

# Kit SDS Cover Sheet

## REGM Bullet Kit

Version 3.0

Revision Date 16.12.2021

Print Date 28.02.2024

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### Product Information

Product name : REGM Bullet Kit

Material number : CC-3190

### Components

REBM Basal Medium	SDS attached
CC-4127 REGM SingleQuot Kit Suppl&Growth Factors	
HEGF FOR USE IN REGM SQ KIT	SDS attached
Recombinant human insulin 0.5%	SDS attached
Hydrocortisone solution	SDS attached
GA-1000	SDS attached
Fetal Bovine Serum	SDS attached
Transferrin	SDS attached
TRIIODOTHYRONINE	SDS attached
Epinephrine	SDS attached

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

Product name : REBM Basal Medium

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

Use of the Substance/Mixture : For Research Use Only. Not for use in diagnostic procedures.

**1.3 Details of the supplier of the safety data sheet**Company : **Lonza Ltd**  
Muenchensteinerstrasse 38  
CH-4002 Basel, Switzerland  
Business Telephone: +41 61 316 81 11**Lonza Verviers Sprl**  
Parc Industriel de Petit-Rechain  
BE-4800 Verviers, Belgium  
Business Telephone: +32 8732 1611**Lonza Cologne GmbH**  
Nattermannallee 1  
DE-50829 Köln, Germany  
Business Telephone: + 49 221 99 1990**Lonza Copenhagen ApS**  
Strandhaven 12  
DK-2665 Vallensbaek Strand, Denmark  
Business Telephone: + 45 4356 7400

E-mail address : sds@lonza.com

Responsible/issuing person

**1.4 Emergency telephone number**Emergency telephone number : Lonza Ltd, CH-4002 Basel, Switzerland  
Telephone: +41 61 313 94 94 (24h)

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

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

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

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

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**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.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

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**SECTION 3: Composition/information on ingredients****3.2 Mixtures****Components**

Remarks : No hazardous ingredients

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**SECTION 4: First aid measures****4.1 Description of first aid measures**

If inhaled : No special precautions required.

In case of skin contact : Wash with water and soap as a precaution.  
If skin irritation persists, call a physician.

In case of eye contact : Immediately flush eye(s) with plenty of water.  
If eye irritation persists, consult a specialist.

If swallowed : Immediately give large quantities of water to drink.  
Do not induce vomiting without medical advice.  
Never give anything by mouth to an unconscious person.

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

Symptoms : No information available.

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

Treatment : No information available.

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**SECTION 5: Firefighting measures****5.1 Extinguishing media**

Suitable extinguishing media : Water spray  
Dry powder  
Foam

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

Hazardous combustion products : No hazardous combustion products are known

**5.3 Advice for firefighters**

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

Further information : Use water spray to cool unopened containers.

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

Personal precautions : Use personal protective equipment.

**6.2 Environmental precautions**

Environmental precautions : Prevent product from entering drains.

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

Methods for cleaning up : 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).

**6.4 Reference to other sections**

For personal protection see section 8.

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**SECTION 7: Handling and storage****7.1 Precautions for safe handling**

Advice on safe handling : No special precautions required.

Advice on protection against fire and explosion : Take precautionary measures against static discharges.

Hygiene measures : Handle in accordance with good industrial hygiene and safety

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practice.

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

Requirements for storage areas and containers : No special storage conditions required.

**7.3 Specific end use(s)**

Specific use(s) : No information available.

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**SECTION 8: Exposure controls/personal protection****8.1 Control parameters****Occupational Exposure Limits**

Contains no substances with occupational exposure limit values.

**8.2 Exposure controls****Engineering measures**

Avoid splashes.

**Personal protective equipment**

Eye protection : Tightly fitting safety goggles

Hand protection

Material : Nitrile rubber

Rate of permeability : &gt; 480 min

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.  
No special protective equipment required.

Respiratory protection : No personal respiratory protective equipment normally required.

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**SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties**

Physical state : liquid

Appearance : Aqueous solution

Colour : red

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Odour	:	no data available
Melting point/freezing point	:	no data available
Initial boiling point and boiling range	:	no data available
Flammability	:	no data available
Upper explosion limit / upper flammability limit	:	no data available
Lower explosion limit / Lower flammability limit	:	no data available
Flash point	:	no data available
Auto-ignition temperature	:	no data available
Decomposition temperature Decomposition temperature	:	no data available
pH	:	7,4 - 7,6
Viscosity Viscosity, kinematic	:	no data available
Solubility(ies) Water solubility	:	no data available
Partition coefficient: n-octanol/water	:	no data available
Vapour pressure	:	no data available
Relative density	:	no data available
Density	:	no data available
Relative vapour density	:	no data available
Particle characteristics	:	no data available

**9.2 Other information**

no data available

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

Stable under recommended storage conditions.

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**10.2 Chemical stability**

Stable under normal conditions.

**10.3 Possibility of hazardous reactions**

Hazardous reactions : Stable under normal conditions.

**10.4 Conditions to avoid**

Conditions to avoid : no data available

**10.5 Incompatible materials**

Materials to avoid : Strong oxidizing agents

**10.6 Hazardous decomposition products**

No decomposition if stored normally.

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**SECTION 11: Toxicological information****11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute toxicity**

Acute oral toxicity : Remarks: no data available

Acute inhalation toxicity : Remarks: no data available

Acute dermal toxicity : Remarks: no data available

**Skin corrosion/irritation**

Remarks: no data available

**Serious eye damage/eye irritation**

Remarks: no data available

**Respiratory or skin sensitisation**

Remarks: no data available

**Germ cell mutagenicity**

Genotoxicity in vitro : Remarks: no data available

**Carcinogenicity**

Remarks: no data available

**Reproductive toxicity**

Effects on fertility : Remarks: no data available

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**STOT - single exposure**

Remarks: no data available

**STOT - repeated exposure**

Remarks: no data available

**11.2 Information on other hazards****Endocrine disrupting properties**

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**Further information**

Remarks: No data is available on the product itself.

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

Toxicity to fish : Remarks: no data available

**12.2 Persistence and degradability**

Biodegradability : Result: no data available

**12.3 Bioaccumulative potential**

Bioaccumulation : Remarks: no data available

**12.4 Mobility in soil**

Distribution among environmental compartments : Remarks: no data available

**12.5 Results of PBT and vPvB assessment**

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 Endocrine disrupting properties**

Endocrine disrupting potential : The substance/mixture does not contain components considered to have endocrine disrupting properties according



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to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**12.7 Other adverse effects**

Endocrine disrupting potential : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Additional ecological information : no data available

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

Product : Dispose of in accordance with local regulations.

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**SECTION 14: Transport information**

**IATA** Not dangerous goods

14.1 **UN number** : Not applicable  
14.2 **Proper shipping name** : Not applicable  
14.3 **Transport hazard class** : Not applicable  
14.4 **Packing group** : Not applicable  
14.5 **Environmental hazards** : no

**IMDG-CODE** Not dangerous goods

14.1 **UN number** : Not applicable  
14.2 **Proper shipping name** : Not applicable  
14.3 **Transport hazard class** : Not applicable  
14.4 **Packing group** : Not applicable  
14.5 **Environmental hazards** : Marine pollutant: no

**ADR** : Not dangerous goods

14.1 **UN number** : Not applicable  
14.2 **Proper shipping name** : Not applicable  
14.3 **Transport hazard class** : Not applicable  
14.4 **Packing group** : Not applicable  
14.5 **Environmental hazards** : no

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<b>RID</b>	:	Not dangerous goods
<b>14.1 UN number</b>	:	Not applicable
<b>14.2 Proper shipping name</b>	:	Not applicable
<b>14.3 Transport hazard class</b>	:	Not applicable
<b>14.4 Packing group</b>	:	Not applicable
<b>14.5 Environmental hazards</b>	:	no
<b>DOT</b>	:	Not dangerous goods
<b>14.1 UN number</b>	:	Not applicable
<b>14.2 Proper shipping name</b>	:	Not applicable
<b>14.3 Transport hazard class</b>	:	Not applicable
<b>14.4 Packing group</b>	:	Not applicable
<b>14.5 Environmental hazards</b>	:	no
<b>TDG</b>	:	Not dangerous goods
<b>14.1 UN number</b>	:	Not applicable
<b>14.2 Proper shipping name</b>	:	Not applicable
<b>14.3 Transport hazard class</b>	:	Not applicable
<b>14.4 Packing group</b>	:	Not applicable
<b>14.5 Environmental hazards</b>	:	no

#### 14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

#### 14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

## SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59) : Not applicable

REACH - List of substances subject to authorisation (Annex : Not applicable

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XIV)

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer Not applicable

Regulation (EU) 2019/1021 on persistent organic pollutants (recast) Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.  
Not applicable

**National regulatory information**

Water hazard class (Germany) : WGK 1 slightly hazardous to water  
Remarks: Classification according to AwSV, Annex 1 (5.2)

**15.2 Chemical safety assessment**

not required

**SECTION 16: Other information****Full text of other abbreviations**

ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; ATE - Acute Toxicity Estimate; AwSV - Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen / Ordinance on facilities for handling substances that are hazardous to water; BPR – Biocidal Product Regulation; bw - Body weight; CAS - Chemical Abstract Service; CLP - Classification Labelling Packaging Regulation, Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DNEL-Derived No Effect Level; DOT - Department of Transportation; EC – European Community; ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; EmS (Emergency Response Procedures for Ships Carrying Dangerous Goods); EN – European Standard; ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; EU OEL - European Occupational Exposure Limit; GHS -Globally Harmonized System of Classification and Labelling of Chemicals; GLP - Good Laboratory Practice; GV – Danish Exposure Limits for Substances and Materials; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; IMDG - International Maritime Dangerous Goods; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); LOFT - Danish Threshold Limit Value; MAK - German Threshold Limit Value; MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NIOSH/Guide – National Institute of Safety and Health Guidebook; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NTP - National Toxicology Program; OECD - Organization for Economic Co-operation and Development; PBT - Persistent, Bioaccumulative and Toxic substance; PEL - Permissible Exposure Limit; PNEC - Predicted no Effect Concentration; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; REL -

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Recommended Exposure Limit; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; STEL - Short-Term Exposure Limit; TDG - Transportation of Dangerous Goods; TGG – Dutch Threshold Limit Value; TGV – Swedish OEL; TLV Threshold Limit Value; TLV-C - Threshold Limit Value Ceiling; TWA -Time Weighted Average; UDS - Unscheduled DNA Synthesis; UN - United Nations; VLE - Valeurs limites d'exposition professionnelle aux agents chimiques en France; VME - Valeur (Limite) Moyenne d'Exposition; VOC - Volatile Organic Compound[s]; WEEL - Workplace Environmental Exposure Level; % w/w Percent weight by weight; %(V) Percent Volume

**Further information**

Date format : dd.mm.yyyy

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The 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, unless specified in the text.

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Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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

Product name : Hydrocortisone solution

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

Use of the Substance/Mixture : Scientific research and development

**1.3 Details of the supplier of the safety data sheet**Company : **Lonza Ltd**  
Muenchensteinerstrasse 38  
CH-4002 Basel, Switzerland  
Business Telephone: +41 61 316 81 11**Lonza Verviers Sprl**  
Parc Industriel de Petit-Rechain  
BE-4800 Verviers, Belgium  
Business Telephone: +32 8732 1611**Lonza Cologne GmbH**  
Nattermannallee 1  
DE-50829 Köln, Germany  
Business Telephone: + 49 221 99 1990**Lonza Copenhagen ApS**  
Strandhaven 12  
DK-2665 Vallensbaek Strand, Denmark  
Business Telephone: + 45 4356 7400

E-mail address : sds@lonza.com

Responsible/issuing person

**1.4 Emergency telephone number**Emergency telephone number : Lonza Ltd, CH-4002 Basel, Switzerland  
Telephone: +41 61 313 94 94 (24h)

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**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****Classification (REGULATION (EC) No 1272/2008)**Flammable liquids, Category 2 H225: Highly flammable liquid and vapour.  
Eye irritation, Category 2 H319: Causes serious eye irritation.**2.2 Label elements****Labelling (REGULATION (EC) No 1272/2008)**

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Hazard pictograms	:	 
Signal word	:	Danger
Hazard statements	:	H225 Highly flammable liquid and vapour. H319 Causes serious eye irritation.
Precautionary statements	:	<p><b>Prevention:</b></p> <p>P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  P233 Keep container tightly closed.  P280 Wear protective gloves/ eye protection/ face protection.</p> <p><b>Response:</b></p> <p>P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.  P337 + P313 If eye irritation persists: Get medical advice/ attention.  P370 + P378 In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.</p>

### 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.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

#### Components

Chemical name	CAS-No. EC-No. Index-No. REACH Registration Number	Classification	Concentration (% w/w)
Ethanol	64-17-5	Flam. Liq. 2; H225	>= 90 - <= 100

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	200-578-6 603-002-00-5 01-2119457610-43-XX XX	Eye Irrit. 2; H319 specific concentration limit 2A; H319 > 50 %	
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For explanation of abbreviations see section 16.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

- If inhaled : Remove to fresh air.  
If breathing is irregular or stopped, administer artificial respiration.
- In case of skin contact : After contact with skin, wash immediately with plenty of soap and water.  
Consult a physician.
- In case of eye contact : In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
Call a physician immediately.
- If swallowed : If accidentally swallowed obtain immediate medical attention.  
Clean mouth with water and drink afterwards plenty of water.  
Do not induce vomiting without medical advice.  
Never give anything by mouth to an unconscious person.

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

- Symptoms : No information available.

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

- Treatment : No information available.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media : Dry powder  
Water spray  
Foam

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

- Hazardous combustion products : Carbon oxides (Cox)

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**5.3 Advice for firefighters**

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

Further information : Use water spray to cool unopened containers.

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

Personal precautions : Use respirator when performing operations involving potential exposure to vapour of the product.

**6.2 Environmental precautions**

Environmental precautions : Prevent product from entering drains.

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

Methods for 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).

**6.4 Reference to other sections**

For personal protection see section 8.

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**SECTION 7: Handling and storage****7.1 Precautions for safe handling**

Advice on safe handling : Provide sufficient air exchange and/or exhaust in work rooms. Avoid contact with skin and eyes.

Advice on protection against fire and explosion : Highly flammable. Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges.

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

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

Requirements for storage areas and containers : Keep away from sources of ignition - No smoking. Keep containers tightly closed in a cool, well-ventilated place.

**7.3 Specific end use(s)**

Specific use(s) : No information available.



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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

Countries not listed may have their own country specific values.

#### Occupational Exposure Limits

##### Switzerland

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Ethanol	64-17-5	TWA	500 ppm 960 mg/m <sup>3</sup>	SMAK
		STEL	1 000 ppm 1 920 mg/m <sup>3</sup>	SMAK

##### Germany

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Ethanol	64-17-5	MAK	200 ppm 380 mg/m <sup>3</sup>	DFG MAK
Peak-limit: excursion factor (category)		Peak-limit: excursion factor (category) 4		
			200 ppm 380 mg/m <sup>3</sup>	TRGS 900
Peak-limit: excursion factor (category)		Peak-limit: excursion factor (category) 4		

##### Belgium

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Ethanol	64-17-5	TWA	1 000 ppm 1 907 mg/m <sup>3</sup>	BE/OEL

##### Denmark

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Ethanol	64-17-5	GV	1 000 ppm 1 900 mg/m <sup>3</sup>	GV (DK)

##### France

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Ethanol	64-17-5	VME	1 000 ppm 1 900 mg/m <sup>3</sup>	FVL
		VLE	5 000 ppm 9 500 mg/m <sup>3</sup>	FVL

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#### Italy

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Ethanol	64-17-5	STEL	1 000 ppm	OEL (IT)

#### Netherlands

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Ethanol	64-17-5	TGG	260 mg/m <sup>3</sup>	NL OEL
Further information		Effective date: 01 Oct 2008		
		TGG 15	1 900 mg/m <sup>3</sup>	NL OEL
Further information		Effective date: 01 Oct 2008		

#### Spain

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Ethanol	64-17-5	STEL	1 000 ppm 1 910 mg/m <sup>3</sup>	VLA

#### Sweden

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Ethanol	64-17-5	TWA	500 ppm 1 000 mg/m <sup>3</sup>	SWO
		STEL	1 000 ppm 1 900 mg/m <sup>3</sup>	SWO

#### United Kingdom

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Ethanol	64-17-5	TWA	1 000 ppm 1 920 mg/m <sup>3</sup>	EH40 WEL

#### Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
Ethanol	Consumers	Oral	Long-term systemic effects	87 mg/kg
	Consumers	Dermal	Long-term systemic effects	206 mg/kg
	Consumers	Inhalation	Long-term systemic effects	114 mg/m <sup>3</sup>
	Workers	Inhalation	Long-term systemic effects	950 mg/m <sup>3</sup>
	Workers	Dermal	Long-term systemic effects	343 mg/kg

#### Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
Ethanol	Fresh water	0,96 mg/l

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	Soil	0,63 mg/kg
	Fresh water sediment	3,6 mg/kg
	Marine water	0,79 mg/l
	Sewage treatment plant	580 mg/l
	Marine sediment	2,9 mg/kg
	Oral	380 mg/kg

### 8.2 Exposure controls

#### Engineering measures

Provide sufficient air exchange and/or exhaust in work rooms.

#### Personal protective equipment

Eye protection : Tightly fitting safety goggles

#### Hand protection

Material : Nitrile rubber

Rate of permeability : > 480 min

#### Skin and body protection

: Choose body protection according to the amount and concentration of the dangerous substance at the work place.  
No special protective equipment required.

#### Respiratory protection

: In the case of vapour formation use a respirator with an approved filter.

Respirator with a vapour filter (EN 141)

Respirator with ABEK filter.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Physical state : liquid

Colour : colourless

Odour : alcohol-like

Melting point/freezing point : -114,5 - -114 °C  
Information refers to the main component.

Initial boiling point and boiling range : 78 °C  
Information refers to the main component.

Flammability : no data available

Upper explosion limit / upper flammability limit : 15,0 %(V)  
Information refers to the main component.

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Lower explosion limit / Lower flammability limit	:	3,5 %(V) Information refers to the main component.
Flash point	:	12 °C Information refers to the main component.
Auto-ignition temperature	:	no data available
Decomposition temperature	:	no data available
pH	:	no data available
Viscosity		
Viscosity, dynamic	:	1,17 - 1,2 mPa.s (20 °C)
Solubility(ies)		
Water solubility	:	completely miscible
Partition coefficient: n-octanol/water	:	no data available
Vapour pressure	:	no data available
Relative density	:	no data available
Density	:	0,79 g/cm <sup>3</sup> (20 °C)
Relative vapour density	:	no data available
Particle characteristics	:	no data available

**9.2 Other information**

no data available

---

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

Stable under recommended storage conditions.

**10.2 Chemical stability**

Stable under normal conditions.

**10.3 Possibility of hazardous reactions**

Hazardous reactions : Stable under normal conditions.

**10.4 Conditions to avoid**

Conditions to avoid : Keep away from heat and sources of ignition.

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**10.5 Incompatible materials**

Materials to avoid : Strong oxidizing agents

**10.6 Hazardous decomposition products**

No decomposition if stored normally.

**SECTION 11: Toxicological information****11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008****11.2 Information on other hazards****Endocrine disrupting properties**

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**Further information**

Remarks: No data is available on the product itself.

**The following toxicological data refer to:****Ethanol** (CAS-No.: 64-17-5)**Acute toxicity**

Acute oral toxicity : LD50 (Rat): &gt; 5 000 mg/kg

Acute inhalation toxicity : LC50 (Rat): 124,7 mg/l  
Exposure time: 4 h  
Test atmosphere: vapour  
Method: OECD Test Guideline 403

Acute dermal toxicity : Remarks: no data available

**Skin corrosion/irritation**Species: Rabbit  
Method: OECD Test Guideline 404  
Result: No skin irritation**Serious eye damage/eye irritation**Species: Rabbit  
Assessment: Mild eye irritation  
Result: Moderate eye irritation

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**Respiratory or skin sensitisation**Exposure routes: Dermal  
Species: Mouse  
Result: not sensitizing**Germ cell mutagenicity**Genotoxicity in vitro : Test Type: Ames test  
Result: negative  
: Test Type: gene mutation test  
Species: mouse lymphoma cells  
Result: negative**Reproductive toxicity**Effects on fertility : Remarks: no data available  
Species: Mouse  
Application Route: Oral  
Method: OECD Test Guideline 416**Repeated dose toxicity**Species: Rat, male and female  
NOAEL: 1 730 mg/kg  
LOAEL: 3 200 mg/kg  
Application Route: Oral  
Exposure time: 14 Weeks

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

Toxicity to fish : Remarks: no data available

**12.2 Persistence and degradability**

Biodegradability : Result: no data available

**12.3 Bioaccumulative potential**

Bioaccumulation : Remarks: no data available

**12.4 Mobility in soil**

Distribution among environmental compartments : Remarks: no data available

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**12.5 Results of PBT and vPvB assessment**

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 Endocrine disrupting properties**

Endocrine disrupting potential : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**12.7 Other adverse effects**

Endocrine disrupting potential : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Additional ecological information : No data is available on the product itself.

---

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

Product : Dispose of in accordance with local regulations.  
Contact waste disposal services.

Contaminated packaging : Dispose of as unused product.

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**SECTION 14: Transport information****IATA**

14.1 **UN number** : 1170  
14.2 **Proper shipping name** : Ethanol solution  
14.3 **Transport hazard class** : 3  
14.4 **Packing group** : II  
Labels : 3  
14.5 **Environmental hazards** : no

**IMDG-CODE**

14.1 **UN number** : 1170  
14.2 **Proper shipping name** : Ethanol solution  
14.3 **Transport hazard class** : 3  
14.4 **Packing group** : II  
Labels : 3  
EmS Number 1 : F-E  
EmS Number 2 : S-D  
14.5 **Environmental hazards** : Marine pollutant: no

**ADR**

14.1 **UN number** : 1170  
14.2 **Proper shipping name** : ETHANOL SOLUTION  
14.3 **Transport hazard class** : 3  
14.4 **Packing group** : II  
Classification Code : F1  
Hazard Identification Number : 33  
Labels : 3  
14.5 **Environmental hazards** : no

**RID**

14.1 **UN number** : 1170  
14.2 **Proper shipping name** : ETHANOL SOLUTION  
14.3 **Transport hazard class** : 3  
14.4 **Packing group** : II  
Classification Code : F1  
Hazard Identification Number : 33  
Labels : 3  
14.5 **Environmental hazards** : no



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#### DOT

14.1	UN number	:	1170
14.2	Proper shipping name	:	Ethanol solutions
14.3	Transport hazard class	:	3
14.4	Packing group	:	II
	Labels	:	3
	Emergency Response Guidebook Number	:	127
14.5	Environmental hazards	:	no

#### TDG

14.1	UN number	:	1170
14.2	Proper shipping name	:	ETHANOL SOLUTION
14.3	Transport hazard class	:	3
14.4	Packing group	:	II
	Labels	:	3
14.5	Environmental hazards	:	no

#### 14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

#### 14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

## SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

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Regulation (EU) 2019/1021 on persistent organic pollutants (recast) Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

P5c	FLAMMABLE LIQUIDS	Quantity 1 5 000 t	Quantity 2 50 000 t
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#### National regulatory information

Water hazard class (Germany) : WGK 1 slightly hazardous to water  
Code Number: 96  
Remarks: Classification according to AwSV, Annex 1 (4)

#### 15.2 Chemical safety assessment

not required

### SECTION 16: Other information

#### Classification of the mixture:

Flam. Liq. 2 H225  
Eye Irrit. 2 H319

#### Classification procedure:

Based on product data or assessment  
Calculation method

#### Full text of H-Statements

H225 : Highly flammable liquid and vapour.  
H319 : Causes serious eye irritation.

#### Full text of other abbreviations

Eye Irrit. : Eye irritation  
Flam. Liq. : Flammable liquids

ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; ATE - Acute Toxicity Estimate; AwSV - Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen / Ordinance on facilities for handling substances that are hazardous to water; BPR – Biocidal Product Regulation; bw - Body weight; CAS - Chemical Abstract Service; CLP - Classification Labelling Packaging Regulation, Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DNEL-Derived No Effect Level; DOT - Department of Transportation; EC – European Community; ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; EmS (Emergency Response Procedures for Ships Carrying Dangerous Goods); EN – European Standard; ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; EU OEL - European Occupational Exposure Limit; GHS -Globally Harmonized System of Classification and Labelling of Chemicals; GLP - Good Laboratory Practice; GV – Danish Exposure Limits for Substances and Materials; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; IMDG - International Maritime Dangerous

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Goods; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); LOFT - Danish Threshold Limit Value; MAK - German Threshold Limit Value; MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NIOSH/Guide – National Institute of Safety and Health Guidebook; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NTP - National Toxicology Program; OECD - Organization for Economic Co-operation and Development; PBT - Persistent, Bioaccumulative and Toxic substance; PEL - Permissible Exposure Limit; PNEC - Predicted no Effect Concentration; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; REL - Recommended Exposure Limit; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; STEL - Short-Term Exposure Limit; TDG - Transportation of Dangerous Goods; TGG – Dutch Threshold Limit Value; TGV – Swedish OEL; TLV Threshold Limit Value; TLV-C - Threshold Limit Value Ceiling; TWA -Time Weighted Average; UDS - Unscheduled DNA Synthesis; UN - United Nations; VLE - Valeurs limites d'exposition professionnelle aux agents chimiques en France; VME - Valeur (Limite) Moyenne d'Exposition; VOC - Volatile Organic Compound[s]; WEEL - Workplace Environmental Exposure Level; % w/w Percent weight by weight; %(V) Percent Volume

**Further information**

Date format : dd.mm.yyyy

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The 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, unless specified in the text.

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Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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

Product name : GA-1000

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

Use of the Substance/Mixture : Scientific research and development

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

Company : **Lonza Ltd**  
Muenchensteinerstrasse 38  
CH-4002 Basel, Switzerland  
Business Telephone: +41 61 316 81 11

**Lonza Verviers Sprl**  
Parc Industriel de Petit-Rechain  
BE-4800 Verviers, Belgium  
Business Telephone: +32 8732 1611

**Lonza Cologne GmbH**  
Nattermannallee 1  
DE-50829 Köln, Germany  
Business Telephone: + 49 221 99 1990

**Lonza Copenhagen ApS**  
Strandhaven 12  
DK-2665 Vallensbaek Strand, Denmark  
Business Telephone: + 45 4356 7400

E-mail address : sds@lonza.com

Responsible/issuing person

**1.4 Emergency telephone number**Emergency telephone number : Lonza Ltd, CH-4002 Basel, Switzerland  
Telephone: +41 61 313 94 94 (24h)**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****Classification (REGULATION (EC) No 1272/2008)**

Respiratory sensitisation, Category 1 H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Skin sensitisation, Category 1 H317: May cause an allergic skin reaction.

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#### 2.2 Label elements

##### Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms



Signal word

: Danger

Hazard statements

: H317 May cause an allergic skin reaction.  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Precautionary statements

: **Prevention:**

P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

P280 Wear protective gloves.

P284 Wear respiratory protection.

**Response:**

P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER/ doctor.

Hazardous components which must be listed on the label:

Gentamicin, sulfate (salt)

#### 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.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

## SECTION 3: Composition/information on ingredients

#### 3.2 Mixtures

##### Components

Chemical name	CAS-No.	Classification	Concentration
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	EC-No. Index-No. REACH Registration Number		(% w/w)
Gentamicin, sulfate (salt)	1405-41-0	Resp. Sens. 1; H334 Skin Sens. 1; H317	>= 3 - < 5

For explanation of abbreviations see section 16.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

- General advice : When symptoms persist or in all cases of doubt seek medical advice.
- If inhaled : Move to fresh air.  
Call a physician immediately.  
If breathing is irregular or stopped, administer artificial respiration.
- In case of skin contact : After contact with skin, wash immediately with plenty of soap and water.  
Wash clothing before reuse.  
Get medical attention if irritation develops and persists.
- In case of eye contact : In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
If eye irritation persists, consult a specialist.
- If swallowed : Immediately give plenty of water (if possible charcoal slurry).  
Do not induce vomiting without medical advice.  
Never give anything by mouth to an unconscious person.  
Take victim immediately to hospital.

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

- Symptoms : Allergic appearance  
sensitising effects

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

- Treatment : Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media : Not combustible.

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

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

Hazardous combustion products : No hazardous combustion products are known

**5.3 Advice for firefighters**

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

Further information : Use water spray to cool unopened containers.

---

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

Personal precautions : Use respirator when performing operations involving potential exposure to vapour of the product.  
Refer to protective measures listed in sections 7 and 8.

**6.2 Environmental precautions**

Environmental precautions : No special environmental precautions required.

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

Methods for 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).

**6.4 Reference to other sections**

For personal protection see section 8.

---

**SECTION 7: Handling and storage****7.1 Precautions for safe handling**

Advice on safe handling : In case of insufficient ventilation, wear suitable respiratory equipment.  
Avoid exposure - obtain special instructions before use.  
Use only in area provided with appropriate exhaust ventilation.  
Avoid contact with skin and eyes.

Advice on protection against fire and explosion : Stable under normal conditions.

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Hygiene measures : DANGER! Avoid contact with the skin and the eyes. Avoid breathing dust or spray mist. Wash hands before breaks and immediately after handling the product.

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

Requirements for storage areas and containers : Keep frozen or refrigerated.

**7.3 Specific end use(s)**

Specific use(s) : No information available.

---

**SECTION 8: Exposure controls/personal protection****8.1 Control parameters****Occupational Exposure Limits**

Contains no substances with occupational exposure limit values.

**8.2 Exposure controls****Engineering measures**

Provide sufficient air exchange and/or exhaust in work rooms.

**Personal protective equipment**

Eye protection : Safety glasses  
Safety goggles

Hand protection  
Material : Nitrile rubber  
Rate of permeability : > 480 min

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.  
Complete suit protecting against chemicals

Respiratory protection : In case of mist, spray or aerosol exposure wear suitable personal respiratory protection and protective suit.

Respirator with ABEK filter.  
Respirator with combination filter for vapour/particulate (EN 141)

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**SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties**



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Physical state	:	liquid
Appearance	:	Aqueous solution
Colour	:	light yellow
Odour	:	odourless
Melting point/freezing point	:	0 °C
Initial boiling point and boiling range	:	no data available
Flammability	:	no data available
Upper explosion limit / upper flammability limit	:	no data available
Lower explosion limit / Lower flammability limit	:	no data available
Flash point	:	Does not sustain combustion.
Auto-ignition temperature	:	no data available
Decomposition temperature	:	no data available
pH	:	no data available
Viscosity	:	no data available
Solubility(ies) Water solubility	:	soluble
Partition coefficient: n-octanol/water	:	no data available
Vapour pressure	:	no data available
Relative density	:	no data available
Density	:	no data available
Relative vapour density	:	no data available
Particle characteristics	:	no data available

**9.2 Other information**

no data available

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

Stable under recommended storage conditions.

**10.2 Chemical stability**

Stable under normal conditions.

**10.3 Possibility of hazardous reactions**

Hazardous reactions : Stable under normal conditions.

**10.4 Conditions to avoid**

Conditions to avoid : None known.

**10.5 Incompatible materials**

Materials to avoid : Strong oxidizing agents

**10.6 Hazardous decomposition products**

No decomposition if stored normally.

**SECTION 11: Toxicological information****11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008****11.2 Information on other hazards****Endocrine disrupting properties**

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**Further information**

Remarks: No data is available on the product itself.

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

Toxicity to fish : Remarks: no data available

**12.2 Persistence and degradability**

Biodegradability : Result: no data available

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**12.3 Bioaccumulative potential**

Bioaccumulation : Remarks: no data available

**12.4 Mobility in soil**

Distribution among environmental compartments : Remarks: no data available

**12.5 Results of PBT and vPvB assessment**

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 Endocrine disrupting properties**

Endocrine disrupting potential : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**12.7 Other adverse effects**

Endocrine disrupting potential : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Additional ecological information : No data is available on the product itself.

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

Product : Dispose of in accordance with local regulations.

Contaminated packaging : Dispose of as unused product.

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**SECTION 14: Transport information****IATA** Not dangerous goods

14.1 UN number : Not applicable  
14.2 Proper shipping name : Not applicable  
14.3 Transport hazard class : Not applicable  
14.4 Packing group : Not applicable  
14.5 Environmental hazards : no

**IMDG-CODE** Not dangerous goods

14.1 UN number : Not applicable  
14.2 Proper shipping name : Not applicable  
14.3 Transport hazard class : Not applicable  
14.4 Packing group : Not applicable  
14.5 Environmental hazards : Marine pollutant: no

**ADR** Not dangerous goods

14.1 UN number : Not applicable  
14.2 Proper shipping name : Not applicable  
14.3 Transport hazard class : Not applicable  
14.4 Packing group : Not applicable  
14.5 Environmental hazards : no

**RID** Not dangerous goods

14.1 UN number : Not applicable  
14.2 Proper shipping name : Not applicable  
14.3 Transport hazard class : Not applicable  
14.4 Packing group : Not applicable  
14.5 Environmental hazards : no

**DOT** Not dangerous goods

14.1 UN number : Not applicable  
14.2 Proper shipping name : Not applicable  
14.3 Transport hazard class : Not applicable  
14.4 Packing group : Not applicable  
14.5 Environmental hazards : no

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<b>TDG</b>	:	Not dangerous goods
<b>14.1 UN number</b>	:	Not applicable
<b>14.2 Proper shipping name</b>	:	Not applicable
<b>14.3 Transport hazard class</b>	:	Not applicable
<b>14.4 Packing group</b>	:	Not applicable
<b>14.5 Environmental hazards</b>	:	no

#### 14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

#### 14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

## SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59) : Not applicable

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

Regulation (EU) 2019/1021 on persistent organic pollutants (recast) : Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.  
Not applicable

#### National regulatory information

Water hazard class (Germany) : WGK 1 slightly hazardous to water  
Remarks: Classification according to AwSV, Annex 1 (5.2)

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**15.2 Chemical safety assessment**

not required

**SECTION 16: Other information****Classification of the mixture:**

Resp. Sens. 1 H334

Skin Sens. 1 H317

**Classification procedure:**

Calculation method

Calculation method

**Full text of H-Statements**

H317

: May cause an allergic skin reaction.

H334

: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

**Full text of other abbreviations**

Resp. Sens.

: Respiratory sensitisation

Skin Sens.

: Skin sensitisation

ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; ATE - Acute Toxicity Estimate; AwSV - Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen / Ordinance on facilities for handling substances that are hazardous to water; BPR - Biocidal Product Regulation; bw - Body weight; CAS - Chemical Abstract Service; CLP - Classification Labelling Packaging Regulation, Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DNEL - Derived No Effect Level; DOT - Department of Transportation; EC - European Community; ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; EmS (Emergency Response Procedures for Ships Carrying Dangerous Goods); EN - European Standard; ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; EU OEL - European Occupational Exposure Limit; GHS - Globally Harmonized System of Classification and Labelling of Chemicals; GLP - Good Laboratory Practice; GV - Danish Exposure Limits for Substances and Materials; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; IMDG - International Maritime Dangerous Goods; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); LOFT - Danish Threshold Limit Value; MAK - German Threshold Limit Value; MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NIOSH/Guide - National Institute of Safety and Health Guidebook; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NTP - National Toxicology Program; OECD - Organization for Economic Co-operation and Development; PBT - Persistent, Bioaccumulative and Toxic substance; PEL - Permissible Exposure Limit; PNEC - Predicted no Effect Concentration; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; REL - Recommended Exposure Limit; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; STEL - Short-Term Exposure Limit; TDG - Transportation of Dangerous Goods; TGG - Dutch Threshold Limit Value; TGV - Swedish OEL; TLV - Threshold Limit Value; TLV-C - Threshold Limit Value Ceiling; TWA - Time Weighted Average; UDS - Unscheduled DNA Synthesis; UN - United Nations;

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VLE - Valeurs limites d'exposition professionnelle aux agents chimiques en France; VME - Valeur (Limite) Moyenne d'Exposition; VOC - Volatile Organic Compound[s]; WEEL - Workplace Environmental Exposure Level; % w/w Percent weight by weight; %(V) Percent Volume

**Further information**

Date format : dd.mm.yyyy

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Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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

Product name : HEGF FOR USE IN REGM SQ KIT

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

Use of the Substance/Mixture : Scientific research and development

**1.3 Details of the supplier of the safety data sheet**Company : **Lonza Ltd**  
Muenchensteinerstrasse 38  
CH-4002 Basel, Switzerland  
Business Telephone: +41 61 316 81 11**Lonza Verviers Sprl**  
Parc Industriel de Petit-Rechain  
BE-4800 Verviers, Belgium  
Business Telephone: +32 8732 1611**Lonza Cologne GmbH**  
Nattermannallee 1  
DE-50829 Köln, Germany  
Business Telephone: + 49 221 99 1990**Lonza Copenhagen ApS**  
Strandhaven 12  
DK-2665 Vallensbaek Strand, Denmark  
Business Telephone: + 45 4356 7400

E-mail address : sds@lonza.com

Responsible/issuing person

**1.4 Emergency telephone number**Emergency telephone number : Lonza Ltd, CH-4002 Basel, Switzerland  
Telephone: +41 61 313 94 94 (24h)

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

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

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

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.



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**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.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

---

**SECTION 3: Composition/information on ingredients****3.2 Mixtures****Components**

Remarks : No hazardous ingredients

---

**SECTION 4: First aid measures****4.1 Description of first aid measures**

If inhaled : No special precautions required.

In case of skin contact : Wash with water and soap as a precaution.  
If skin irritation persists, call a physician.

In case of eye contact : Immediately flush eye(s) with plenty of water.  
If eye irritation persists, consult a specialist.

If swallowed : Immediately give large quantities of water to drink.  
Do not induce vomiting without medical advice.  
Never give anything by mouth to an unconscious person.

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

Symptoms : No information available.

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

Treatment : No information available.

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**SECTION 5: Firefighting measures****5.1 Extinguishing media**

Suitable extinguishing media : Water spray  
Dry powder  
Foam

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

Hazardous combustion products : No hazardous combustion products are known

**5.3 Advice for firefighters**

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

Further information : Use water spray to cool unopened containers.

---

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

Personal precautions : Use personal protective equipment.

**6.2 Environmental precautions**

Environmental precautions : Prevent product from entering drains.

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

Methods for cleaning up : 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).

**6.4 Reference to other sections**

For personal protection see section 8.

---

**SECTION 7: Handling and storage****7.1 Precautions for safe handling**

Advice on safe handling : No special precautions required.

Advice on protection against fire and explosion : Take precautionary measures against static discharges.

Hygiene measures : Handle in accordance with good industrial hygiene and safety

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practice.

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

Requirements for storage areas and containers : No special storage conditions required.

**7.3 Specific end use(s)**

Specific use(s) : No information available.

---

**SECTION 8: Exposure controls/personal protection****8.1 Control parameters****Occupational Exposure Limits**

Contains no substances with occupational exposure limit values.

**8.2 Exposure controls****Engineering measures**

Avoid splashes.

**Personal protective equipment**

Eye protection : Tightly fitting safety goggles

Hand protection

Material : Nitrile rubber

Rate of permeability : &gt; 480 min

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.  
No special protective equipment required.

Respiratory protection : No personal respiratory protective equipment normally required.

---

**SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties**

Physical state : liquid

Appearance : Aqueous solution

Colour : no data available

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Odour	:	no data available
Melting point/freezing point	:	no data available
Initial boiling point and boiling range	:	no data available
Flammability	:	no data available
Upper explosion limit / upper flammability limit	:	no data available
Lower explosion limit / Lower flammability limit	:	no data available
Flash point	:	no data available
Auto-ignition temperature	:	no data available
Decomposition temperature Decomposition temperature	:	no data available
pH	:	no data available
Viscosity Viscosity, kinematic	:	no data available
Solubility(ies) Water solubility	:	no data available
Partition coefficient: n-octanol/water	:	no data available
Vapour pressure	:	no data available
Relative density	:	no data available
Density	:	no data available
Relative vapour density	:	no data available
Particle characteristics	:	no data available

**9.2 Other information**

no data available

---

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

Stable under recommended storage conditions.

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**10.2 Chemical stability**

Stable under normal conditions.

**10.3 Possibility of hazardous reactions**

Hazardous reactions : Stable under normal conditions.

**10.4 Conditions to avoid**

Conditions to avoid : no data available

**10.5 Incompatible materials**

Materials to avoid : Strong oxidizing agents

**10.6 Hazardous decomposition products**

No decomposition if stored normally.

---

**SECTION 11: Toxicological information****11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute toxicity**

Acute oral toxicity : Remarks: no data available

Acute inhalation toxicity : Remarks: no data available

Acute dermal toxicity : Remarks: no data available

**Skin corrosion/irritation**

Remarks: no data available

**Serious eye damage/eye irritation**

Remarks: no data available

**Respiratory or skin sensitisation**

Remarks: no data available

**Germ cell mutagenicity**

Genotoxicity in vitro : Remarks: no data available

**Carcinogenicity**

Remarks: no data available

**Reproductive toxicity**

Effects on fertility : Remarks: no data available

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**STOT - single exposure**

Remarks: no data available

**STOT - repeated exposure**

Remarks: no data available

**11.2 Information on other hazards****Endocrine disrupting properties**

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**Further information**

Remarks: No data is available on the product itself.

---

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

Toxicity to fish : Remarks: no data available

**12.2 Persistence and degradability**

Biodegradability : Result: no data available

**12.3 Bioaccumulative potential**

Bioaccumulation : Remarks: no data available

**12.4 Mobility in soil**

Distribution among environmental compartments : Remarks: no data available

**12.5 Results of PBT and vPvB assessment**

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 Endocrine disrupting properties**

Endocrine disrupting potential : The substance/mixture does not contain components considered to have endocrine disrupting properties according

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to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

#### 12.7 Other adverse effects

Endocrine disrupting potential : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Additional ecological information : no data available

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### SECTION 13: Disposal considerations

#### 13.1 Waste treatment methods

Product : Dispose of in accordance with local regulations.

---

### SECTION 14: Transport information

**IATA** Not dangerous goods

14.1 UN number : Not applicable  
 14.2 Proper shipping name : Not applicable  
 14.3 Transport hazard class : Not applicable  
 14.4 Packing group : Not applicable  
 14.5 Environmental hazards : no

**IMDG-CODE** Not dangerous goods

14.1 UN number : Not applicable  
 14.2 Proper shipping name : Not applicable  
 14.3 Transport hazard class : Not applicable  
 14.4 Packing group : Not applicable  
 14.5 Environmental hazards : Marine pollutant: no

**ADR** : Not dangerous goods

14.1 UN number : Not applicable  
 14.2 Proper shipping name : Not applicable  
 14.3 Transport hazard class : Not applicable  
 14.4 Packing group : Not applicable  
 14.5 Environmental hazards : no

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<b>RID</b>	:	Not dangerous goods
<b>14.1 UN number</b>	:	Not applicable
<b>14.2 Proper shipping name</b>	:	Not applicable
<b>14.3 Transport hazard class</b>	:	Not applicable
<b>14.4 Packing group</b>	:	Not applicable
<b>14.5 Environmental hazards</b>	:	no
<b>DOT</b>	:	Not dangerous goods
<b>14.1 UN number</b>	:	Not applicable
<b>14.2 Proper shipping name</b>	:	Not applicable
<b>14.3 Transport hazard class</b>	:	Not applicable
<b>14.4 Packing group</b>	:	Not applicable
<b>14.5 Environmental hazards</b>	:	no
<b>TDG</b>	:	Not dangerous goods
<b>14.1 UN number</b>	:	Not applicable
<b>14.2 Proper shipping name</b>	:	Not applicable
<b>14.3 Transport hazard class</b>	:	Not applicable
<b>14.4 Packing group</b>	:	Not applicable
<b>14.5 Environmental hazards</b>	:	no

#### 14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

#### 14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

### SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59) : Not applicable

REACH - List of substances subject to authorisation (Annex : Not applicable



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XIV)

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer Not applicable

Regulation (EU) 2019/1021 on persistent organic pollutants (recast) Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.  
Not applicable

**National regulatory information**

Water hazard class (Germany) : WGK 1 slightly hazardous to water  
Remarks: Classification according to AwSV, Annex 1 (5.2)

**15.2 Chemical safety assessment**

not required

**SECTION 16: Other information****Full text of other abbreviations**

ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; ATE - Acute Toxicity Estimate; AwSV - Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen / Ordinance on facilities for handling substances that are hazardous to water; BPR – Biocidal Product Regulation; bw - Body weight; CAS - Chemical Abstract Service; CLP - Classification Labelling Packaging Regulation, Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DNEL-Derived No Effect Level; DOT - Department of Transportation; EC – European Community; ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; EmS (Emergency Response Procedures for Ships Carrying Dangerous Goods); EN – European Standard; ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; EU OEL - European Occupational Exposure Limit; GHS -Globally Harmonized System of Classification and Labelling of Chemicals; GLP - Good Laboratory Practice; GV – Danish Exposure Limits for Substances and Materials; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; IMDG - International Maritime Dangerous Goods; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); LOFT - Danish Threshold Limit Value; MAK - German Threshold Limit Value; MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NIOSH/Guide – National Institute of Safety and Health Guidebook; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NTP - National Toxicology Program; OECD - Organization for Economic Co-operation and Development; PBT - Persistent, Bioaccumulative and Toxic substance; PEL - Permissible Exposure Limit; PNEC - Predicted no Effect Concentration; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; REL -

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Recommended Exposure Limit; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; STEL - Short-Term Exposure Limit; TDG - Transportation of Dangerous Goods; TGG – Dutch Threshold Limit Value; TGV – Swedish OEL; TLV Threshold Limit Value; TLV-C - Threshold Limit Value Ceiling; TWA -Time Weighted Average; UDS - Unscheduled DNA Synthesis; UN - United Nations; VLE - Valeurs limites d'exposition professionnelle aux agents chimiques en France; VME - Valeur (Limite) Moyenne d'Exposition; VOC - Volatile Organic Compound[s]; WEEL - Workplace Environmental Exposure Level; % w/w Percent weight by weight; %(V) Percent Volume

**Further information**

Date format : dd.mm.yyyy

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

Product name : Recombinant human insulin 0.5%

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

Use of the Substance/Mixture : Scientific research and development

**1.3 Details of the supplier of the safety data sheet**Company : **Lonza Ltd**  
Muenchensteinerstrasse 38  
CH-4002 Basel, Switzerland  
Business Telephone: +41 61 316 81 11**Lonza Verviers Sprl**  
Parc Industriel de Petit-Rechain  
BE-4800 Verviers, Belgium  
Business Telephone: +32 8732 1611**Lonza Cologne GmbH**  
Nattermannallee 1  
DE-50829 Köln, Germany  
Business Telephone: + 49 221 99 1990**Lonza Copenhagen ApS**  
Strandhaven 12  
DK-2665 Vallensbaek Strand, Denmark  
Business Telephone: + 45 4356 7400

E-mail address : sds@lonza.com

Responsible/issuing person

**1.4 Emergency telephone number**Emergency telephone number : Lonza Ltd, CH-4002 Basel, Switzerland  
Telephone: +41 61 313 94 94 (24h)

---

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

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

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

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

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**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.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Insulin: may cause hypoglycaemia.

Insulin is inactivated in the gastro-intestinal tract when ingested.

---

**SECTION 3: Composition/information on ingredients****3.2 Mixtures****Components**

Remarks : No hazardous ingredients

---

**SECTION 4: First aid measures****4.1 Description of first aid measures**

- If inhaled : No special precautions required.
- In case of skin contact : Wash with water and soap as a precaution.  
If skin irritation persists, call a physician.
- In case of eye contact : Immediately flush eye(s) with plenty of water.  
If eye irritation persists, consult a specialist.
- If swallowed : Immediately give large quantities of water to drink.  
Do not induce vomiting without medical advice.  
Never give anything by mouth to an unconscious person.

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

Symptoms : No information available.

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

Treatment : No information available.

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**SECTION 5: Firefighting measures****5.1 Extinguishing media**

Suitable extinguishing media : Water spray  
Dry powder  
Foam

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

Hazardous combustion products : No hazardous combustion products are known

**5.3 Advice for firefighters**

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

Further information : Use water spray to cool unopened containers.

---

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

Personal precautions : Use personal protective equipment.

**6.2 Environmental precautions**

Environmental precautions : No special environmental precautions required.

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

Methods for cleaning up : Wipe up with absorbent material (e.g. cloth, fleece).  
Dispose of in accordance with local regulations.

**6.4 Reference to other sections**

For personal protection see section 8.

---

**SECTION 7: Handling and storage****7.1 Precautions for safe handling**

Advice on safe handling : No special precautions required.

Advice on protection against fire and explosion : No special precautions required.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.

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

Requirements for storage areas and containers : No special storage conditions required.

**7.3 Specific end use(s)**

Specific use(s) : No information available.

---

**SECTION 8: Exposure controls/personal protection****8.1 Control parameters****Occupational Exposure Limits**

Contains no substances with occupational exposure limit values.

**8.2 Exposure controls****Engineering measures**

Use only in area provided with appropriate exhaust ventilation.

**Personal protective equipment**

Eye protection : Tightly fitting safety goggles

Hand protection

Material : Nitrile rubber

Rate of permeability : > 480 min

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.  
No special protective equipment required.

Respiratory protection : No personal respiratory protective equipment normally required.

---

**SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties**

Physical state : liquid

Appearance : Aqueous solution

Colour : colourless

Odour : odourless

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Melting point/freezing point	:	no data available
Initial boiling point and boiling range	:	no data available
Flammability	:	no data available
Upper explosion limit / upper flammability limit	:	no data available
Lower explosion limit / Lower flammability limit	:	no data available
Flash point	:	Water
Auto-ignition temperature	:	no data available
Decomposition temperature Decomposition temperature	:	no data available
pH	:	2 - 4
Viscosity Viscosity, kinematic	:	no data available
Solubility(ies) Water solubility	:	completely soluble
Partition coefficient: n-octanol/water	:	no data available
Vapour pressure	:	no data available
Relative density	:	no data available
Density	:	no data available
Relative vapour density	:	no data available
Particle characteristics	:	no data available

**9.2 Other information**

no data available

---

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

Stable under recommended storage conditions.

**10.2 Chemical stability**

Stable under normal conditions.

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**10.3 Possibility of hazardous reactions**

Hazardous reactions : Stable under normal conditions.

**10.4 Conditions to avoid**

Conditions to avoid : no data available

**10.5 Incompatible materials**

Materials to avoid : Strong oxidizing agents

**10.6 Hazardous decomposition products**

No decomposition if stored normally.

**SECTION 11: Toxicological information****11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute toxicity**

Acute oral toxicity : Remarks: no data available

Acute inhalation toxicity : Remarks: no data available

Acute dermal toxicity : Remarks: no data available

**Skin corrosion/irritation**

Assessment: No skin irritation

**Serious eye damage/eye irritation**

Assessment: No eye irritation

**Respiratory or skin sensitisation**

Remarks: no data available

**Germ cell mutagenicity**

Genotoxicity in vitro : Remarks: no data available

**Carcinogenicity**

Remarks: no data available

**Reproductive toxicity**

Effects on fertility : Remarks: no data available

**STOT - single exposure**



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Remarks: no data available

**STOT - repeated exposure**

Remarks: no data available

**11.2 Information on other hazards****Endocrine disrupting properties**

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**Further information**

Remarks: No data is available on the product itself.

Remarks: Insulin: may cause hypoglycaemia.  
Insulin is inactivated in the gastro-intestinal tract when ingested.May cause central nervous system depression.  
May induce sweating, pallor or visual disturbances.

---

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

Toxicity to fish : Remarks: no data available

**12.2 Persistence and degradability**

Biodegradability : Result: no data available

**12.3 Bioaccumulative potential**

Bioaccumulation : Remarks: no data available

**12.4 Mobility in soil**

Distribution among environmental compartments : Remarks: no data available

**12.5 Results of PBT and vPvB assessment**

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.

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**12.6 Endocrine disrupting properties**

Endocrine disrupting potential : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**12.7 Other adverse effects**

Endocrine disrupting potential : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Additional ecological information : no data available

---

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

Product : Contact waste disposal services.  
Dispose of in accordance with local regulations.

---

**SECTION 14: Transport information**

**IATA** Not dangerous goods

**14.1 UN number** : Not applicable  
**14.2 Proper shipping name** : Not applicable  
**14.3 Transport hazard class** : Not applicable  
**14.4 Packing group** : Not applicable  
**14.5 Environmental hazards** : no

**IMDG-CODE** Not dangerous goods

**14.1 UN number** : Not applicable  
**14.2 Proper shipping name** : Not applicable  
**14.3 Transport hazard class** : Not applicable  
**14.4 Packing group** : Not applicable  
**14.5 Environmental hazards** : Marine pollutant: no

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<b>ADR</b>	:	Not dangerous goods
<b>14.1 UN number</b>	:	Not applicable
<b>14.2 Proper shipping name</b>	:	Not applicable
<b>14.3 Transport hazard class</b>	:	Not applicable
<b>14.4 Packing group</b>	:	Not applicable
<b>14.5 Environmental hazards</b>	:	no
<b>RID</b>	:	Not dangerous goods
<b>14.1 UN number</b>	:	Not applicable
<b>14.2 Proper shipping name</b>	:	Not applicable
<b>14.3 Transport hazard class</b>	:	Not applicable
<b>14.4 Packing group</b>	:	Not applicable
<b>14.5 Environmental hazards</b>	:	no
<b>DOT</b>	:	Not dangerous goods
<b>14.1 UN number</b>	:	Not applicable
<b>14.2 Proper shipping name</b>	:	Not applicable
<b>14.3 Transport hazard class</b>	:	Not applicable
<b>14.4 Packing group</b>	:	Not applicable
<b>14.5 Environmental hazards</b>	:	no
<b>TDG</b>	:	Not dangerous goods
<b>14.1 UN number</b>	:	Not applicable
<b>14.2 Proper shipping name</b>	:	Not applicable
<b>14.3 Transport hazard class</b>	:	Not applicable
<b>14.4 Packing group</b>	:	Not applicable
<b>14.5 Environmental hazards</b>	:	no

#### 14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

#### 14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

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## SECTION 15: Regulatory information

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

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REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

Regulation (EU) 2019/1021 on persistent organic pollutants (recast) : Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.  
Not applicable

#### National regulatory information

Water hazard class (Germany) : nwg not water endangering  
Remarks: Classification according to AwSV, Annex 1 (4)

#### 15.2 Chemical safety assessment

not required

### SECTION 16: Other information

#### Full text of other abbreviations

ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; ATE - Acute Toxicity Estimate; AwSV - Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen / Ordinance on facilities for handling substances that are hazardous to water; BPR – Biocidal Product Regulation; bw - Body weight; CAS - Chemical Abstract Service; CLP - Classification Labelling Packaging Regulation, Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DNEL-Derived No Effect Level; DOT - Department of Transportation; EC – European Community; ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; EmS (Emergency Response Procedures for Ships Carrying Dangerous Goods); EN – European Standard; ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; EU OEL - European Occupational Exposure Limit; GHS -Globally Harmonized System of Classification and Labelling of Chemicals; GLP - Good Laboratory Practice; GV – Danish Exposure Limits for Substances and Materials; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; IMDG - International Maritime Dangerous Goods; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test

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population (Median Lethal Dose); LOFT - Danish Threshold Limit Value; MAK - German Threshold Limit Value; MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NIOSH/Guide – National Institute of Safety and Health Guidebook; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NTP - National Toxicology Program; OECD - Organization for Economic Co-operation and Development; PBT - Persistent, Bioaccumulative and Toxic substance; PEL - Permissible Exposure Limit; PNEC - Predicted no Effect Concentration; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; REL - Recommended Exposure Limit; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; STEL - Short-Term Exposure Limit; TDG - Transportation of Dangerous Goods; TGG – Dutch Threshold Limit Value; TGV – Swedish OEL; TLV Threshold Limit Value; TLV-C - Threshold Limit Value Ceiling; TWA -Time Weighted Average; UDS - Unscheduled DNA Synthesis; UN - United Nations; VLE - Valeurs limites d'exposition professionnelle aux agents chimiques en France; VME - Valeur (Limite) Moyenne d'Exposition; VOC - Volatile Organic Compound[s]; WEEL - Workplace Environmental Exposure Level; % w/w Percent weight by weight; %(V) Percent Volume

**Further information**

Date format : dd.mm.yyyy

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The 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, unless specified in the text.

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Changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The 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, unless specified in the text.

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

Product name : Fetal Bovine Serum

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

Use of the Substance/Mixture : Scientific research and development

**1.3 Details of the supplier of the safety data sheet**Company : **Lonza Ltd**  
Muenchensteinerstrasse 38  
CH-4002 Basel, Switzerland  
Business Telephone: +41 61 316 81 11**Lonza Verviers Sprl**  
Parc Industriel de Petit-Rechain  
BE-4800 Verviers, Belgium  
Business Telephone: +32 8732 1611**Lonza Cologne GmbH**  
Nattermannallee 1  
DE-50829 Köln, Germany  
Business Telephone: + 49 221 99 1990**Lonza Copenhagen ApS**  
Strandhaven 12  
DK-2665 Vallensbaek Strand, Denmark  
Business Telephone: + 45 4356 7400

E-mail address : sds@lonza.com

Responsible/issuing person

**1.4 Emergency telephone number**Emergency telephone number : Lonza Ltd, CH-4002 Basel, Switzerland  
Telephone: +41 61 313 94 94 (24h)

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

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

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

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

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**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.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

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**SECTION 3: Composition/information on ingredients****3.2 Mixtures****Components**

Remarks : No hazardous ingredients

---

**SECTION 4: First aid measures****4.1 Description of first aid measures**

If inhaled : No special precautions required.

In case of skin contact : Wash with water and soap as a precaution.  
If skin irritation persists, call a physician.

In case of eye contact : Immediately flush eye(s) with plenty of water.  
If eye irritation persists, consult a specialist.

If swallowed : Immediately give large quantities of water to drink.  
Do not induce vomiting without medical advice.  
Never give anything by mouth to an unconscious person.

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

Symptoms : No information available.

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

Treatment : No information available.

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**SECTION 5: Firefighting measures****5.1 Extinguishing media**

Suitable extinguishing media : Water spray  
Dry powder  
Foam

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

Hazardous combustion products : No hazardous combustion products are known

**5.3 Advice for firefighters**

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

Further information : Use water spray to cool unopened containers.

---

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

Personal precautions : Use personal protective equipment.

**6.2 Environmental precautions**

Environmental precautions : Prevent product from entering drains.

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

Methods for cleaning up : 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).

**6.4 Reference to other sections**

For personal protection see section 8.

---

**SECTION 7: Handling and storage****7.1 Precautions for safe handling**

Advice on safe handling : No special precautions required.

Advice on protection against fire and explosion : No special precautions required.

Hygiene measures : Handle in accordance with good industrial hygiene and safety



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practice.

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

Requirements for storage areas and containers : Keep tightly closed.

Store in cool place.

**7.3 Specific end use(s)**

Specific use(s) : No information available.

---

**SECTION 8: Exposure controls/personal protection****8.1 Control parameters****Occupational Exposure Limits**

Contains no substances with occupational exposure limit values.

**8.2 Exposure controls****Engineering measures**

Avoid splashes.

**Personal protective equipment**

Eye protection : Tightly fitting safety goggles

Hand protection

Material : Nitrile rubber

Rate of permeability : &gt; 480 min

Skin and body protection

: Choose body protection according to the amount and concentration of the dangerous substance at the work place.  
No special protective equipment required.

Respiratory protection

: No personal respiratory protective equipment normally required.

---

**SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties**

Physical state : liquid

Appearance : Aqueous solution

Colour : brown

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Odour	:	no data available
Melting point/freezing point	:	no data available
Initial boiling point and boiling range	:	no data available
Flammability	:	no data available
Upper explosion limit / upper flammability limit	:	no data available
Lower explosion limit / Lower flammability limit	:	no data available
Flash point	:	no data available
Auto-ignition temperature	:	no data available
Decomposition temperature Decomposition temperature	:	no data available
pH	:	6,8 - 8,3
Viscosity Viscosity, kinematic	:	no data available
Solubility(ies) Water solubility	:	no data available
Partition coefficient: n-octanol/water	:	no data available
Vapour pressure	:	no data available
Relative density	:	no data available
Density	:	no data available
Relative vapour density	:	no data available
Particle characteristics	:	no data available

**9.2 Other information**

no data available

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

Stable under recommended storage conditions.

**10.2 Chemical stability**

Stable under normal conditions.

**10.3 Possibility of hazardous reactions**

Hazardous reactions : Stable under normal conditions.

**10.4 Conditions to avoid**

Conditions to avoid : no data available

**10.5 Incompatible materials**

Materials to avoid : Strong oxidizing agents

**10.6 Hazardous decomposition products**

No decomposition if stored normally.

**SECTION 11: Toxicological information****11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute toxicity**

Acute oral toxicity : Remarks: no data available

Acute inhalation toxicity : Remarks: no data available

Acute dermal toxicity : Remarks: no data available

**Skin corrosion/irritation**

Remarks: no data available

**Serious eye damage/eye irritation**

Remarks: no data available

**Respiratory or skin sensitisation**

Remarks: no data available

**Germ cell mutagenicity**

Genotoxicity in vitro : Remarks: no data available

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**Carcinogenicity**

Remarks: no data available

**Reproductive toxicity**

Effects on fertility

: Remarks: no data available

**STOT - single exposure**

Remarks: no data available

**STOT - repeated exposure**

Remarks: no data available

**11.2 Information on other hazards****Endocrine disrupting properties**

Assessment

: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**Further information**

Remarks: No data is available on the product itself.

---

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

Toxicity to fish

: Remarks: no data available

**12.2 Persistence and degradability**

Biodegradability

: Result: no data available

**12.3 Bioaccumulative potential**

Bioaccumulation

: Remarks: no data available

**12.4 Mobility in soil**

Distribution among environmental compartments

: Remarks: no data available

**12.5 Results of PBT and vPvB assessment**

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

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higher.

**12.6 Endocrine disrupting properties**

Endocrine disrupting potential : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**12.7 Other adverse effects**

Endocrine disrupting potential : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Additional ecological information : no data available

---

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

Product : Dispose of in accordance with local regulations.

---

**SECTION 14: Transport information**

**IATA** Not dangerous goods

**14.1 UN number** : Not applicable  
**14.2 Proper shipping name** : Not applicable  
**14.3 Transport hazard class** : Not applicable  
**14.4 Packing group** : Not applicable  
**14.5 Environmental hazards** : no

**IMDG-CODE** Not dangerous goods

**14.1 UN number** : Not applicable  
**14.2 Proper shipping name** : Not applicable  
**14.3 Transport hazard class** : Not applicable  
**14.4 Packing group** : Not applicable  
**14.5 Environmental hazards** : Marine pollutant: no

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<b>ADR</b>	:	Not dangerous goods
<b>14.1 UN number</b>	:	Not applicable
<b>14.2 Proper shipping name</b>	:	Not applicable
<b>14.3 Transport hazard class</b>	:	Not applicable
<b>14.4 Packing group</b>	:	Not applicable
<b>14.5 Environmental hazards</b>	:	no
<b>RID</b>	:	Not dangerous goods
<b>14.1 UN number</b>	:	Not applicable
<b>14.2 Proper shipping name</b>	:	Not applicable
<b>14.3 Transport hazard class</b>	:	Not applicable
<b>14.4 Packing group</b>	:	Not applicable
<b>14.5 Environmental hazards</b>	:	no
<b>DOT</b>	:	Not dangerous goods
<b>14.1 UN number</b>	:	Not applicable
<b>14.2 Proper shipping name</b>	:	Not applicable
<b>14.3 Transport hazard class</b>	:	Not applicable
<b>14.4 Packing group</b>	:	Not applicable
<b>14.5 Environmental hazards</b>	:	no
<b>TDG</b>	:	Not dangerous goods
<b>14.1 UN number</b>	:	Not applicable
<b>14.2 Proper shipping name</b>	:	Not applicable
<b>14.3 Transport hazard class</b>	:	Not applicable
<b>14.4 Packing group</b>	:	Not applicable
<b>14.5 Environmental hazards</b>	:	no

#### 14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

#### 14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

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## SECTION 15: Regulatory information

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

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REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

Regulation (EU) 2019/1021 on persistent organic pollutants (recast) : Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.  
Not applicable

#### National regulatory information

Water hazard class (Germany) : WGK 1 slightly hazardous to water  
Remarks: Classification according to AwSV, Annex 1 (4)

#### 15.2 Chemical safety assessment

not required

### SECTION 16: Other information

#### Full text of other abbreviations

ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; ATE - Acute Toxicity Estimate; AwSV - Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen / Ordinance on facilities for handling substances that are hazardous to water; BPR – Biocidal Product Regulation; bw - Body weight; CAS - Chemical Abstract Service; CLP - Classification Labelling Packaging Regulation, Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DNEL-Derived No Effect Level; DOT - Department of Transportation; EC – European Community; ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; EmS (Emergency Response Procedures for Ships Carrying Dangerous Goods); EN – European Standard; ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; EU OEL - European Occupational Exposure Limit; GHS -Globally Harmonized System of Classification and Labelling of Chemicals; GLP - Good Laboratory Practice; GV – Danish Exposure Limits for Substances and Materials; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; IMDG - International Maritime Dangerous Goods; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test

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population (Median Lethal Dose); LOFT - Danish Threshold Limit Value; MAK - German Threshold Limit Value; MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NIOSH/Guide – National Institute of Safety and Health Guidebook; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NTP - National Toxicology Program; OECD - Organization for Economic Co-operation and Development; PBT - Persistent, Bioaccumulative and Toxic substance; PEL - Permissible Exposure Limit; PNEC - Predicted no Effect Concentration; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; REL - Recommended Exposure Limit; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; STEL - Short-Term Exposure Limit; TDG - Transportation of Dangerous Goods; TGG – Dutch Threshold Limit Value; TGV – Swedish OEL; TLV Threshold Limit Value; TLV-C - Threshold Limit Value Ceiling; TWA -Time Weighted Average; UDS - Unscheduled DNA Synthesis; UN - United Nations; VLE - Valeurs limites d'exposition professionnelle aux agents chimiques en France; VME - Valeur (Limite) Moyenne d'Exposition; VOC - Volatile Organic Compound[s]; WEEL - Workplace Environmental Exposure Level; % w/w Percent weight by weight; %(V) Percent Volume

**Further information**

Date format : dd.mm.yyyy

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Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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

Product name : Transferrin

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

Use of the Substance/Mixture : Scientific research and development

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

Company : **Lonza Ltd**  
Muenchensteinerstrasse 38  
CH-4002 Basel, Switzerland  
Business Telephone: +41 61 316 81 11

**Lonza Verviers Sprl**  
Parc Industriel de Petit-Rechain  
BE-4800 Verviers, Belgium  
Business Telephone: +32 8732 1611

**Lonza Cologne GmbH**  
Nattermannallee 1  
DE-50829 Köln, Germany  
Business Telephone: + 49 221 99 1990

**Lonza Copenhagen ApS**  
Strandhaven 12  
DK-2665 Vallensbaek Strand, Denmark  
Business Telephone: + 45 4356 7400

E-mail address : sds@lonza.com

Responsible/issuing person

**1.4 Emergency telephone number**Emergency telephone number : Lonza Ltd, CH-4002 Basel, Switzerland  
Telephone: +41 61 313 94 94 (24h)**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****Classification (REGULATION (EC) No 1272/2008)**

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

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

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

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**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.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

---

**SECTION 3: Composition/information on ingredients****3.2 Mixtures****Components**

Remarks : No hazardous ingredients

---

**SECTION 4: First aid measures****4.1 Description of first aid measures**

If inhaled : No special precautions required.

In case of skin contact : Wash with water and soap as a precaution.  
If skin irritation persists, call a physician.

In case of eye contact : Immediately flush eye(s) with plenty of water.  
If eye irritation persists, consult a specialist.

If swallowed : Immediately give large quantities of water to drink.  
Do not induce vomiting without medical advice.  
Never give anything by mouth to an unconscious person.

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

Symptoms : No information available.

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

Treatment : No information available.

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**SECTION 5: Firefighting measures****5.1 Extinguishing media**

Suitable extinguishing media : Water spray  
Dry powder  
Foam

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

Hazardous combustion products : No hazardous combustion products are known

**5.3 Advice for firefighters**

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

Further information : Use water spray to cool unopened containers.

---

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

Personal precautions : Use personal protective equipment.

**6.2 Environmental precautions**

Environmental precautions : Prevent product from entering drains.

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

Methods for cleaning up : 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).

**6.4 Reference to other sections**

For personal protection see section 8.

---

**SECTION 7: Handling and storage****7.1 Precautions for safe handling**

Advice on safe handling : No special precautions required.

Advice on protection against fire and explosion : Take precautionary measures against static discharges.

Hygiene measures : Handle in accordance with good industrial hygiene and safety

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practice.

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

Requirements for storage areas and containers : No special storage conditions required.

**7.3 Specific end use(s)**

Specific use(s) : No information available.

---

**SECTION 8: Exposure controls/personal protection****8.1 Control parameters****Occupational Exposure Limits**

Contains no substances with occupational exposure limit values.

**8.2 Exposure controls****Engineering measures**

Avoid splashes.

**Personal protective equipment**

Eye protection : Tightly fitting safety goggles

Hand protection

Material : Nitrile rubber

Rate of permeability : &gt; 480 min

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.  
No special protective equipment required.

Respiratory protection : No personal respiratory protective equipment normally required.

---

**SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties**

Physical state : liquid

Appearance : Aqueous solution

Colour : no data available

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Odour	:	no data available
Melting point/freezing point	:	no data available
Initial boiling point and boiling range	:	no data available
Flammability	:	no data available
Upper explosion limit / upper flammability limit	:	no data available
Lower explosion limit / Lower flammability limit	:	no data available
Flash point	:	no data available
Auto-ignition temperature	:	no data available
Decomposition temperature Decomposition temperature	:	no data available
pH	:	no data available
Viscosity Viscosity, kinematic	:	no data available
Solubility(ies) Water solubility	:	no data available
Partition coefficient: n-octanol/water	:	no data available
Vapour pressure	:	no data available
Relative density	:	no data available
Density	:	no data available
Relative vapour density	:	no data available
Particle characteristics	:	no data available

**9.2 Other information**

no data available

---

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

Stable under recommended storage conditions.

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**10.2 Chemical stability**

Stable under normal conditions.

**10.3 Possibility of hazardous reactions**

Hazardous reactions : Stable under normal conditions.

**10.4 Conditions to avoid**

Conditions to avoid : no data available

**10.5 Incompatible materials**

Materials to avoid : Strong oxidizing agents

**10.6 Hazardous decomposition products**

No decomposition if stored normally.

---

**SECTION 11: Toxicological information****11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute toxicity**

Acute oral toxicity : Remarks: no data available

Acute inhalation toxicity : Remarks: no data available

Acute dermal toxicity : Remarks: no data available

**Skin corrosion/irritation**

Remarks: no data available

**Serious eye damage/eye irritation**

Remarks: no data available

**Respiratory or skin sensitisation**

Remarks: no data available

**Germ cell mutagenicity**

Genotoxicity in vitro : Remarks: no data available

**Carcinogenicity**

Remarks: no data available

**Reproductive toxicity**

Effects on fertility : Remarks: no data available

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**STOT - single exposure**

Remarks: no data available

**STOT - repeated exposure**

Remarks: no data available

**11.2 Information on other hazards****Endocrine disrupting properties**

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**Further information**

Remarks: No data is available on the product itself.

---

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

Toxicity to fish : Remarks: no data available

**12.2 Persistence and degradability**

Biodegradability : Result: no data available

**12.3 Bioaccumulative potential**

Bioaccumulation : Remarks: no data available

**12.4 Mobility in soil**

Distribution among environmental compartments : Remarks: no data available

**12.5 Results of PBT and vPvB assessment**

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 Endocrine disrupting properties**

Endocrine disrupting potential : The substance/mixture does not contain components considered to have endocrine disrupting properties according

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to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**12.7 Other adverse effects**

Endocrine disrupting potential : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Additional ecological information : no data available

---

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

Product : Dispose of in accordance with local regulations.

---

**SECTION 14: Transport information**

**IATA** Not dangerous goods

14.1 UN number : Not applicable  
14.2 Proper shipping name : Not applicable  
14.3 Transport hazard class : Not applicable  
14.4 Packing group : Not applicable  
14.5 Environmental hazards : no

**IMDG-CODE** Not dangerous goods

14.1 UN number : Not applicable  
14.2 Proper shipping name : Not applicable  
14.3 Transport hazard class : Not applicable  
14.4 Packing group : Not applicable  
14.5 Environmental hazards : Marine pollutant: no

**ADR** : Not dangerous goods

14.1 UN number : Not applicable  
14.2 Proper shipping name : Not applicable  
14.3 Transport hazard class : Not applicable  
14.4 Packing group : Not applicable  
14.5 Environmental hazards : no



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<b>RID</b>	:	Not dangerous goods
<b>14.1 UN number</b>	:	Not applicable
<b>14.2 Proper shipping name</b>	:	Not applicable
<b>14.3 Transport hazard class</b>	:	Not applicable
<b>14.4 Packing group</b>	:	Not applicable
<b>14.5 Environmental hazards</b>	:	no
<b>DOT</b>	:	Not dangerous goods
<b>14.1 UN number</b>	:	Not applicable
<b>14.2 Proper shipping name</b>	:	Not applicable
<b>14.3 Transport hazard class</b>	:	Not applicable
<b>14.4 Packing group</b>	:	Not applicable
<b>14.5 Environmental hazards</b>	:	no
<b>TDG</b>	:	Not dangerous goods
<b>14.1 UN number</b>	:	Not applicable
<b>14.2 Proper shipping name</b>	:	Not applicable
<b>14.3 Transport hazard class</b>	:	Not applicable
<b>14.4 Packing group</b>	:	Not applicable
<b>14.5 Environmental hazards</b>	:	no

#### 14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

#### 14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

## SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59) : Not applicable

REACH - List of substances subject to authorisation (Annex : Not applicable

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XIV)

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer Not applicable

Regulation (EU) 2019/1021 on persistent organic pollutants (recast) Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.  
Not applicable

#### National regulatory information

Water hazard class (Germany) : nwg not water endangering  
Remarks: Classification according to AwSV, Annex 1 (2.2)

#### 15.2 Chemical safety assessment

not required

### SECTION 16: Other information

#### Full text of other abbreviations

ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; ATE - Acute Toxicity Estimate; AwSV - Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen / Ordinance on facilities for handling substances that are hazardous to water; BPR – Biocidal Product Regulation; bw - Body weight; CAS - Chemical Abstract Service; CLP - Classification Labelling Packaging Regulation, Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DNEL-Derived No Effect Level; DOT - Department of Transportation; EC – European Community; ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; EmS (Emergency Response Procedures for Ships Carrying Dangerous Goods); EN – European Standard; ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; EU OEL - European Occupational Exposure Limit; GHS -Globally Harmonized System of Classification and Labelling of Chemicals; GLP - Good Laboratory Practice; GV – Danish Exposure Limits for Substances and Materials; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; IMDG - International Maritime Dangerous Goods; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); LOFT - Danish Threshold Limit Value; MAK - German Threshold Limit Value; MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NIOSH/Guide – National Institute of Safety and Health Guidebook; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NTP - National Toxicology Program; OECD - Organization for Economic Co-operation and Development; PBT - Persistent, Bioaccumulative and Toxic substance; PEL - Permissible Exposure Limit; PNEC - Predicted no Effect Concentration; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; REL -

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Recommended Exposure Limit; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; STEL - Short-Term Exposure Limit; TDG - Transportation of Dangerous Goods; TGG – Dutch Threshold Limit Value; TGV – Swedish OEL; TLV Threshold Limit Value; TLV-C - Threshold Limit Value Ceiling; TWA -Time Weighted Average; UDS - Unscheduled DNA Synthesis; UN - United Nations; VLE - Valeurs limites d'exposition professionnelle aux agents chimiques en France; VME - Valeur (Limite) Moyenne d'Exposition; VOC - Volatile Organic Compound[s]; WEEL - Workplace Environmental Exposure Level; % w/w Percent weight by weight; %(V) Percent Volume

**Further information**

Date format : dd.mm.yyyy

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

Product name : TRIIODOTHYRONINE

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

Use of the Substance/Mixture : Scientific research and development

**1.3 Details of the supplier of the safety data sheet**Company : **Lonza Ltd**  
Muenchensteinerstrasse 38  
CH-4002 Basel, Switzerland  
Business Telephone: +41 61 316 81 11**Lonza Verviers Sprl**  
Parc Industriel de Petit-Rechain  
BE-4800 Verviers, Belgium  
Business Telephone: +32 8732 1611**Lonza Cologne GmbH**  
Nattermannallee 1  
DE-50829 Köln, Germany  
Business Telephone: + 49 221 99 1990**Lonza Copenhagen ApS**  
Strandhaven 12  
DK-2665 Vallensbaek Strand, Denmark  
Business Telephone: + 45 4356 7400

E-mail address : sds@lonza.com

Responsible/issuing person

**1.4 Emergency telephone number**Emergency telephone number : Lonza Ltd, CH-4002 Basel, Switzerland  
Telephone: +41 61 313 94 94 (24h)

---

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

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

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

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

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**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.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

---

**SECTION 3: Composition/information on ingredients****3.2 Mixtures****Components**

Remarks : No hazardous ingredients

---

**SECTION 4: First aid measures****4.1 Description of first aid measures**

If inhaled : No special precautions required.

In case of skin contact : Wash with water and soap as a precaution.  
If skin irritation persists, call a physician.

In case of eye contact : Immediately flush eye(s) with plenty of water.  
If eye irritation persists, consult a specialist.

If swallowed : Immediately give large quantities of water to drink.  
Do not induce vomiting without medical advice.  
Never give anything by mouth to an unconscious person.

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

Symptoms : No information available.

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

Treatment : No information available.

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**SECTION 5: Firefighting measures****5.1 Extinguishing media**

Suitable extinguishing media : Water spray  
Dry powder  
Foam

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

Hazardous combustion products : No hazardous combustion products are known

**5.3 Advice for firefighters**

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

Further information : Use water spray to cool unopened containers.

---

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

Personal precautions : Use personal protective equipment.

**6.2 Environmental precautions**

Environmental precautions : Prevent product from entering drains.

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

Methods for cleaning up : 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).

**6.4 Reference to other sections**

For personal protection see section 8.

---

**SECTION 7: Handling and storage****7.1 Precautions for safe handling**

Advice on safe handling : No special precautions required.

Advice on protection against fire and explosion : Take precautionary measures against static discharges.

Hygiene measures : Handle in accordance with good industrial hygiene and safety

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practice.

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

Requirements for storage areas and containers : No special storage conditions required.

**7.3 Specific end use(s)**

Specific use(s) : No information available.

---

**SECTION 8: Exposure controls/personal protection****8.1 Control parameters****Occupational Exposure Limits**

Contains no substances with occupational exposure limit values.

**8.2 Exposure controls****Engineering measures**

Avoid splashes.

**Personal protective equipment**

Eye protection : Tightly fitting safety goggles

Hand protection

Material : Nitrile rubber

Rate of permeability : &gt; 480 min

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.  
No special protective equipment required.

Respiratory protection : No personal respiratory protective equipment normally required.

---

**SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties**

Physical state : liquid

Appearance : Aqueous solution

Colour : no data available

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Odour	:	no data available
Melting point/freezing point	:	no data available
Initial boiling point and boiling range	:	no data available
Flammability	:	no data available
Upper explosion limit / upper flammability limit	:	no data available
Lower explosion limit / Lower flammability limit	:	no data available
Flash point	:	no data available
Auto-ignition temperature	:	no data available
Decomposition temperature Decomposition temperature	:	no data available
pH	:	no data available
Viscosity Viscosity, kinematic	:	no data available
Solubility(ies) Water solubility	:	no data available
Partition coefficient: n-octanol/water	:	no data available
Vapour pressure	:	no data available
Relative density	:	no data available
Density	:	no data available
Relative vapour density	:	no data available
Particle characteristics	:	no data available

**9.2 Other information**

no data available

---

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

Stable under recommended storage conditions.



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**10.2 Chemical stability**

Stable under normal conditions.

**10.3 Possibility of hazardous reactions**

Hazardous reactions : Stable under normal conditions.

**10.4 Conditions to avoid**

Conditions to avoid : no data available

**10.5 Incompatible materials**

Materials to avoid : Strong oxidizing agents

**10.6 Hazardous decomposition products**

No decomposition if stored normally.

---

**SECTION 11: Toxicological information****11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute toxicity**

Acute oral toxicity : Remarks: no data available

Acute inhalation toxicity : Remarks: no data available

Acute dermal toxicity : Remarks: no data available

**Skin corrosion/irritation**

Remarks: no data available

**Serious eye damage/eye irritation**

Remarks: no data available

**Respiratory or skin sensitisation**

Remarks: no data available

**Germ cell mutagenicity**

Genotoxicity in vitro : Remarks: no data available

**Carcinogenicity**

Remarks: no data available

**Reproductive toxicity**

Effects on fertility : Remarks: no data available

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**STOT - single exposure**

Remarks: no data available

**STOT - repeated exposure**

Remarks: no data available

**11.2 Information on other hazards****Endocrine disrupting properties**

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**Further information**

Remarks: No data is available on the product itself.

---

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

Toxicity to fish : Remarks: no data available

**12.2 Persistence and degradability**

Biodegradability : Result: no data available

**12.3 Bioaccumulative potential**

Bioaccumulation : Remarks: no data available

**12.4 Mobility in soil**

Distribution among environmental compartments : Remarks: no data available

**12.5 Results of PBT and vPvB assessment**

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 Endocrine disrupting properties**

Endocrine disrupting potential : The substance/mixture does not contain components considered to have endocrine disrupting properties according

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to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

#### 12.7 Other adverse effects

Endocrine disrupting potential : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Additional ecological information : no data available

### SECTION 13: Disposal considerations

#### 13.1 Waste treatment methods

Product : Dispose of in accordance with local regulations.

### SECTION 14: Transport information

**IATA** Not dangerous goods

14.1 UN number : Not applicable  
 14.2 Proper shipping name : Not applicable  
 14.3 Transport hazard class : Not applicable  
 14.4 Packing group : Not applicable  
 14.5 Environmental hazards : no

**IMDG-CODE** Not dangerous goods

14.1 UN number : Not applicable  
 14.2 Proper shipping name : Not applicable  
 14.3 Transport hazard class : Not applicable  
 14.4 Packing group : Not applicable  
 14.5 Environmental hazards : Marine pollutant: no

**ADR** : Not dangerous goods

14.1 UN number : Not applicable  
 14.2 Proper shipping name : Not applicable  
 14.3 Transport hazard class : Not applicable  
 14.4 Packing group : Not applicable  
 14.5 Environmental hazards : no

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<b>RID</b>	:	Not dangerous goods
<b>14.1 UN number</b>	:	Not applicable
<b>14.2 Proper shipping name</b>	:	Not applicable
<b>14.3 Transport hazard class</b>	:	Not applicable
<b>14.4 Packing group</b>	:	Not applicable
<b>14.5 Environmental hazards</b>	:	no
<b>DOT</b>	:	Not dangerous goods
<b>14.1 UN number</b>	:	Not applicable
<b>14.2 Proper shipping name</b>	:	Not applicable
<b>14.3 Transport hazard class</b>	:	Not applicable
<b>14.4 Packing group</b>	:	Not applicable
<b>14.5 Environmental hazards</b>	:	no
<b>TDG</b>	:	Not dangerous goods
<b>14.1 UN number</b>	:	Not applicable
<b>14.2 Proper shipping name</b>	:	Not applicable
<b>14.3 Transport hazard class</b>	:	Not applicable
<b>14.4 Packing group</b>	:	Not applicable
<b>14.5 Environmental hazards</b>	:	no

#### 14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

#### 14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

## SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59) : Not applicable

REACH - List of substances subject to authorisation (Annex : Not applicable

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XIV)

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer Not applicable

Regulation (EU) 2019/1021 on persistent organic pollutants (recast) Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.  
Not applicable

#### National regulatory information

Water hazard class (Germany) : WGK 1 slightly hazardous to water  
Remarks: Classification according to AwSV, Annex 1 (5.2)

#### 15.2 Chemical safety assessment

not required

### SECTION 16: Other information

#### Full text of other abbreviations

ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; ATE - Acute Toxicity Estimate; AwSV - Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen / Ordinance on facilities for handling substances that are hazardous to water; BPR – Biocidal Product Regulation; bw - Body weight; CAS - Chemical Abstract Service; CLP - Classification Labelling Packaging Regulation, Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DNEL-Derived No Effect Level; DOT - Department of Transportation; EC – European Community; ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; EmS (Emergency Response Procedures for Ships Carrying Dangerous Goods); EN – European Standard; ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; EU OEL - European Occupational Exposure Limit; GHS -Globally Harmonized System of Classification and Labelling of Chemicals; GLP - Good Laboratory Practice; GV – Danish Exposure Limits for Substances and Materials; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; IMDG - International Maritime Dangerous Goods; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); LOFT - Danish Threshold Limit Value; MAK - German Threshold Limit Value; MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NIOSH/Guide – National Institute of Safety and Health Guidebook; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NTP - National Toxicology Program; OECD - Organization for Economic Co-operation and Development; PBT - Persistent, Bioaccumulative and Toxic substance; PEL - Permissible Exposure Limit; PNEC - Predicted no Effect Concentration; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; REL -

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Recommended Exposure Limit; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; STEL - Short-Term Exposure Limit; TDG - Transportation of Dangerous Goods; TGG – Dutch Threshold Limit Value; TGV – Swedish OEL; TLV Threshold Limit Value; TLV-C - Threshold Limit Value Ceiling; TWA -Time Weighted Average; UDS - Unscheduled DNA Synthesis; UN - United Nations; VLE - Valeurs limites d'exposition professionnelle aux agents chimiques en France; VME - Valeur (Limite) Moyenne d'Exposition; VOC - Volatile Organic Compound[s]; WEEL - Workplace Environmental Exposure Level; % w/w Percent weight by weight; %(V) Percent Volume

**Further information**

Date format : dd.mm.yyyy

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Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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

Product name : Epinephrine

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

Use of the Substance/Mixture : Scientific research and development

**1.3 Details of the supplier of the safety data sheet**Company : **Lonza Ltd**  
Muenchensteinerstrasse 38  
CH-4002 Basel, Switzerland  
Business Telephone: +41 61 316 81 11**Lonza Verviers Sprl**  
Parc Industriel de Petit-Rechain  
BE-4800 Verviers, Belgium  
Business Telephone: +32 8732 1611**Lonza Cologne GmbH**  
Nattermannallee 1  
DE-50829 Köln, Germany  
Business Telephone: + 49 221 99 1990**Lonza Copenhagen ApS**  
Strandhaven 12  
DK-2665 Vallensbaek Strand, Denmark  
Business Telephone: + 45 4356 7400

E-mail address : sds@lonza.com

Responsible/issuing person

**1.4 Emergency telephone number**Emergency telephone number : Lonza Ltd, CH-4002 Basel, Switzerland  
Telephone: +41 61 313 94 94 (24h)

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

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

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

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

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**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.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

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**SECTION 3: Composition/information on ingredients****3.2 Mixtures****Components**

Remarks : No hazardous ingredients

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**SECTION 4: First aid measures****4.1 Description of first aid measures**

If inhaled : No special precautions required.

In case of skin contact : Wash with water and soap as a precaution.  
If skin irritation persists, call a physician.

In case of eye contact : Immediately flush eye(s) with plenty of water.  
If eye irritation persists, consult a specialist.

If swallowed : Immediately give large quantities of water to drink.  
Do not induce vomiting without medical advice.  
Never give anything by mouth to an unconscious person.

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

Symptoms : No information available.

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

Treatment : No information available.



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**SECTION 5: Firefighting measures****5.1 Extinguishing media**

Suitable extinguishing media : Water spray  
Dry powder  
Foam

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

Hazardous combustion products : No hazardous combustion products are known

**5.3 Advice for firefighters**

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

Further information : Use water spray to cool unopened containers.

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

Personal precautions : Use personal protective equipment.

**6.2 Environmental precautions**

Environmental precautions : Prevent product from entering drains.

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

Methods for cleaning up : 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).

**6.4 Reference to other sections**

For personal protection see section 8.

---

**SECTION 7: Handling and storage****7.1 Precautions for safe handling**

Advice on safe handling : No special precautions required.

Advice on protection against fire and explosion : Take precautionary measures against static discharges.

Hygiene measures : Handle in accordance with good industrial hygiene and safety

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practice.

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

Requirements for storage areas and containers : No special storage conditions required.

**7.3 Specific end use(s)**

Specific use(s) : No information available.

---

**SECTION 8: Exposure controls/personal protection****8.1 Control parameters****Occupational Exposure Limits**

Contains no substances with occupational exposure limit values.

**8.2 Exposure controls****Engineering measures**

Avoid splashes.

**Personal protective equipment**

Eye protection : Tightly fitting safety goggles

Hand protection

Material : Nitrile rubber

Rate of permeability : &gt; 480 min

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.  
No special protective equipment required.

Respiratory protection : No personal respiratory protective equipment normally required.

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**SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties**

Physical state : liquid

Appearance : Aqueous solution

Colour : no data available

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Odour	:	no data available
Melting point/freezing point	:	no data available
Initial boiling point and boiling range	:	no data available
Flammability	:	no data available
Upper explosion limit / upper flammability limit	:	no data available
Lower explosion limit / Lower flammability limit	:	no data available
Flash point	:	no data available
Auto-ignition temperature	:	no data available
Decomposition temperature Decomposition temperature	:	no data available
pH	:	no data available
Viscosity Viscosity, kinematic	:	no data available
Solubility(ies) Water solubility	:	no data available
Partition coefficient: n-octanol/water	:	no data available
Vapour pressure	:	no data available
Relative density	:	no data available
Density	:	no data available
Relative vapour density	:	no data available
Particle characteristics	:	no data available

**9.2 Other information**

no data available

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

Stable under recommended storage conditions.

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**10.2 Chemical stability**

Stable under normal conditions.

**10.3 Possibility of hazardous reactions**

Hazardous reactions : Stable under normal conditions.

**10.4 Conditions to avoid**

Conditions to avoid : no data available

**10.5 Incompatible materials**

Materials to avoid : Strong oxidizing agents

**10.6 Hazardous decomposition products**

No decomposition if stored normally.

---

**SECTION 11: Toxicological information****11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute toxicity**

Acute oral toxicity : Remarks: no data available

Acute inhalation toxicity : Remarks: no data available

Acute dermal toxicity : Remarks: no data available

**Skin corrosion/irritation**

Remarks: no data available

**Serious eye damage/eye irritation**

Remarks: no data available

**Respiratory or skin sensitisation**

Remarks: no data available

**Germ cell mutagenicity**

Genotoxicity in vitro : Remarks: no data available

**Carcinogenicity**

Remarks: no data available

**Reproductive toxicity**

Effects on fertility : Remarks: no data available

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**STOT - single exposure**

Remarks: no data available

**STOT - repeated exposure**

Remarks: no data available

**11.2 Information on other hazards****Endocrine disrupting properties**

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**Further information**

Remarks: No data is available on the product itself.

---

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

Toxicity to fish : Remarks: no data available

**12.2 Persistence and degradability**

Biodegradability : Result: no data available

**12.3 Bioaccumulative potential**

Bioaccumulation : Remarks: no data available

**12.4 Mobility in soil**

Distribution among environmental compartments : Remarks: no data available

**12.5 Results of PBT and vPvB assessment**

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 Endocrine disrupting properties**

Endocrine disrupting potential : The substance/mixture does not contain components considered to have endocrine disrupting properties according

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to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**12.7 Other adverse effects**

Endocrine disrupting potential : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Additional ecological information : no data available

---

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

Product : Dispose of in accordance with local regulations.

---

**SECTION 14: Transport information**

**IATA** Not dangerous goods

14.1 UN number : Not applicable  
14.2 Proper shipping name : Not applicable  
14.3 Transport hazard class : Not applicable  
14.4 Packing group : Not applicable  
14.5 Environmental hazards : no

**IMDG-CODE** Not dangerous goods

14.1 UN number : Not applicable  
14.2 Proper shipping name : Not applicable  
14.3 Transport hazard class : Not applicable  
14.4 Packing group : Not applicable  
14.5 Environmental hazards : Marine pollutant: no

**ADR** : Not dangerous goods

14.1 UN number : Not applicable  
14.2 Proper shipping name : Not applicable  
14.3 Transport hazard class : Not applicable  
14.4 Packing group : Not applicable  
14.5 Environmental hazards : no

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<b>RID</b>	:	Not dangerous goods
<b>14.1 UN number</b>	:	Not applicable
<b>14.2 Proper shipping name</b>	:	Not applicable
<b>14.3 Transport hazard class</b>	:	Not applicable
<b>14.4 Packing group</b>	:	Not applicable
<b>14.5 Environmental hazards</b>	:	no
<b>DOT</b>	:	Not dangerous goods
<b>14.1 UN number</b>	:	Not applicable
<b>14.2 Proper shipping name</b>	:	Not applicable
<b>14.3 Transport hazard class</b>	:	Not applicable
<b>14.4 Packing group</b>	:	Not applicable
<b>14.5 Environmental hazards</b>	:	no
<b>TDG</b>	:	Not dangerous goods
<b>14.1 UN number</b>	:	Not applicable
<b>14.2 Proper shipping name</b>	:	Not applicable
<b>14.3 Transport hazard class</b>	:	Not applicable
<b>14.4 Packing group</b>	:	Not applicable
<b>14.5 Environmental hazards</b>	:	no

#### 14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

#### 14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

## SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59) : Not applicable

REACH - List of substances subject to authorisation (Annex : Not applicable

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XIV)

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer Not applicable

Regulation (EU) 2019/1021 on persistent organic pollutants (recast) Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.  
Not applicable

#### National regulatory information

Water hazard class (Germany) : WGK 1 slightly hazardous to water  
Remarks: Classification according to AwSV, Annex 1 (5.2)

#### 15.2 Chemical safety assessment

not required

### SECTION 16: Other information

#### Full text of other abbreviations

ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; ATE - Acute Toxicity Estimate; AwSV - Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen / Ordinance on facilities for handling substances that are hazardous to water; BPR – Biocidal Product Regulation; bw - Body weight; CAS - Chemical Abstract Service; CLP - Classification Labelling Packaging Regulation, Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DNEL-Derived No Effect Level; DOT - Department of Transportation; EC – European Community; ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; EmS (Emergency Response Procedures for Ships Carrying Dangerous Goods); EN – European Standard; ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; EU OEL - European Occupational Exposure Limit; GHS -Globally Harmonized System of Classification and Labelling of Chemicals; GLP - Good Laboratory Practice; GV – Danish Exposure Limits for Substances and Materials; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; IMDG - International Maritime Dangerous Goods; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); LOFT - Danish Threshold Limit Value; MAK - German Threshold Limit Value; MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NIOSH/Guide – National Institute of Safety and Health Guidebook; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NTP - National Toxicology Program; OECD - Organization for Economic Co-operation and Development; PBT - Persistent, Bioaccumulative and Toxic substance; PEL - Permissible Exposure Limit; PNEC - Predicted no Effect Concentration; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; REL -



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Recommended Exposure Limit; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; STEL - Short-Term Exposure Limit; TDG - Transportation of Dangerous Goods; TGG – Dutch Threshold Limit Value; TGV – Swedish OEL; TLV Threshold Limit Value; TLV-C - Threshold Limit Value Ceiling; TWA -Time Weighted Average; UDS - Unscheduled DNA Synthesis; UN - United Nations; VLE - Valeurs limites d'exposition professionnelle aux agents chimiques en France; VME - Valeur (Limite) Moyenne d'Exposition; VOC - Volatile Organic Compound[s]; WEEL - Workplace Environmental Exposure Level; % w/w Percent weight by weight; %(V) Percent Volume

**Further information**

Date format : dd.mm.yyyy

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