

18/089 - PRONORTEC MM-01

Safety Data Sheet

According to Annex II to REACH - Regulation 2015/830



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

1.1. Product identifier

Code: 18/089
Product name: PRONORTEC MM-01

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

Intended use: Surface treatment of metals.
Uses advised against: Different uses than those intended.

1.3. Details of the supplier of the safety data sheet

Name: CHEMTEC S.R.L.
Full address: Via Alberto da Giussano 36/O
District and Country: 20011 CORBETTA (MI)
ITALY
tel. +39 02 92867461
fax +39 02 87366254

e-mail address of the competent person responsible for the Safety Data Sheet: laboratorio@chemtec.it
Product distribution by: CHEMTEC S.R.L.

1.4. Emergency telephone number

For urgent inquiries refer to: Local emergency services
CHEMTEC S.R.L. +39 02 92867461 (Technical support - Office hour 8.30-12.30 - 13.30-17.30)

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in (EC) Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of (EU) Regulation 2015/830.

Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Hazard classification and indication:

Eye irritation, category 2	H319	Causes serious eye irritation.
Skin irritation, category 2	H315	Causes skin irritation.

2.2. Label elements

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

Hazard pictograms:



Signal words: WARNING

Hazard statements:

H319	Causes serious eye irritation.
H315	Causes skin irritation.

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Precautionary statements:

P280 Wear protective gloves / eye protection / face protection.
P337+P313 If eye irritation persists: Get medical advice / attention.
P264 Wash the skin thoroughly after handling.

2.3. Other hazards

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

SECTION 3. Composition/information on ingredients

3.2. Mixtures

Contains:

Identification	X = Conc. %	Classification 1272/2008 (CLP)
DIHYDROGEN HEXAFLUOROZIRCONATE(2-)		
CAS 12021-95-3	$1,0 \leq x < 2,0$	Acute Tox. 3 H301, Acute Tox. 3 H311, Acute Tox. 3 H331, Skin Corr. 1B H314, Eye Dam. 1 H318
EC 234-666-0		
INDEX -		
Reg. no. 01-2119978267-22		
HYDROFLUORIC ACID		
CAS 7664-39-3	$0,01 \leq x \leq 0,02$	Acute Tox. 1 H310, Acute Tox. 2 H300, Acute Tox. 2 H330, Skin Corr. 1A H314, Eye Dam. 1 H318, Classification note according to Annex VI to the CLP Regulation: B
EC 231-634-8		
INDEX 009-003-00-1		
Reg. no. 01- 2119458860-33		

The full wording of hazard (H) phrases is given in section 16 of the sheet.

SECTION 4. First aid measures

4.1. Description of first aid measures

EYES: Remove contact lenses, if present. Wash immediately with plenty of water for at least 30-60 minutes, opening the eyelids fully. Get medical advice/attention.

DIHYDROGEN HEXAFLUOROZIRCONATE(2-)

If a doctor is not immediately available, administer one or two drops of 0.5% tetracaine hydrochloride solution, or any aqueous, topical ophthalmic and anesthetic solution and continue irrigation. Do not use any other medicines unless directed by a doctor. You should avoid rubbing your eyes. To prevent or minimize damage to the cornea, irrigate with a 1% calcium gluconate saline solution for 1-2 hours.

SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention.

DIHYDROGEN HEXAFLUOROZIRCONATE(2-)

Remove all contaminated clothing by continuing to wash. After a wash of at least 5 minutes, the burnt part should be immersed in a frozen aqueous solution of benzalkonium chloride 0.13%. Alternatively, it is possible to massage the 2.5% calcium gluconate gel in the affected area.

INGESTION: Have the subject drink as much water as possible. Get medical advice/attention. Do not induce vomiting unless explicitly authorised by a doctor.

DIHYDROGEN HEXAFLUOROZIRCONATE(2-)

Magnesium hydroxide (magnesium milk) can be administered as an antacid.

INHALATION: Get medical advice/attention immediately. Remove victim to fresh air, away from the accident scene. If the subject stops breathing, administer artificial respiration. Take suitable precautions for rescue workers.

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

Specific information on symptoms and effects caused by the product are unknown.

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

Information for the doctor: symptomatically treatment.

DIHYDROGEN HEXAFLUOROZIRCONATE(2-)

Severe systemic effects may occur due to burns of large areas, ingestion and considerable exposure to fumes. Monitor and correct hypocalcaemia, cardiac arrhythmias, hypomagnesaemia and hypercalcaemia. In some cases, hemodialysis may be indicated. For some burns, especially those of the fingers, use intra-arterial calcium gluconate. Nebulization of 2.5% calcium gluconate in normal saline or by intermittent positive pressure ventilation with 100% oxygen can decrease lung damage.

SECTION 5. Firefighting measures

5.1. Extinguishing media

SUITABLE EXTINGUISHING EQUIPMENT

The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.

UNSUITABLE EXTINGUISHING EQUIPMENT

None in particular.

5.2. Special hazards arising from the substance or mixture

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE

Do not breathe combustion products.

5.3. Advice for firefighters

GENERAL INFORMATION

Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Block the leakage if there is no hazard.

Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

6.2. Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

6.3. Methods and material for containment and cleaning up

Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.

Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Warnings for safe use: use only acid-resistant equipment.

Before handling the product, consult all the other sections of this material safety data sheet. Avoid leakage of the product into the environment. Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat.

7.2. Conditions for safe storage, including any incompatibilities

Store only in the original container. Store the containers sealed, in a well ventilated place, away from direct sunlight. Keep containers away from any incompatible materials, see section 10 for details.

Storage class TRGS 510 (Germany): 10

7.3. Specific end use(s)

Surface treatment of metals.

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SECTION 8. Exposure controls/personal protection

8.1. Control parameters

Regulatory References:

AUS	Österreich	Gesamte Rechtsvorschrift für Grenzwertverordnung 2018, Fassung vom 17.10.2018
BEL	Belgique	AR du 11/3/2002. La liste est mise à jour pour 2017
CHE	Suisse / Schweiz	Valeurs limites d'exposition aux postes de travail en Suisse: valeurs VME/VLE. Version Mars 2018 (SUVA)
DEU	Deutschland	TRGS 900 (Fassung 07.06.2018) - Liste der Arbeitsplatzgrenzwerte und Kurzzeitwerte
DNK	Danmark	Bekendtgørelse om ændring af bekendtgørelse om grænseværdier for stoffer og materialer 1-BEK nr 655 af 31/05/2018
ESP	España	LÍMITES DE EXPOSICIÓN PROFESIONAL PARA AGENTES QUÍMICOS EN ESPAÑA 2008 NIPO: 211-08-011-5
FIN	Suomi	HTP-VÄRDEN 2018. Koncentrationer som befunnits skadliga. SOCIAL- OCH HÄLSOVÄRDSMINISTERIETS PUBLIKATIONER 10/2018
FRA	France	Valeurs limites d'exposition professionnelle aux agents chimiques en France. ED 984 - INRS
GBR	United Kingdom	EH40/2005 Workplace exposure limits (Third edition, published 2018)
HUN	Magyarország	A pénzügyminiszter 7/2018. (VIII. 29.) PM rendelete a munkahelyek kémiai biztonságáról szóló 25/2000. (IX. 30.) EüM-SZCSM együttes rendelet módosításáról
IRL	Éire	2018 Code of Practice for the Chemical Agents Regulations Safety Authority
ITA	Italia	DIRETTIVA (UE) 2017/164 DELLA COMMISSIONE del 31 gennaio 2017
LVA	Latvija	Ķīmisko vielu aroda ekspozīcijas robežvērtības (AER) darba vides gaisā 2018
NLD	Nederland	Regeling van de Staatssecretaris van Sociale Zaken en Werkgelegenheid van 13 juli 2018, 2018-0000118517 tot wijziging van de Arbeidsomstandighedenregeling in verband met de implementatie van Richtlijn 2017/164 in Bijlage XIII
POL	Polska	ROZPORZĄDZENIE MINISTRA RODZINY, PRACY I POLITYKI SPOŁECZNEJ z dnia 12 czerwca 2018 r
ROU	România	HOTĂRÂRE nr. 584 din 2 august 2018 pentru modificarea Hotărârii Guvernului nr. 1.218/2006 privind stabilirea cerințelor minime de securitate și sănătate în muncă pentru asigurarea protecției lucrătorilor împotriva riscurilor legate de prezența agenților chimici
SWE	Sverige	Hygieniska gränsvärden, AFS 2018:1
TUR	Türkiye	KİMYASAL MADDELERLE ÇALIŞMALARDA SAĞLIK VE GÜVENLİK ÖNLEMLERİ HAKKINDA YÖNETMELİK - Resmi Gazete Tarihi: 12.08.2013 Resmi Gazete Sayısı: 28733
EU	OEL EU	Directive (EU) 2017/2398; Directive (EU) 2017/164; Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC; Directive 91/322/EEC.
	TLV-ACGIH	ACGIH 2019

DIHYDROGEN HEXAFLUOROZIRCONATE(2-)

Threshold Limit Value

Type	Country	TWA/8h	STEL/15min
		mg/m3	ppm
		mg/m3	ppm
TLV-ACGIH		2,5	
OEL	ITA	2,5 (as F)	
	ITA	5 (as Zr)	10 (as Zr)

Predicted no-effect concentration - PNEC

Normal value in fresh water	0,119	mg/l
Normal value in marine water	0,119	mg/l
Normal value for fresh water sediment	21,1	mg/kg/d
Normal value for marine water sediment	4,22	mg/kg/d
Normal value of STP microorganisms	1,29	mg/l
Normal value for the terrestrial compartment	16,5	mg/kg/d

Health - Derived no-effect level - DNEL / DMEL

Effects on consumers

Effects on workers

Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Inhalation						4,5 mg/m3	4,5 mg/m3	4,5 mg/m3

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Skin

65 mg/kg
bw/d65 mg/kg
bw/d

HYDROFLUORIC ACID

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min	
		mg/m3	ppm	mg/m3	ppm
MAK	AUS	1,5	1,8	2,5	3
VLEP	BEL	1,5	1,8	2,5	3
MAK	CHE	0,83	1	1,66	2
AGW	DEU	0,83	1	1,66	2
MAK	DEU	0,83	1	1,66	2
TLV	DNK	1,5	1,8	3	3,6
VLA	ESP	1,5	1,8	2,5	3
HTP	FIN	1,5	1,8	2,5	3
VLEP	FRA	1,5	1,8	2,5	3
WEL	GBR	1,5	1,8	2,5	3
AK	HUN	1,5		2,5	
OEL	IRL	1,5	1,8	2,5	3
VLEP	ITA	1,5	1,8	2,5	3
RV	LVA	1,5	1,8	2,5	3
TGG	NLD			1	
NDS/NDSch	POL	0,5		2	
TLV	ROU	1,5	1,8	2,5	3
NGV/KGV	SWE	1,5	1,8	1,7	2
ESD	TUR	1,5	1,8	2,5	3
OEL	EU	1,5	1,8	2,5	3

Predicted no-effect concentration - PNEC

Normal value in fresh water	0,9	mg/l
Normal value in marine water	0,9	mg/l
Normal value of STP microorganisms	51	mg/l
Normal value for the terrestrial compartment	11	mg/kg/d

Health - Derived no-effect level - DNEL / DMEL

Effects on consumers

Effects on workers

Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral	1,25	0,01 mg/kg bw/d		0,01 mg/kg bw/d				
Inhalation	1,25 mg/m3	0,03 mg/m3	0,2 mg/m3	0,03 mg/m3	2,5 mg/m3	2,5 mg/m3	0,0015 mg/m3	1,5 mg/m3

Legend:

(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.
 VND = hazard identified but no DNEL/PNEC available ; NEA = no exposure expected ; NPI = no hazard identified.

8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.

When choosing personal protective equipment, ask your chemical substance supplier for advice.

Personal protective equipment must be CE marked, showing that it complies with applicable standards.

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Provide an emergency shower with face and eye wash station.

HAND PROTECTION

Protect hands with category III work gloves (see standard EN 374). Lapren®706 natural latex gloves with a breakthrough time of 480 min, glove thickness of 0.6 mm are recommended.

The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability.

The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.

SKIN PROTECTION

Wear category II professional long-sleeved overalls and safety footwear (see Regulation 2016/425 and standard EN ISO 20344). Protective clothing must comply with EN 340, 463, 468, 943-1, 943-2, and safety shoes with EN ISO 20345. Wash body with soap and water after removing protective clothing.

EYE PROTECTION

Wear airtight protective goggles (see standard EN 166).

RESPIRATORY PROTECTION

The protective equipment for the protection of the respiratory system must comply with standards EN 136, 140, 149.

If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, use a mask with a type B filter whose class (1, 2 or 3) must be chosen according to the limit of use concentration. (see standard EN 14387). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.

Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.

If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus (in compliance with standard EN 137) or external air-intake breathing apparatus (in compliance with standard EN 138). For a correct choice of respiratory protection device, see standard EN 529.

ENVIRONMENTAL EXPOSURE CONTROLS

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

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

Appearance	liquid
Colour	colourless
Odour	mild
Odour threshold	Not available
pH	2,45 – 2,55
Melting point / freezing point	Not available
Initial boiling point	100 °C
Boiling range	Not available
Flash point	Not inflammable
Evaporation Rate	Not available
Flammability of solids and gases	Not available
Lower inflammability limit	Not available
Upper inflammability limit	Not available
Lower explosive limit	Not available
Upper explosive limit	Not available
Vapour pressure	Not available
Vapour density	Not available
Relative density	1,02 - 1,03 kg/L (20°C)
Solubility	in water: soluble
Partition coefficient: n-octanol/water	Not available
Auto-ignition temperature	Not available
Decomposition temperature	Not available
Viscosity	Not available
Explosive properties	Not available

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Oxidising properties

Not available

9.2. Other information

Information not available.

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

There are no particular risks of reaction with other substances in normal conditions of use.

DIHYDROGEN HEXAFLUOROZIRCONATE(2-)

Corrodes: metals.

10.2. Chemical stability

The product is stable in normal conditions of use and storage.

10.3. Possibility of hazardous reactions

No hazardous reactions are foreseeable in normal conditions of use and storage.

DIHYDROGEN HEXAFLUOROZIRCONATE(2-)

Develops hydrogen on contact with: metals.

HYDROFLUORIC ACID

Decomposes on contact with: heat.

10.4. Conditions to avoid

None in particular. However the usual precautions used for chemical products should be respected.

DIHYDROGEN HEXAFLUOROZIRCONATE(2-)

Avoid exposure to: low and high temperatures.

HYDROFLUORIC ACID

Avoid contact with: glass, ceramic, metals, oxidising agents.

10.5. Incompatible materials

HYDROFLUORIC ACID

May react dangerously if exposed to: oxidising agents, alkaline substances, organic substances.

10.6. Hazardous decomposition products

DIHYDROGEN HEXAFLUOROZIRCONATE(2-)

Develops: hydrofluoric acid.

HYDROFLUORIC ACID

Develops hydrogen on contact with: moisture, metals.

SECTION 11. Toxicological information

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.

It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

11.1. Information on toxicological effectsMetabolism, toxicokinetics, mechanism of action and other information

Information not available.

Information on likely routes of exposure

Information not available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Information not available.

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Interactive effects

Information not available.

ACUTE TOXICITY

LC50 (Inhalation) of the mixture:	> 20 mg/l
LD50 (Oral) of the mixture:	>2000 mg/kg
LD50 (Dermal) of the mixture:	>2000 mg/kg

HYDROFLUORIC ACID

LC50 (Inhalation)	1307 ppm/1h Rat
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SKIN CORROSION / IRRITATION

Causes skin irritation.

SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye irritation.

RESPIRATORY OR SKIN SENSITISATION

Does not meet the classification criteria for this hazard class.

GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class.

CARCINOGENICITY

Does not meet the classification criteria for this hazard class.

REPRODUCTIVE TOXICITY

Does not meet the classification criteria for this hazard class.

STOT - SINGLE EXPOSURE

Does not meet the classification criteria for this hazard class.

STOT - REPEATED EXPOSURE

Does not meet the classification criteria for this hazard class.

ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class.

Other information

Hydrofluoric acid HF solutions with concentrations as low as 0.01% could cause allergic reactions to the most sensitive areas of the skin following short exposures of 5 min.

SECTION 12. Ecological information

Use this product according to good working practices. Avoid littering. Inform the competent authorities, should the product reach waterways or contaminate soil or vegetation.

12.1. Toxicity

DIHYDROGEN HEXAFLUOROZIRCONATE(2-)

LC50 - for Fish	125,8 mg/l/96h
EC50 - for Crustacea	110,7 mg/l/48h
EC50 - for Algae / Aquatic Plants	7,79 mg/l/72h
Chronic NOEC for Fish	4 mg/l 21d

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Chronic NOEC for Crustacea 13,1 mg/l 21d

HYDROFLUORIC ACID

LC50 - for Fish 51 mg/l/96h

Chronic NOEC for Fish 4 mg/l 21d

Chronic NOEC for Crustacea 8,9 mg/l 21d

Chronic NOEC for Algae / Aquatic Plants 50 mg/l 21d

12.2. Persistence and degradability

HYDROFLUORIC ACID

Solubility in water Soluble

12.3. Bioaccumulative potential

Information not available.

12.4. Mobility in soil

Information not available.

12.5. Results of PBT and vPvB assessment

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

12.6. Other adverse effects

Information not available.

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

Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.

Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

CONTAMINATED PACKAGING

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

SECTION 14. Transport information

The product is not dangerous under current provisions of the Code of International Carriage of Dangerous Goods by Road (ADR) and by Rail (RID), of the International Maritime Dangerous Goods Code (IMDG), and of the International Air Transport Association (IATA) regulations.

14.1. UN number

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

Not applicable.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Not applicable.

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14.6. Special precautions for user

Not applicable.

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

Information not relevant.

SECTION 15. Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

Seveso Category - Directive 2012/18/EC: None.

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006

Product

Point 3

Substances in Candidate List (Art. 59 REACH)

On the basis of available data, the product does not contain any SVHC in percentage greater than 0,1%.

Substances subject to authorisation (Annex XIV REACH)

None.

Substances subject to exportation reporting pursuant to (EC) Reg. 649/2012:

None.

Substances subject to the Rotterdam Convention:

None.

Substances subject to the Stockholm Convention:

None.

Healthcare controls

Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

German regulation on the classification of substances hazardous to water (AwSV, vom 18. April 2017)

WGK 1: Low hazard to waters.

15.2. Chemical safety assessment

A chemical safety assessment has not been performed for the mixture.

SECTION 16. Other information

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

Acute Tox. 1	Acute toxicity, category 1
Acute Tox. 2	Acute toxicity, category 2
Acute Tox. 3	Acute toxicity, category 3
Skin Corr. 1A	Skin corrosion, category 1A
Skin Corr. 1B	Skin corrosion, category 1B
Eye Irrit. 2	Eye irritation, category 2
Skin Irrit. 2	Skin irritation, category 2
H310	Fatal in contact with skin.

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H300	Fatal if swallowed.
H330	Fatal if inhaled.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H331	Toxic if inhaled.
H314	Causes severe skin burns and eye damage.
H319	Causes serious eye irritation.
H315	Causes skin irritation.

LEGEND:

- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- CAS NUMBER: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE NUMBER: Identifier in ESIS (European archive of existing substances)
- CLP: EC Regulation 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX NUMBER: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent bioaccumulative and toxic as REACH Regulation
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PNEC: Predicted no effect concentration
- REACH: EC Regulation 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA STEL: Short-term exposure limit
- TWA: Time-weighted average exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very Persistent and very Bioaccumulative as for REACH Regulation
- WGK: Water hazard classes (German).

Classification and procedure used to derive it in accordance with Regulation (EC) 1272/2008 (CLP) in relation to mixtures:

Classification according to Regulation (EC) No. 1272/2008	Classification procedure
Eye Irrit. 2 H319	Calculation method
Skin Irrit. 2 H315	Calculation method

GENERAL BIBLIOGRAPHY

1. Regulation (EC) 1907/2006 (REACH) of the European Parliament
2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
3. Regulation (EU) 790/2009 (I Atp. CLP) of the European Parliament
4. Regulation (EU) 2015/830 of the European Parliament
5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
7. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
8. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
9. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament
10. Regulation (EU) 2015/1221 (VII Atp. CLP) of the European Parliament
11. Regulation (EU) 2016/918 (VIII Atp. CLP) of the European Parliament
12. Regulation (EU) 2016/1179 (IX Atp. CLP)
13. Regulation (EU) 2017/776 (X Atp. CLP)
14. Regulation (EU) 2018/669 (XI Atp. CLP)
15. Regulation (EU) 2018/1480 (XIII Atp. CLP)

16. Regulation (EU) 2019/521 (XII Atp. CLP)

- The Merck Index. - 10th Edition
- Handling Chemical Safety
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- IFA GESTIS website
- ECHA website
- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

Note for users:

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.

This document must not be regarded as a guarantee on any specific product property.

The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.

Provide appointed staff with adequate training on how to use chemical products.

Product's classification is based on the calculation methods set out in Annex I of the CLP Regulation, unless otherwise indicated in sections 11 and 12.

The data for evaluation of chemical-physical properties are reported in section 9.