

# **Safety Data Sheet**

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878 Issue date: 22/03/2022 Revision date: 22/03/2022 Supersedes version of: 22/03/2022 Version: 1.0

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

#### 1.1. Product identifier

 Product form
 : Substance

 Trade name
 : FUMARIC trl

 Chemical name
 : fumaric acid

 EC Index-No.
 : 607-146-00-X

 EC-No.
 : 203-743-0

 CAS-No.
 : 110-17-8

REACH registration No : 01-2119552463-40

Type of product : Acids
Formula : C4H404

Synonyms : 1,2-ethylene dicarboxylic acid, 2-Butenedioic acid

Product group : Raw material Other means of identification : E297

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

#### 1.2.1. Relevant identified uses

Main use category : Professional use

Industrial/Professional use spec : For professional users only
Use of the substance/mixture : Malolactic fermentation inhibitor

1.2.2. Uses advised against

Restrictions on use : Food/feedstuff additives

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

## Manufacturer

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# 1.4. Emergency telephone number

Country	Organisation/Company	Address	Emergency number	Comment
Australia	NSW Poisons Information Centre The Children's Hospital at Westmead	Locked Bag 4001 NSW 2145 Westmead	13 11 26	
Canada	Ontario Poison Centre (OPC)	The Hospital for Sick Children 555 University Avenue ON M5G 1X8 Toronto	1-800-268-9017 (416) 813-5900	
Canada	BC Drug and Poison Information Centre (DPIC)	655 West 12th Avenue BC V5Z 4R4 Vancouver	1-800-567-8911 (604) 682-5050	
China	National Poison Control Center	Chinese Center for Disease Control and Prevention Nanwei road, No.29 100050 Beijing	+86 10 831 32 046	
Croatia	Centar za kontrolu otrovanja Institut za medicinska istraživanja i medicinu rada	Ksaverska Cesta 2 p.p. 291 10000 Zagreb	+385 1 234 8342	Information available 24/7 in Croatian and English
Czech Republic	Toxikologické informační středisko Klinika pracovního lékařství VFN a 1. LF UK	Na Bojišti 1 120 00 Praha 2	+420 224 919 293 +420 224 915 402	
Denmark	Giftlinjen	Bispebjerg Bakke 23 Opgang 20 C 2400 København NV	+45 82 12 12 12	
Georgia	National Toxicology Information Advisory Center	Tbilisi State Medical University Department of Toxicology - 7 Asatiani St. 380 077 Tbilisi	+995 99 533320	
Greece	Poisons Information Centre Children's Hospital P&A Kyriakou	11762 Athens	+30 2 10 779 3777	
Hungary	Országos Kémiai Biztonsági Intézet Egészségügyi Toxikológiai Tájékoztató Szolgálat	Nagyvárad tér 2. 1437 Budapest, Pf. 839 1097 Budapest	+36 80 20 11 99	
Israel	Israel Poison Information Center Rambam Health Care Campus	6 Ha'Aliya Street 31096 Haifa	+972 4 854 1900	
Japan	Japan Poison Information Center	Tsukuba Medical Center 1-1-1 Amakubo 305-0005 Tsukuba City, Ibaraki	+81-29-856-3566 +81-72-727-2499	
Jordan	National Drug & Poison Information Center of Jordan		0798506755 00962-6-5353444	
Kazakhstan	Republican Toxicology Center	Tole-bi 93 480083 Almaty	+7 3272 925 868	
Malta	Medicines & Poisons Info Office	Mater Dei Hospital MSD Msida	+356 2545 6504	
New Zealand	National Poisons Centre	Dunedin School of Medicine, University of Otago PO Box 913 9054 Dunedin	0800 764 766 +56 2 2 247 3600	
Poland	National Poisons Information Centre The Nofer Institute of Occupational Medicine (Łódź)	ul. Teresy 8 P.O. BOX 199 90950 Łódź	+48 42 63 14 724	

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Country	Organisation/Company	Address	Emergency number	Comment
Romania	Department of Clinical Toxicology Spitalul de Urgenta Floreasca	Calea Floreasca Bucuresti	+40 21 230 8000	
Russia	Информационно-консультативный центр по токсикология (RTIAC) Министерство здравоохранения Российской Федерации	3 Сухаревская Площадь Блок 7 129090 г. Москва	+7 495 628 1687 (только на русском)	
Serbia	Nacionalni centar za kontrolu trovanja - VMA	Crnotravska 17 11000 Beograd	+381 11 360 84 40	
Slovenia	Center za klinično toksikologijo in farmakologijo Interna klinika, UKCL	Zaloška 7 1000 Ljubljana	+386 522 52 83	
South Africa	Tygerberg Poison Information Centre	Division of Clinical Pharmacology Faculty of Medicine and Heath Sciences Stellenbosch University - PO Box 241 8 000 Cape Town	0861 555 777 +56 2 2 247 3600	
Sweden	Giftinformationscentralen	Solna Strandväg 21 171 54 Solna	112 – begär Giftinformation	
Turkey	Ulusal Zehir Merkezi (UZEM) Refik Saydam Hıfzısıhha Merkezi Başkanlığı	Cemal Gürsel Cd. No: 18 Sıhhiye Çankaya 06590 Ankara	114	Information is provided to public and medical personnel on poisoning incidents via 114.
United Kingdom	National Poisons Information Service (Belfast Centre) Royal Victoria Hospital	Grosvenor Road BT12 6BA Belfast	0344 892 0111	Only for healthcare professionals
United Kingdom	National Poisons Information Service (Birmingham Centre) City Hospital	Dudley Road B18 7QH Birmingham	0344 892 0111	Only for healthcare professionals
United Kingdom	National Poisons Information Service (Cardiff Centre) University Hospital Llandough	Penlan Road CF64 2XX Llandough	0344 892 0111	Only for healthcare professionals
United Kingdom	National Poisons Information Service (Edinburgh Centre) Royal Infirmary of Edinburgh	Little France Crescent EH16 4SA Edinburgh	0344 892 0111	Only for healthcare professionals
United Kingdom	Guy's & St Thomas' Poisons Unit Medical Toxicology Unit, Guy's & St Thomas' Hospital Trust	Avonley Road SE14 5ER London	+44 20 7188 7188	
United Kingdom	National Poisons Information Service (Newcastle Centre) Regional Drugs and Therapeutics Centre	16/17 Framlington Place Newcastle-upon-Tyne NE2 4AB Newcastle	0344 892 0111	Only for healthcare professionals
United States of America	American Association of Poison Control Centers	515 King St., Suite 510 VA 22314 Alexandria	1-800-222-1222 +56 2 2 247 3600	

# **SECTION 2: Hazards identification**

# 2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Serious eye damage/eye irritation, Category 2 Full text of H- and EUH-statements: see section 16 H319

Adverse physicochemical, human health and environmental effects

Causes serious eye irritation.

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#### 2.2. Label elements

#### Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)



Signal word (CLP) : Warning

Hazard statements (CLP) : H319 - Causes serious eye irritation.

Precautionary statements (CLP) P264 - Wash hands thoroughly after handling.

P280 - Wear protective gloves, protective clothing, eye protection, face protection.

P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if

present and easy to do. Continue rinsing.

P337+P313 - If eye irritation persists: Get medical advice/attention.

## 2.3. Other hazards

Other information : Toxic to aquatic organisms.

# SECTION 3: Composition/information on ingredients

#### 3.1. Substances

Substance type Mono-constituent

Name	Product identifier	%
FUMARIC trl	CAS-No.: 110-17-8	≤ 100
	EC-No.: 203-743-0	
	EC Index-No.: 607-146-00-X	
	REACH-no: 01-2119552463-40	

### 3.2. Mixtures

Not applicable

# **SECTION 4: First aid measures**

### 4.1. Description of first aid measures

First-aid measures general If symptoms persist call a doctor.

First-aid measures after inhalation Remove person to fresh air and keep comfortable for breathing. If symptoms persist, call a physician. First-aid measures after skin contact

After contact with skin, wash immediately and thoroughly with water and soap. If symptoms persist, call a

First-aid measures after eye contact In case of eye contact, immediately rinse with clean water for 10-15 minutes. Remove contact lenses, if present

and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion If swallowed, rinse mouth with water (only if the person is conscious). Do not induce vomiting. Immediately give

plenty of water. Never give anything by mouth to an unconscious person. Call a poison center or a doctor if you

feel unwell.

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

Symptoms/effects : More detailed information: See section 11. Symptoms/effects after eye contact : Eye irritation. Serious damage to eyes.

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

Treat symptomatically.

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# **SECTION 5: Firefighting measures**

#### 5.1. Extinguishing media

Suitable extinguishing media : carbon dioxide (CO2), powder, alcohol-resistant foam, water spray.

Unsuitable extinguishing media : Do not use water jet.

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

Hazardous decomposition products in case of fire : Toxic fumes may be released. Carbon oxides (CO, CO2).

#### 5.3. Advice for firefighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus.

Complete protective clothing.

Other information : Do not contaminate ground and surface water. Dispose in a safe manner in accordance with local/national

regulations.

#### **SECTION 6: Accidental release measures**

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

#### 6.1.1. For non-emergency personnel

Protective equipment : Wear personal protective equipment.

Emergency procedures : Ventilate spillage area. Avoid contact with skin and eyes.

Measures in case of dust release : Avoid dust formation.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8:

"Exposure controls/personal protection".

## **6.2. Environmental precautions**

Do not flush into surface water or sewer system.

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

Methods for cleaning up : Mechanically recover the product. Contain leaking substance, pump over in suitable containers. Clean

contaminated surfaces with an excess of water.

Other information : Dispose of materials or solid residues at an authorized site.

#### 6.4. Reference to other sections

Concerning personal protective equipment to use, see section 8. For further information refer to section 13.

# **SECTION 7: Handling and storage**

## 7.1. Precautions for safe handling

Precautions for safe handling : Avoid dust formation. Store tightly closed in a dry and cool place. Ensure good ventilation of the work station.

Avoid contact with skin and eyes. Wear personal protective equipment.

Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

# 7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Keep only in the original container.

Storage conditions : Keep in a well-ventilated room. Store in a dry, cool place. Keep out of direct sunlight. Keep container tightly

closed to prevent moisture pick-up.

Incompatible products : Oxidizing agents, bases and reducing agents. Metals.

#### 7.3. Specific end use(s)

No additional information available

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# SECTION 8: Exposure controls/personal protection

# 8.1. Control parameters

#### 8.1.1 National occupational exposure and biological limit values

FUMARIC trl (110-17-8)		
France - Occupational Exposure Limits		
VME (OEL TWA)	≈ 10 mg/m³ Total dust	

# 8.1.2. Recommended monitoring procedures

No additional information available

# 8.1.3. Air contaminants formed

No additional information available

# 8.1.4. DNEL and PNEC

S.1.4. DNEL and PNEC		
FUMARIC trl (110-17-8)		
DNEL/DMEL (Workers)		
Acute - local effects, dermal	1 mg/cm <sup>2</sup>	
Long-term - systemic effects, dermal	2 – 5,2 mg/kg bodyweight/day	
Long-term - systemic effects, inhalation	5,33 mg/m³	
Long-term - local effects, inhalation	32 - 36,6 mg/m³	
DNEL/DMEL (General population)		
Acute - local effects, dermal	0,4 mg/cm <sup>2</sup>	
Long-term - systemic effects,oral	2,6 - 6 mg/kg bodyweight/day	
Long-term - systemic effects, inhalation	9 mg/m³	
Long-term - systemic effects, dermal	2,6 - 6 mg/kg bodyweight/day	
Long-term - local effects, dermal	0,5 mg/cm <sup>2</sup>	
Long-term - local effects, inhalation	1,6 mg/m³	
PNEC (Water)		
PNEC aqua (freshwater)	0,1 mg/l	
PNEC aqua (marine water)	0,01 mg/l	
PNEC aqua (intermittent, freshwater)	1 mg/l	
PNEC (Sediment)		
PNEC sediment (freshwater)	87 μg/L	
PNEC sediment (marine water)	8,7 μg/L	
PNEC (Soil)		
PNEC soil	87 mg/kg dwt	
PNEC (STP)		
PNEC sewage treatment plant	3 mg/l	

#### 8.1.5. Control banding

No additional information available

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# 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

#### Appropriate engineering controls:

Ensure good ventilation of the work station.

# 8.2.2. Personal protection equipment

#### Personal protective equipment:

Refer to protective measures listed in Sections 7 and 8. In case of inadequate ventilation wear respiratory protection.

#### Personal protective equipment symbol(s):







#### 8.2.2.1. Eye and face protection

#### Eye protection:

Safety glasses

Eye protection				
Туре	Field of application	Characteristics	Standard	
Safety glasses	Dust	With side shields	EN 166	

#### 8.2.2.2. Skin protection

#### Skin and body protection:

Wear suitable protective clothing

Skin and body protection		
Туре	Standard	
Chemically resistant protective gloves	EN 374	

# Hand protection:

Protective gloves. Protective gloves made of PVC. Butyl rubber gloves. Nitrile rubber gloves. Natural rubber

Hand protection					
Туре	Material	Permeation	Thickness (mm)	Penetration	Standard
Disposable gloves	Natural rubber, Nitrile rubber (NBR), Butyl rubber, Polyvinylchloride (PVC)				

# Other skin protection

#### Materials for protective clothing:

acid resistant clothing

# 8.2.2.3. Respiratory protection

#### Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

#### 8.2.2.4. Thermal hazards

No additional information available

## 8.2.3. Environmental exposure controls

#### **Environmental exposure controls:**

Do not allow into drains or water courses. Avoid release to the environment.

## Other information:

Do not eat, drink or smoke during work. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

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

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

Physical state : Solid white. Colour **Appearance** Crystals. Odour odourless. Odour threshold : Not available : ≈ 129 °C 1.013 hPa Melting point Freezing point : Not applicable **Boiling** point : ≈ 150 °C 1.013 hPa : >349 °C 1.013 hPa Flammability Non flammable.

Explosive limits : Not applicable
Lower explosion limit : Not applicable
Upper explosion limit : Not applicable

Flash point :  $\approx 203$  °C Not applicable

Auto-ignition temperature : Not applicable

Decomposition temperature : 225 - 235 °C 1.013 hPa

pH : Not available pH solution :  $\approx 2.50 \text{g/L} - 20 \, ^{\circ}\text{C}$  Viscosity, kinematic : Not applicable

Solubility : Water:  $> 56 \text{ g}/100 \text{ml } 20 ^{\circ}\text{C}$ 

Ethanol: ≈ 46 g/100ml 20°C Ether: 0,84 g/100ml 20°C Acetone: 18 g/100ml 20°C

Partition coefficient n-octanol/water (Log Kow) : Not available Partition coefficient n-octanol/water (Log Pow) : ≈ 0.33 20°C : ≈ 0,0004 Pa 25°C Vapour pressure Vapour pressure at 50 °C : Not available Density :  $\approx 0.76 \,\text{g/cm}^3 \,20^{\circ}\text{C}$ Relative density : Not applicable Relative vapour density at 20 °C : Not applicable : Not available Particle size Not available Particle size distribution

Particle shape : Not available
Particle aspect ratio : Not available
Particle aggregation state : Not available
Particle agglomeration state : Not available
Particle specific surface area : Not available
Particle dustiness : Not available

#### 9.2. Other information

# 9.2.1. Information with regard to physical hazard classes

No additional information available

#### 9.2.2. Other safety characteristics

No additional information available

## **SECTION 10: Stability and reactivity**

#### 10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

## 10.2. Chemical stability

Stable under normal conditions.

#### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use. May be corrosive to some metals.

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#### 10.4. Conditions to avoid

Heat. flames or sparks. Moisture.

# 10.5. Incompatible materials

Oxidizing agent. Strong bases. mineral acids: concentrated sulphuric acid, phosphoric acid, nitric acid. Alkali metals.

#### 10.6. Hazardous decomposition products

Carbon dioxide. Carbon monoxide.

# **SECTION 11: Toxicological information**

# 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

FUMARIC trl (110-17-8)		
LD50 oral rat	≈ 9300 (2000 - 3500) mg/kg bodyweight	
LD50 dermal rabbit	> 20000 mg/kg	
LD50 dermal	> 2000 mg/kg bodyweight	
LC50 Inhalation - Rat	> 1306 mg/l/4h	

 Skin corrosion/irritation
 : Not classified

 Serious eye damage/irritation
 : Severe eye irritation

 Additional information
 : Causes serious eye damage.

Respiratory or skin sensitisation : Not classified Germ cell mutagenicity : Not classified Carcinogenicity : Not classified Reproductive toxicity : Not classified STOT-single exposure : Not classified STOT-repeated exposure : Not classified Aspiration hazard : Not classified

Viscosity, kinematic Not applicable

# 11.2. Information on other hazards

No additional information available

# **SECTION 12: Ecological information**

#### 12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the

environment.

Hazardous to the aquatic environment, short-term (acute) : Not classified Hazardous to the aquatic environment, long-term (chronic) : Not classified

FUMARIC trl (110-17-8)	
LC50 - Fish [1]	> 100 mg/l
EC50 - Crustacea [1]	>240 mg/l
EC50 72h - Algae [1]	≥ 100 mg/l
NOEC chronic algae	≥ 100 mg/l 72h

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# 12.2. Persistence and degradability

FUMARIC trl (110-17-8)		
Persistence and degradability	Biodegradable.	
ThOD	$0.718\mathrm{g}\mathrm{O}_{2}$ /g substance	
BOD (% of ThOD)	65 % ThOD	

#### 12.3. Bioaccumulative potential

FUMARIC trl (110-17-8)		
Partition coefficient n-octanol/water (Log Pow)	≈ 0,33 20°C	
Bioaccumulative potential	There is no bioaccumulation.	

#### 12.4. Mobility in soil

No additional information available

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

No additional information available

# 12.6. Endocrine disrupting properties

No additional information available

# 12.7. Other adverse effects

Other adverse effects : Do not allow to enter drains or water courses

# **SECTION 13: Disposal considerations**

# 13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

Sewage disposal recommendations : Do not flush into surface water or sewer system.

Product/Packaging disposal recommendations : Empty remaining contents. Dispose of contents/container in accordance with licensed collector's sorting

instructions.

# **SECTION 14: Transport information**

In accordance with ADR / IMDG / IATA / ADN / RID

# 14.1. UN number or ID number

 UN-No. (ADR)
 : Not applicable

 UN-No. (IMDG)
 : Not applicable

 UN-No. (IATA)
 : Not applicable

 UN-No. (ADN)
 : Not applicable

 UN-No. (RID)
 : Not applicable

# 14.2. UN proper shipping name

Proper Shipping Name (ADR) : Not applicable
Proper Shipping Name (IMDG) : Not applicable
Proper Shipping Name (IATA) : Not applicable
Proper Shipping Name (ADN) : Not applicable
Proper Shipping Name (RID) : Not applicable

# 14.3. Transport hazard class(es)

#### ADR

Transport hazard class(es) (ADR) : Not applicable

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**IMDG** 

Transport hazard class(es) (IMDG) : Not applicable

IATA

Transport hazard class(es) (IATA) : Not applicable

ADN

Transport hazard class(es) (ADN) : Not applicable

RID

Transport hazard class(es) (RID) : Not applicable

14.4. Packing group

Packing group (ADR) : Not applicable
Packing group (IMDG) : Not applicable
Packing group (IATA) : Not applicable
Packing group (ADN) : Not applicable
Packing group (RID) : Not applicable

#### 14.5. Environmental hazards

Dangerous for the environment : No Marine pollutant : No

Other information : No supplementary information available

#### 14.6. Special precautions for user

#### **Overland transport**

Not applicable

#### Transport by sea

Not applicable

#### Air transport

Not applicable

## **Inland waterway transport**

Not applicable

## Rail transport

Not applicable

# 14.7. Maritime transport in bulk according to IMO instruments

Not applicable

# **SECTION 15: Regulatory information**

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

#### 15.1.1. EU-Regulations

No REACH Annex XVII restrictions

FUMARIC trl is not on the REACH Candidate List

FUMARIC trl is not on the REACH Annex XIV List

FUMARIC trl is not subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 july 2012 concerning the export and import of hazardous chemicals. FUMARIC trl is not subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

Contains no substance subject to Regulation (EU) 2019/1148 of the European Parliament and of the Council of 20 June 2019 on the marketing and use of explosives precursors.

### 15.1.2. National regulations

### Germany

Water hazard class (WGK) : WGK 1, Slightly hazardous to water (Classification according to AwSV; ID No. 1191)

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Hazardous Incident Ordinance (12. BImSchV) : Is not subject of the Hazardous Incident Ordinance (12. BImSchV)

Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed SZW-lijst van mutagene stoffen : The substance is not listed SZW-lijst van reprotoxische stoffen - Borstvoeding : The substance is not listed SZW-lijst van reprotoxische stoffen - Vruchtbaarheid : The substance is not listed SZW-lijst van reprotoxische stoffen - Ontwikkeling : The substance is not listed

Denmark

Classification remarks : Emergency management guidelines for the storage of flammable liquids must be followed

Switzerland

Storage class (LK) : LK 11/13 - Solids

# 15.2. Chemical safety assessment

No chemical safety assessment has been carried out for the substance or the mixture by the supplier

# **SECTION 16: Other information**

#### Indication of changes:

Revision - See: \*.

Indication of changes			
Section	Changed item	Change	Comments
8.1		Added	
11.1	LD50 dermal rabbit	Added	
11.1	LC50 Inhalation - Rat	Added	
11.1	LD50 oral rat	Modified	
12.2	ThOD	Added	
12.2	BOD (% of ThOD)	Added	

Full text of H- and EUH-statements:	
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
H319	Causes serious eye irritation.

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

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