Exposure Band (OEB) is exceeded, wear an appropriate respirator with a protection factor sufficient to control exposures to below the OEB (e.g. particulate respirator with a full mask, P3 filter). (Respirators must meet the standards in accordance with EN136, EN143, ASTM F2704-10 or international equivalent.).

### **General hygiene considerations**

Handle in accordance with good industrial hygiene and safety practice.

## **Section 9: PHYSICAL AND CHEMICAL PROPERTIES**

### 9.1. Information on basic physical and chemical properties

#### **Physical state**

Solid

#### **Color**

White

#### **Molecular formula (MF):**

C<sub>12</sub>H<sub>12</sub>Cl<sub>2</sub>O<sub>3</sub>

#### **Molecular weight**

275.13

#### **Odor**

No data available.

#### **Odor threshold**

No data available

#### Property

#### Values

#### **pH**

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<b>Melting point / freezing point</b>	No data available
<b>Boiling point / boiling range</b>	No data available
<b>Flash point</b>	No data available
<b>Evaporation rate</b>	No data available
<b>Flammability (solid, gas)</b>	No data available
<b>Flammability Limit in Air</b>	
<b>Upper flammability limit:</b>	No data available
<b>Lower flammability limit:</b>	No data available
<b>Vapor pressure</b>	No data available
<b>Vapor density</b>	No data available
<b>Relative density</b>	No data available
<b>Water solubility</b>	No data available
<b>Solubility(ies)</b>	No data available
<b>Autoignition temperature</b>	No data available
<b>Decomposition temperature</b>	No data available
<b>Kinematic viscosity</b>	No data available
<b>Dynamic viscosity</b>	No data available
<b>Explosive properties</b>	No data available
<b>Oxidizing properties</b>	No data available

## 9.2. Other information

<b>Liquid Density</b>	No data available
<b>Bulk density</b>	No data available

## **Section 10: STABILITY AND REACTIVITY**

### 10.1. Reactivity

**Reactivity** No data available.

### 10.2. Chemical stability

**Stability** Stable under normal conditions.

#### **Explosion data**

**Sensitivity to Mechanical Impact** No data available.

**Sensitivity to Static Discharge** No data available.

### 10.3. Possibility of hazardous reactions

**Possibility of hazardous reactions** No information available.

### 10.4. Conditions to avoid

**Conditions to avoid** Fine particles (such as dust and mists) may fuel fires/explosions.

### 10.5. Incompatible materials

**Incompatible materials** As a precautionary measure, keep away from strong oxidizers.

### 10.6. Hazardous decomposition products

**Hazardous decomposition products** No data available.

## **Section 11: TOXICOLOGICAL INFORMATION**

### 11.1. Information on toxicological effects

**General Information:** Toxicological properties have not been investigated.

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**Carcinogenicity** Not listed as a carcinogen by IARC, NTP or US OSHA.

## Section 12: ECOLOGICAL INFORMATION

**Environmental Overview:** Releases to the environment should be avoided. The environmental characteristics of this material have not been fully evaluated. May persist in the aquatic environment.

### 12.1. Toxicity

### 12.2. Persistence and degradability

**Persistence and degradability** No information available.

### 12.3. Bioaccumulative potential

**Bioaccumulation** . No information available.

### 12.4. Mobility in soil

**Mobility in soil** No information available.

### 12.5. Results of PBT and vPvB assessment

**PBT and vPvB assessment** No information available.

### 12.6. Other adverse effects

**Other adverse effects** No information available.

## Section 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

Dispose of waste in accordance with all applicable laws and regulations. Member State specific and Community specific provisions must be considered. Considering the relevant known environmental and human health hazards of the material, review and implement appropriate technical and procedural waste water and waste disposal measures to prevent occupational exposure and environmental release. It is recommended that waste minimization be practiced. The best available technology should be utilized to prevent environmental releases. This may include destructive techniques for waste and wastewater.

## Section 14: TRANSPORT INFORMATION

The following refers to all modes of transportation unless specified below.

This material is regulated for transportation as a hazardous material/dangerous good.

**UN number:** UN 2811  
**UN proper shipping name:** Toxic solid, organic, n.o.s.  
**Technical Shipping Name:** cyclic orthoester

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**TDG** 6.1  
**Packing group:** III

**Additional Information** Transportation classification is based on data and/or procedures that may not be reflected on this document. The classification was conducted as per defining criteria in the international transportation regulations and the shipper's knowledge of the material.

## Section 15: REGULATORY INFORMATION

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

PF-07296190  
CERCLA/SARA Section 313 de minimus % Not Listed  
California Proposition 65 Not Listed  
EINECS Not Listed

### 15.2. Chemical safety assessment

**Chemical Safety Report** No information available

## Section 16: OTHER INFORMATION

### Key or legend to abbreviations and acronyms used in the safety data sheet

**Data Sources:** Pfizer proprietary drug development information.

**Reason for revision** New data sheet.

**Revision date** 27-May-2020

**Prepared By** Product Stewardship Hazard Communication  
Pfizer Global Environment, Health, and Safety Operations

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