

Safety Data Sheet

CMR-640 Crosslinker

according to Regulation (EU) 2015/830

Last Revision:

02.06.20



Version:

V-2020-001

HR 1000

SECTION 1

Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

CMR-640

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

Relevant identified uses: Crosslinker

1.3 Details of the supplier of the safety data sheet

Manufacturer/Distributor	CMR Coatings GmbH
Address/POB	Wilhelmstr. 8
IVR/ZIP/Place	D-32602 Vlotho
E-Mail	info@cmr-coatings.de
Telephone	+49 (0) 57 33 – 96 35 – 260
Fax	+49 (0) 57 33 – 96 35 – 263
Department of MSDS	info@cmr-coatings.de

1.4 Emergency telephone number

+49 (0) 57 33 – 96 35 – 260

SECTION 2 Hazards identification

2.1 Classification of the substance or mixture

Acute Toxicity, inhalative, Category 4 H332
Skin Sensibilization, Category 1 H317
Specific target organ toxicity (single exposure), Category 3 H335

For the full text of the hazard statements listed in this section, see section 16.

2.2 Label elements



Code: **GHS07**

Signal word: **Warning**

Hazardous component (s) for labeling

Hexamethylene-di-isocyanate
 Hydrophilic, aliphatic polyisocyanate based on HDI

Hazard statements

H317 May cause an allergic skin reaction
 H332 Harmful if inhaled
 H335 May cause respiratory irritation

Precautionary statements

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.
 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.
 P362 + P364 Take off contaminated clothing and wash it before reuse.
 P403 + P233 Store in a well ventilated place. Keep container tightly closed.

Further hazard statements

EUH204 Contains isocyanates. May produce an allergic reaction.

Additional information for labelling

none

2.3 Other hazards

If the airways are hypersensitive (asthma, chronic bronchitis), we advise against handling the product. Symptoms in the respiratory tract can persist several hours after overexposure. Dust, fumes and aerosols are the main threats to the airways.

The results of the PBT and vPvB assessment can be found in subsection 12.5.

SECTION 3 Composition/information on ingredients

3.1 Substances

This product is a mixture.

3.2 Mixtures

Hydrophilic, aliphatic polyisocyanate

Composition / information on ingredients

EC-No. CAS-No. INDEX-No.	REACH-No. Designation Classification	Portion
666723-27-9	Hydrophilic aliphatic polyisocyanate based on HDI Acute Tox. 4 Inhalative H332, Skin Sens. 1B H317, STOT SE 3 H335, Aquatic Chronic 3 H412	ca. 100 %

Which contains:

500-060-2 28182-81-2	01-2119485796-17-0000, 01-2119485796-17-0001, 01-2119485796-17-0012 Hexamethylene diisocyanate homopolymer Acute Tox. 4 Inhalative H332, Skin Sens. 1 H317, STOT, SE 3 H335	ca. 53 %
500-060-2 28182-81-2	01-2119488934-20-0000 Hexamethylene diisocyanate homopolymer Acute Tox. 4 Inhalative, H332 Skin Sens. 1 H317, STOT SE 3 H335	ca. 35 %
822-06-0 615-011-00-1	01-2119457571-37-0000, 01-2119457571-37-0005, 01-2119457571-37-0006 Hexamethylene diisocyanate Acute Tox. 4 Oral H302, Acute Tox. 1 Inhalative H330, Skin Irrit. 2 H315, Eye Irrit. 2 H319, Resp. Sens. 1 H334, Skin Sens. 1 H317, STOT SE 3 H335 SCL: Resp. Sens 1 H334 >= 0,5% SCL: Skin Sens. 1 H317 >= 0,5%	<= 0,24 %
202-715-5 98-94-2	01-2119533030-60 Neutralizing agent bound as a salt: Cyclohexyldimethylamine Flam. Liq. 3 H226, Acute Tox. 3 Dermal H311, Acute Tox. 3 Inhalative H331, Acute Tox. 3 Oral H301, Skin Corr. 1B H314, Eye Dam. 1 H318, Aquatic Chronic 2 H411	ca. 1,6%

Candidate list of substances of very high concern for authorization

This product does not contain any Substance of Very High Concern in a notable concentration (REACH Regulation (EC) No. 1907/2006, Article 59).

The wording of the classification codes is in section 16.

SECTION 4 First aid measures

4.1 Description of first aid measures

General advice	Take off dirty, soaked clothes immediately.
If inhaled	Bring person to fresh air, keep warm, let rest; medical help required if breathing is difficult.
Skin contact	In case of contact with the skin, wash off carefully with plenty of water and soap. If symptoms develop, obtain medical attention.
Eye contact	Rinse the eyes with the lids open for a sufficiently long time (at least 10 minutes) with lukewarm water if possible. See an ophthalmologist.
If swallowed	Never fuse anything through the mouth of an unconscious person. Do not induce vomiting if swallowed - see a physician. Rinse mouth with water.

4.2 Most important symptoms and effects, both acute and delayed

Notes for the doctor: Emergency aid, decontamination, symptomatic treatment.

4.3 Indication of any immediate medical attention and special treatment needed

Therapeutic measures: No information available.

SECTION 5 Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO₂), foam, extinguishing powder, in the case of larger fires also water spray.

Unsuitable extinguishing media

Water jet.

5.2 Special hazards arising from the substance or mixture

In the event of fire, carbon dioxide, carbon monoxide, nitrogen oxides, isocyanate vapors and traces of hydrogen cyanide are produced. Do not inhale explosion and fire gases.

In the event of fire in the vicinity, pressure build-up, risk of bursting. Cool fire-endangered containers with water and, if possible, remove them from the danger area.

5.3 Advice for firefighters

In the event of fire fighting, breathing protection with independent air supply and tightly fitting chemical protective suit required.

Do not allow contaminated extinguishing water to penetrate into the ground, into the groundwater or into bodies of water.

SECTION 6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

See section 8 "Exposures controls/personal protection".

Keep away from ignition sources. Ensure adequate ventilation. Keep bystanders away.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not allow the product to enter waters.

Discharge into the environment must be avoided.

6.3 Methods and material for containment and cleaning up

Remove mechanically; Cover the rest with moist, liquid-binding material (e.g. sawdust, chemical binders based on calcium silicate hydrate, sand). After approx. 1 hour take up in a waste container, do not close (CO₂ development!). Keep moist and leave in a secure place outdoors for several days.

The leakage area can be decontaminated with the following recommended decontamination agents:

Decontaminant 1: 8-10% sodium carbonate and 2% aqueous liquid soap

Decontaminant 2: Liquid / yellow soap (potassium soap with ~ 15% anionic surfactants): 20ml;

Decontaminant 3: Water: 700ml; Polyethylene glycol (PEG 400): 350ml
30% commercial liquid detergent (containing monoethanolamine),
70% water

6.4 Reference to other sections

For disposal, see section 13.

SECTION 7 Handling and storage

7.1 Precautions for safe handling

General conditions of use are specified in more detail in the appendix in accordance with REACH regulation (EC) No. 1907/2006.

Ensure adequate exchange of air and / or suction in the work rooms. Air suction is required when spraying.

Air limit values mentioned in Section 8 must be monitored. At workplaces where isocyanate aerosols and / or vapors can arise in higher concentrations, specific air suction must be used to prevent the occupational hygiene limit value from being exceeded.

The air movement must be going away from the people.

For products containing solvents: explosion protection required.

The personal protective measures described in Section 8 must be observed. The protective measures required when handling solvents and isocyanates must be observed. Avoid contact with skin and eyes as well as inhalation of the vapors.

Keep away from food and luxury items. Wash hands and use protective skin ointment before breaks and at the end of work. Keep work clothes separately. Take off dirty, soaked clothes immediately.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed and dry in a cool, well-ventilated place. Further information on the storage conditions that must be observed for reasons of quality assurance can be found in our technical data sheet.

Storage class (TRGS 510): 10: Flammable liquids

7.3 Specific end uses

For details of the identified uses according to REACH regulation (EC) No. 1907/2006, see the appendix to this safety data sheet.

SECTION 8

Exposure controls/personal protection

8.1 Control parameters

Components with workplace control parameters (2000/39/EC)

none

Components with workplace control parameters (TRGS 900 Germany)

Hexamethylene diisocyanate		
CAS-No. 822-06-0		
AGW	0,035 mg/m ³	0,005 ppm
Peak limit	=2= (I)	
Peak limit	1	
Remarks		

Exposure assessment value TRGS 430 (EBW): polyisocyanate content (HDI oligomers and / or prepolymers) is 98%. An EBW of 0.5 mg / m³ must be used for this.

Components with biological limit values (TRGS 903 Germany)

none

DNEL:

none

PNEC:

none

8.2 Exposure controls

Appropriate engineering controls

Provide good ventilation. Avoid skin and eye contact. Do not eat, drink or smoke while working, preventive skin protection.

Personal protective equipment

Respiratory protection Respiratory protection required at workplaces that are not adequately ventilated and when spraying. Fresh air masks or, for short-term work, combination filters A2-P2 (EN529) are recommended.

If applicable, further recommendations for respiratory protection can be found in the appendix.

If the airways are hypersensitive (asthma, chronic bronchitis), we advise against handling the product.

Eye protection Wear eye / face protection.

Skin protection Suitable materials for protective gloves; EN 374:

Material: Butyl rubber - IIR

Breakthrough time: >= 480min

Glove thickness: >=0,5mm
Material: Fluororubber - FKM
Breakthrough time:
Glove thickness: >=0,4mm
 Recommendation: Dispose of contaminated gloves.

Body Protection Wear suitable protective clothing when working.
 If the skin is hypersensitive, we advise against handling the product.

8.3 Environmental exposure controls

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

SECTION 9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:

Aggregate state:		liquid	
Colour:		clear to yellowish	
Odour:		almost odourless	
Odour threshold:		Not determined.	
Pour point:		ca. -27 °C	
Initial boiling point/boiling range:	at 1.013 hPa	> 300 °C	DIN 53171
Flash point:	at 1.013 hPa	ca. 192 °C	DIN EN ISO 2719
Evaporation rate:		Not determined.	
Flammability:		Not applicable.	
Ignition temperature:		ca. 425 °C	DIN 51794
Explosive properties:		Not determined.	
Dust explosion class:		Not applicable.	
Water solubility:	(at T = 15 °C)	Not miscible.	
Vapour pressure:	(at T = 20 °C)	ca. 17 hPa	EG A4
	(at T = 50 °C)	ca. 26 hPa	EG A4
	(at T = 55 °C)	ca. 28 hPa	EG A4
Vapour pressure of ingredients:			
Hexamethylene diisocyanate	(at T = 20 °C)	ca. 0,007 hPa	
Hexamethylene diisocyanate homopolymer	(at T = 20 °C)	< 0,0001 hPa	(Vapour pressure balance OECD Nr.104)
Hexamethylene diisocyanate homopolymer	(at T = 20 °C)	< 0,00001 hPa	(Vapour pressure balance OECD Nr.104)
Vapour density (air = 1):		Not determined.	
Partition coefficient (n-octanol/water):		Not determined.	
Solids content		100 %	
Density:	(T = 25 °C)	1,14 g/cm ³	
pH value:	(at T = 20 °C)	Not applicable.	
Surface tension:		Not determined.	
Decomposition temperature:		Not determined.	
Viscosity, dynamic:	(at T = 23 °C)	ca. 3.500 mPa.s	DIN 53019
Oxidizing properties:		Not determined.	

9.2 Other information

The specified values do not always correspond to the product specification.
 The specification data can be found in the technical data sheet.

SECTION 10 Stability and reactivity

10.1 Reactivity

No information available.

10.2 Chemical stability

No information available.

10.3 Possibility of hazardous reactions

Exothermic reaction with amines and alcohols; Gradual development of CO₂ with water, pressure build-up in closed containers; Risk of bursting.

10.4 Conditions to avoid

No information available.

10.5 Incompatible materials

No information available.

10.6 Hazardous decomposition products

When paint dries / hardens, release of the neutralizing agent (see section 3).

SECTION 11 Toxicological information

Toxicological studies on the product are not available.
 Below are the data available to us:

11.1 Information on toxicological effects

Acute toxicity

Mixture

ATEmix (inhalative): 1,5 mg/l, 4 h
 Test atmosphere: Dust/Mist
 Method: Calculation method

Components

Hydrophilic aliphatic polyisocyanate based on HDI		
CAS-No. 666723-27-9		
oral, rat, LD50	>= 5.000 mg/kg	OECD Test Guideline 423
Toxicological studies on a comparable product.		
inhalative, rat, female, LC50, Dust/Mist	0,39 mg/l, 4h	OECD Test Guideline 403
Toxicological studies on a comparable product.		

The test atmosphere generated in the animal study is not representative for the situation in the workplace, the way the substance is marketed, or likely to be used. Therefore the test result cannot be used directly for the hazard assessment. A modified classification of acute inhalation toxicity is justified on the basis of expert assessment and weight-of-evidence.

Acute toxicity conversion value 1.5 mg / l

Test atmosphere: dust / mist

Method: professional judgment

Assessment: Harmful by inhalation.

Skin corrosion/irritation

Mixture

No data available.

Components

Primary skin irritation

Hydrophilic aliphatic polyisocyanate based on HDI	
CAS-No. 666723-27-9	
Species:	Rabbit
Result:	An irritant effect cannot be distinguished from mechanical stress caused by the removal of the test sample.
Classification	No skin irritation
Method:	OECD Test Guideline 404
Toxicological studies on a comparable product.	

Serious eye damage/irritation

Mixture

No data available.

Components

Primary mucous membrane irritant effect

Hydrophilic aliphatic polyisocyanate based on HDI	
CAS-No. 666723-27-9	
Species:	Rabbit
Result:	weakly irritating
Classification	No eye irritation
Method:	OECD Test Guideline 405
Toxicological studies on a comparable product.	

Respiratory or skin sensitisation

Mixture

No data available.

Components

Hydrophilic aliphatic polyisocyanate based on HDI	
CAS-No. 666723-27-9	
Skin sensitization (Local lymph node assay (LLNA)):	
Species:	mouse
Result:	positive
Classification	Sensitization through skin contact possible (sub-category 1B)
Method:	OECD Test Guideline 429
Toxicological studies on a comparable product.	

Respiratory sensitizing:	
Classification	No classification according to the directives 2006/121 / EG or 1999/45 / EG as respiratory sensitizing.
No lung sensitization in animal experiments.	
After both intradermal and inhalative induction, polyisocyanate based on hexamethylene diisocyanate did not show any lung-sensitizing potential in guinea pigs.	

Germ cell mutagenicity

Genotoxicity in vitro

Mixture

No data available.

Components

Hydrophilic aliphatic polyisocyanate based on HDI	
CAS-No. 666723-27-9	
Test type:	Salmonella / microsome test (Ames test)
Result:	No evidence of a mutagenic effect.
Method:	OECD Test Guideline 471
Toxicological studies on a comparable product.	

Genotoxicity in vivo

No data available.

Carcinogenicity

Mixture

No data available.

Components

No data available.

Reproductive toxicity

Mixture

No data available.

Components

No data available.

Specific Target Organ Toxicity - single exposure

Mixture

No data available.

Components

Hydrophilic aliphatic polyisocyanate based on HDI	
CAS-No. 666723-27-9	
May irritate the airways.	
Studies on a comparable product	

Specific Target Organ Toxicity - repeated exposure

Mixture

No data available.

Components

No data available.

Aspiration hazard

Mixture

No data available.

Components

No data available.

Other information

No data available.

11.2 Additional information

Special properties / effects: In case of overexposure there is a risk of a concentration-dependent irritant effect on the eyes, nose, throat and airways. Delayed appearance of the symptoms and development of hypersensitivity (breathing difficulties, cough, asthma) are possible. In the case of hypersensitive people, reactions can be triggered even at very low isocyanate concentrations, even below the occupational exposure limit. Long-term contact with the skin can cause tanning and irritation effects.

Animal experiments and other studies indicate that skin contact with diisocyanates could play a role in isocyanate sensitization and respiratory reactions.

SECTION 12 Ecological information

12.1 Toxicity

Hydrophilic aliphatic polyisocyanate based on HDI

		Test guideline
Fish toxicity, Danio rerio (Zebrafish); 96 h, LC50:	35,2 mg/l	OECD 203
Daphnia toxicity, Daphnia magna (Big water flea); 48h; EC50:	>100 mg/l	OECD 202
Algae toxicity, Desmodesmus subspicatus (Green algae); 72 h, ErC50:	72 mg/l	OECD 201
Bacteria toxicity, Activated sludge; 16h, EC50:	>10.000mg/l	OECD 209
Ecotoxicological studies on a comparable product		

12.2 Persistence and degradability

Biodegradation: 0%, 28 d, i.e. not easily biodegradable

Methode: OECD test guideline 301 F

Ecotoxicological studies on a comparable product

12.3 Bioaccumulative potential

No data available.

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

According to the available statements the criteria are not fulfilled for the classification

This substance / mixture does not contain any components in concentrations of 0.1% or higher that are either classified as persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB).

12.6 Other adverse effects

Isocyanate reacts with water at the interface with the formation of carbon dioxide to form a solid, high-melting and insoluble reaction product (polyurea). This reaction is strongly promoted by surface-active substances (e.g. liquid soaps) or water-soluble solvents. According to previous experience, polyurea is inert and not degradable.

SECTION 13 Disposal considerations

Disposal taking into account all applicable international, national and local laws, ordinances and statutes. For disposal within the EU, the applicable waste code according to the European waste catalog (EWC) must be used.

13.1 Waste treatment methods

The packaging must be emptied directly after the last product has been removed (drip-free, trickle-free, spatula-clean). The completely emptied packaging can be handed over to a professional waste disposal company; In the EU, this is done specifically for the packaging via the acceptance points of the chemical industry's existing take-back systems. For this purpose, the product and hazardous substance labeling must remain on the packaging.

Alternatively, after the product residues adhering to the walls have been rendered harmless, the product labeling and hazardous substance labeling can be canceled. This packaging, too, can be handed over to the collection points of the existing take-back systems of the chemical industry for recycling. The recycling must take place in accordance with national legislation and environmental protection regulations.

No disposal via wastewater.

SECTION 14 Transport information

14.1 UN number

Non dangerous good

14.2 Proper shipping name

ADR/RID / IMDG / IATA

Non dangerous good

14.3 Transport hazard class(es)

Non dangerous good

14.4 Packing group

Non dangerous good

14.5 Environmental hazards

Labelling of environmentally dangerous substances

ADR/RID / IMDG / IATA

Non dangerous good

Marine Pollutant

Non dangerous good

14.6 Special precautions for user

See section 6 - 8.

More information: No dangerous cargo. Protect from moisture.
 Sensitive to heat from +50 ° C.
 Keep away from foodstuffs, luxury foods, acids and alkalis.

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

Not applicable.

SECTION 15 Regulatory information

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

Provisions of the EU

Denomination in Annex I of the Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances

Not applicable.

Regulation (EU) No 528/2012 for the marketing of biocidal products

Not applicable.

Regulation (EC) No 648/2004 (Regulation concerning detergents)

Not applicable.

Directive 1999/13/EC for the limitation of emissions of volatile organic compounds

Not applicable.

Directive 92/85/EEC on the introduction of measures to encourage improvements in the safety and health at work of pregnant workers and workers who have recently given birth or are breastfeeding

Not applicable.

Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Not applicable.

Directive 94/33/EC on the protection of young people at work

Not applicable.

German regulations

(TA Luft)

Not applicable.

Type:

Organic substances

Proportion class 1:

0,24%

Proportion other substances:

99,75%

Water hazard class

WGK 2 (clearly hazardous to waters)

Storage class according to TRGS 510

LGK 10 (flammable liquids)

The data sheet of BG Chemie M 044 "Polyurethane production and processing / isocyanates" must be observed.

For products containing solvents:

The data sheet of BG Chemie M 017 "Solvents" must be observed.

Other regulations, restrictions and prohibition ordinances

From the European Committee of Associations of Paint, Printing Inks and Artists' Paint Manufacturers - CEPE - provides the following information for isocyanate-containing paints: Ready-to-use paints that contain isocyanates can irritate the mucous membranes - especially the respiratory organs - and trigger hypersensitivity reactions. When inhaling vapors or spray mist, there is a risk of sensitization. When handling isocyanate-containing paints, all measures for solvent-based paints must be carefully observed. In particular, spray mist and vapors must not be inhaled. Allergy sufferers, asthmatics and people prone to respiratory diseases are not allowed to work with isocyanate-containing paints. Observe employment restrictions in accordance with Directive 94/33 / EC on the protection of young people at work or stricter national regulations, if applicable.

15.2 Chemical safety assessment

This mixture was not subject to a safety assessment.

SECTION 16 Other information

The wording of the classification codes of section 3

Acute Tox. 2; H330	Acute toxicity (inhalative)	Fatal if inhaled.
Acute Tox. 3; H301	Acute toxicity (oral)	Toxic if swallowed.
Acute Tox. 3; H311	Acute toxicity (dermal)	Toxic in contact with skin
Acute Tox. 3; H331	Acute toxicity (inhalative)	Toxic if inhaled.
Acute Tox. 4; H302	Acute toxicity (oral)	Harmful if swallowed.
Acute Tox. 4; H332	Acute toxicity (inhalative)	Harmful if inhaled.
Aquatic Chronic 2; H411	Hazardous to the aquatic environment	Toxic to aquatic life with long-lasting effects.
Aquatic Chronic 3; H412	Hazardous to the aquatic environment	Harmful to aquatic life with long lasting effects
Eye Dam. 1; H318	Serious eye damage/ Eye irritation	Causes serious eye damage.
Eye Irrit. 2; H319	Serious eye damage/ Eye irritation	Causes serious eye irritation.
Flam. Liq. 3; H226	Flammable liquid	Flammable liquid and vapour.
Resp. Sens. 1	Respiratory sensitization	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin Corr. 1B; H314	Skin corrosion/ irritation	Causes severe skin burns and eye damage.
Skin Irrit. 2; H315	Skin corrosion/ irritation	Causes skin irritation.
Skin Sens. 1; H317	Skin sensitisation	May cause an allergic skin reaction.
STOT SE 3; H335	Specific target organ toxicity (single exposure)	May cause respiratory irritation.

The product is mainly used as a hardener in coating materials or adhesives. The handling of coating materials or adhesives that contain reactive polyisocyanates and residual amounts of monomeric HDI requires suitable protective measures (see also this safety data sheet). They may therefore only be used in industrial or professional applications. They are not suitable for use in do-it-yourself applications.

Abbreviations

ADN	Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ANSI	American National Standards Institute
ASTM	American Society of Testing and Materials (US)
ATE	Acute Toxic Estimate
AwSv	Ordinance on systems for handling water-polluting substances
BCF	Bioconcentration factor
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging of substances and mixtures
CMR	Carcinogenic Mutagenic Reprotoxic
DIN	German institute for standardization
DNEL	Derived no-effect level
EC	Effect Concentration, ... %
EWC	European Waste Catalogue
IATA	International Air Transport Association
IBC-Code	International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
ICAO	International Civil Aviation Organization
IMDG	International Maritime Code for Dangerous Goods
IMO	International Maritime Organization
ISO	International Organization for Standardization
IUPAC	International Union of Pure and Applied Chemistry
LOAEL	Lowest Observable Adverse Effect Level
LC	Lethal Concentration, ...%
LD	Lethal Dose, ...%
MARPOL	International Convention for the Prevention of Marine Pollution from Ships
NO(A)EC	No observed (adverse) effect concentration
NOEL	No Observed Effect Level
OECD	Organisation for Economic Co-operation and Development
PBT	Persistent, bioaccumulative and toxic.
PNEC	predicted no effect concentration
REACH	Regulation (EC) No. 1907/2006 of the European Parliament and of the Council regarding the registration, evaluation, authorisation and restriction of chemicals
RID	Convention concerning International Carriage by Rail
STOT	Specific Target Organ Toxicity
TRGS	Technical regulation for dangerous substances.
vPvB	Very persistent and very bioaccumulative.
WGK	Water hazard class.

Additional information

Classification of the mixture:

Acute Tox. 4 H332
 Skin Sens. 1 H317
 STOT SE 3 H335

Classification procedure:

Calculation method
 Calculation method
 Calculation method

The information supplied on this safety data sheet complies with our current level of knowledge as well as with national and EU regulations. Without written approval, the product must not be used for purposes different from those mentioned in chapter 1.

It is always the user's duty to take any necessary measures for meeting the requirements laid down by local rules and regulations. The details in this safety data sheet describe the safety requirements of our product and are not to be regarded as guaranteed attributes of the product.

We exclude each liability for damages, that can appear in improper intercourse or contact with these chemicals.

This security data sheet replaces all previous editions. Validly from edition date.

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