

safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU



Fehling's solution I for sugar determination, reag. Ph.Eur.

article number: **N055**
Version: **2.0 en**
Replaces version of: 2015-08-26
Version: (1.0)

date of compilation: 2015-08-26
Revision: 2017-02-03

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

1.1 Product identifier

Identification of the substance	Fehling's solution I
Article number	N055
Registration number (REACH)	not relevant (mixture)

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

Identified uses: laboratory chemical

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG
Schoemperlenstr. 3-5
D-76185 Karlsruhe
Germany

Telephone: +49 (0) 721 - 56 06 0

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e-mail: sicherheit@carlroth.de

Website: www.carlroth.de

Competent person responsible for the safety data sheet : Department Health, Safety and Environment

e-mail (competent person) : sicherheit@carlroth.de

1.4 Emergency telephone number

Emergency information service **Poison Centre Munich: +49/(0)89 19240**

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

Classification acc. to GHS			
Section	Hazard class	Hazard class and category	Hazard statement
3.3	serious eye damage/eye irritation	(Eye Dam. 1)	H318
4.1A	hazardous to the aquatic environment - acute hazard	(Aquatic Acute 1)	H400
4.1C	hazardous to the aquatic environment - chronic hazard	(Aquatic Chronic 1)	H410

Remarks

For full text of Hazard- and EU Hazard-statements: see SECTION 16.

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2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Signal word

Danger

Pictograms



Hazard statements

H318 Causes serious eye damage.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

Precautionary statements - prevention

P273 Avoid release to the environment.
P280 Wear protective gloves/eye protection.

Precautionary statements - response

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P391 Collect spillage.

Hazardous ingredients for labelling: Copper(II) sulphate pentahydrate

Labelling of packages where the contents do not exceed 125 ml

Signal word: **Danger**

Symbol(s)



H318 Causes serious eye damage.
P280 Wear protective gloves/eye 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.
contains: Copper(II) sulphate pentahydrate

2.3 Other hazards

There is no additional information.

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SECTION 3: Composition/information on ingredients

3.2 Mixtures

Description of the mixture

Composition/information on ingredients.

Name of substance	Identifier	wt %	Classification acc. to 1272/2008/EC	Pictograms	Specific Conc. Limits	M-Factors
Copper(II) sulphate pentahydrate	CAS No 7758-99-8 EC No 231-847-6 Index No 029-023-00-4 REACH Reg. No 01- 2119520566- 40	> 5 - < 10	Acute Tox. 4 / H302 Eye Dam. 1 / H318 Aquatic Acute 1 / H400 Aquatic Chronic 1 / H410			M-factor (acute) = 10.0 M-factor (chronic) = 10.0

Remarks

For full text of abbreviations: see SECTION 16. Aquatic toxicity (acute) of components of the mixture: 10.

SECTION 4: First aid measures

4.1 Description of first aid measures



General notes

Take off contaminated clothing.

Following inhalation

Provide fresh air.

Following skin contact

Rinse skin with water/shower. In all cases of doubt, or when symptoms persist, seek medical advice.

Following eye contact

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

Following ingestion

Rinse mouth. Call a doctor if you feel unwell.

4.2 Most important symptoms and effects, both acute and delayed

Irritant effects, Abdominal pain, Nausea, Risk of serious damage to eyes, Vomiting

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4.3 Indication of any immediate medical attention and special treatment needed
none

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings
water spray, foam, dry extinguishing powder, carbon dioxide (CO₂)

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Non-combustible.

Hazardous combustion products

May produce toxic fumes of carbon monoxide if burning.

5.3 Advice for firefighters

Do not allow firefighting water to enter drains or water courses. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Wear suitable protective clothing.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advices on how to contain a spill

Covering of drains.

Advices on how to clean up a spill

Wipe up with absorbent material (e.g. cloth, fleece).

Other information relating to spills and releases

Place in appropriate containers for disposal.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8.
Incompatible materials: see section 10. Disposal considerations: see section 13.

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SECTION 7: Handling and storage

7.1 Precautions for safe handling

No special measures are necessary.

Advice on general occupational hygiene

Wash hands before breaks and after work.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed.

Incompatible substances or mixtures

Observe hints for combined storage.

Consideration of other advice

- **Ventilation requirements**

Use local and general ventilation.

- **Specific designs for storage rooms or vessels**

Recommended storage temperature: 15 - 25 °C.

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

Data are not available.

8.2 Exposure controls

Individual protection measures (personal protective equipment)



Eye/face protection

Use safety goggles with side protection.

Skin protection

- **hand protection**

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

- **type of material**

NBR (Nitrile rubber)

- **material thickness**

>0,11 mm

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- **breakthrough times of the glove material**

>480 minutes (permeation: level 6)

- **other protection measures**

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Respiratory protection

Usually no personal respiratory protection necessary.

Environmental exposure controls

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	liquid (fluid)
Colour	blue
Odour	odourless
Odour threshold	No data available

Other physical and chemical parameters

pH (value)	(neutral)
Melting point/freezing point	not determined
Initial boiling point and boiling range	>100 °C
Flash point	not determined
Evaporation rate	no data available
Flammability (solid, gas)	not relevant (fluid)
<u>Explosive limits</u>	
• lower explosion limit (LEL)	this information is not available
• upper explosion limit (UEL)	this information is not available
Explosion limits of dust clouds	not relevant
Vapour pressure	23 hPa at 20 °C
Density	1,042 g/cm ³ at 20 °C
Vapour density	This information is not available.
Bulk density	Not applicable
Relative density	Information on this property is not available.
<u>Solubility(ies)</u>	
Water solubility	miscible in any proportion

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Partition coefficient

n-octanol/water (log KOW)	This information is not available.
Auto-ignition temperature	Information on this property is not available.
Decomposition temperature	no data available
Viscosity	not determined
Explosive properties	Shall not be classified as explosive
Oxidising properties	none

9.2 Other information

There is no additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity

This material is not reactive under normal ambient conditions.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

No known hazardous reactions

10.4 Conditions to avoid

There are no specific conditions known which have to be avoided.

10.5 Incompatible materials

There is no additional information.

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Shall not be classified as acutely toxic.

• Acute toxicity of components of the mixture

Name of substance	CAS No	Exposure route	ATE
Copper(II) sulphate pentahydrate	7758-99-8	oral	960 mg/kg

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

Serious eye damage/eye irritation

Causes serious eye damage.

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Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Summary of evaluation of the CMR properties

Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant

• Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

• Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed

abdominal pain, nausea, vomiting

• If in eyes

Causes serious eye damage, risk of blindness

• If inhaled

essentially non-irritating

• If on skin

Frequently or prolonged contact with skin may cause dermal irritation

Other information

None

SECTION 12: Ecological information

12.1 Toxicity

Very toxic to aquatic life with long lasting effects.

Aquatic toxicity (acute)

Very toxic to aquatic organisms.

Aquatic toxicity (acute) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Copper(II) sulphate pentahydrate	7758-99-8	EC50	0,02 mg/l	daphnia magna	48 h
Copper(II) sulphate pentahydrate	7758-99-8	LC50	0,11 mg/l	rainbow trout (Oncorhynchus mykiss)	96 h

Aquatic toxicity (chronic)

May cause long-term adverse effects in the aquatic environment.

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12.2 Process of degradability

Data are not available.

12.3 Bioaccumulative potential

Data are not available.

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.

13.2 Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1	UN number	3082
14.2	UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
	Hazardous ingredients	Copper(II) sulphate pentahydrate
14.3	Transport hazard class(es)	
	Class	9 (miscellaneous dangerous substances and articles) (environmentally hazardous)
14.4	Packing group	III (substance presenting low danger)
14.5	Environmental hazards	hazardous to the aquatic environment (Copper(II) sulphate pentahydrate)
14.6	Special precautions for user	
	Provisions for dangerous goods (ADR) should be complied within the premises.	

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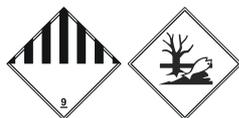
14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

The cargo is not intended to be carried in bulk.

14.8 Information for each of the UN Model Regulations

• Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)

UN number	3082
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Particulars in the transport document	UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (contains: Copper(II) sulphate pentahydrate), 9, III, (E)
Class	9
Classification code	M6
Packing group	III
Danger label(s)	9 + "fish and tree"



Environmental hazards	yes (hazardous to the aquatic environment)
Special provisions (SP)	274, 335, 375, 601
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
Transport category (TC)	3
Tunnel restriction code (TRC)	E
Hazard identification No	90
Emergency Action Code	3Z

• International Maritime Dangerous Goods Code (IMDG)

UN number	3082
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Particulars in the shipper's declaration	UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (contains: Copper(II) sulphate pentahydrate), 9, III
Class	9
Marine pollutant	yes (hazardous to the aquatic environment)
Packing group	III
Danger label(s)	9 + "fish and tree"

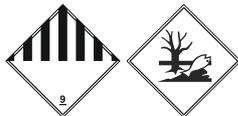
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Special provisions (SP)	274, 335, 969
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
EmS	F-A, S-F
Stowage category	A
• International Civil Aviation Organization (ICAO-IATA/DGR)	
UN number	3082
Proper shipping name	Environmentally hazardous substance, liquid, n.o.s.
Particulars in the shipper's declaration	UN3082, Environmentally hazardous substance, liquid, n.o.s., (contains: Copper(II) sulphate pentahydrate), 9, III
Class	9
Environmental hazards	yes (hazardous to the aquatic environment)
Packing group	III
	9 + "fish and tree"



Special provisions (SP)	A97, A158, A197, 274
Excepted quantities (EQ)	E1
Limited quantities (LQ)	30 kg

SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)

- **Regulation 649/2012/EU concerning the export and import of hazardous chemicals (PIC)**

None of the ingredients are listed.

- **Regulation 1005/2009/EC on substances that deplete the ozone layer (ODS)**

None of the ingredients are listed.

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- **Regulation 850/2004/EC on persistent organic pollutants (POP)**
None of the ingredients are listed.
- **Restrictions according to REACH, Annex XVII**
None of the ingredients are listed.
- **List of substances subject to authorisation (REACH, Annex XIV)**
None of the ingredients are listed.
- **Seveso Directive**

2012/18/EU (Seveso III)			
No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements	Notes
E1	environmental hazards (hazardous to the aquatic environment, cat. 1)	100 200	56)

Notation

56) Hazardous to the Aquatic Environment in category Acute 1 or Chronic 1

- **Limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products (2004/42/EC, Deco-Paint Directive)**

VOC content 0 %

- **Directive on industrial emissions (VOCs, 2010/75/EU)**

VOC content 0 %

- **Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II**

None of the ingredients are listed.

- **Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)**

None of the ingredients are listed.

- **Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)**

None of the ingredients are listed.

15.2 Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

16.1 Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)
2.1		Classification acc. to GHS: change in the listing (table)
2.1	Remarks: For full text of H-phrases: see SECTION 16.	
2.1		Remarks: For full text of Hazard- and EU Hazard-statements: see SECTION 16.
2.2	Signal word: Warning	Signal word: Danger
2.2		Pictograms: change in the listing (table)

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Section	Former entry (text/value)	Actual entry (text/value)
2.2		Hazard statements: change in the listing (table)
2.2		Precautionary statements - prevention: change in the listing (table)
2.2		Precautionary statements - response: change in the listing (table)
2.2		Hazardous ingredients for labelling: Copper(II) sulphate pentahydrate
2.2	Labelling of packages where the contents do not exceed 125 ml: Signal word: Warning	Labelling of packages where the contents do not exceed 125 ml: Signal word: Danger
2.2		Labelling of packages where the contents do not exceed 125 ml: change in the listing (table)
2.2		Labelling of packages where the contents do not exceed 125 ml: change in the listing (table)
2.2		Labelling of packages where the contents do not exceed 125 ml: change in the listing (table)
2.2		contains: Copper(II) sulphate pentahydrate
3.2		Description of the mixture: change in the listing (table)
4.1	Following skin contact: Rinse skin with water/shower. In case of skin irritation, consult a physician.	Following skin contact: Rinse skin with water/shower. In all cases of doubt, or when symptoms persist, seek medical advice.
4.1	Following eye contact: Rinse cautiously with water for several minutes. In all cases of doubt, or when symptoms persist, seek medical advice.	Following eye contact: In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.
4.2	Most important symptoms and effects, both acute and delayed: Irritant effects, Abdominal pain, Nausea, Vomiting	Most important symptoms and effects, both acute and delayed: Irritant effects, Abdominal pain, Nausea, Risk of serious damage to eyes, Vomiting
7.2	Consideration of other advice: Not required.	Consideration of other advice
9.1	pH (value): This information is not available.	pH (value): (neutral)
9.1	Density: 1 g/cm ³	Density: 1,042 g/cm ³ at 20 °C
9.1	Explosive properties: none	Explosive properties: Shall not be classified as explosive
11.1	Information on toxicological effects: This mixture does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC.	Information on toxicological effects
11.1	Acute toxicity	Acute toxicity: Shall not be classified as acutely toxic.
11.1		• Acute toxicity of components of the mixture: change in the listing (table)
11.1	Serious eye damage/eye irritation: Shall not be classified as seriously damaging to the eye or eye irritant.	Serious eye damage/eye irritation: Causes serious eye damage.
11.1	• If in eyes: essentially non-irritating	• If in eyes: Causes serious eye damage, risk of blindness

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Section	Former entry (text/value)	Actual entry (text/value)
12.1	Toxicity: Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.	Toxicity: Very toxic to aquatic life with long lasting effects.
12.1		Aquatic toxicity (acute) of components of the mixture: change in the listing (table)
12.6	Other adverse effects: Strongly hazardous to water.	Other adverse effects: Data are not available.
14.2	Hazardous ingredients: Copper sulphate pentahydrate	Hazardous ingredients: Copper(II) sulphate pentahydrate
14.5	Environmental hazards: hazardous to the aquatic environment	Environmental hazards: hazardous to the aquatic environment (Copper(II) sulphate pentahydrate)
14.8	Particulars in the transport document: UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (contains: Copper sulphate pentahydrate), 9, III, (E)	Particulars in the transport document: UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (contains: Copper(II) sulphate pentahydrate), 9, III, (E)
14.8		Emergency Action Code: 3Z
14.8	Particulars in the shipper's declaration: UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (contains: Copper sulphate pentahydrate, Kupfer(II)-sulfatlösung), 9, III	Particulars in the shipper's declaration: UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (contains: Copper(II) sulphate pentahydrate), 9, III
14.8		• International Civil Aviation Organization (ICAO-IATA/DGR)
14.8		UN number: 3082
14.8		Proper shipping name: Environmentally hazardous substance, liquid, n.o.s.
14.8		Particulars in the shipper's declaration: UN3082, Environmentally hazardous substance, liquid, n.o.s., (contains: Copper(II) sulphate pentahydrate), 9, III
14.8		Class: 9
14.8		Environmental hazards: yes (hazardous to the aquatic environment)
14.8		Packing group: III9 + "fish and tree"
14.8		Packing group: change in the listing (table)
14.8		Special provisions (SP): A97, A158, A197, 274
14.8		Excepted quantities (EQ): E1
14.8		Limited quantities (LQ): 30 kg
15.1		96/82/EC (Seveso II): change in the listing (table)
16		Abbreviations and acronyms: change in the listing (table)

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Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
Acute Tox.	acute toxicity
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
Aquatic Acute	hazardous to the aquatic environment - acute hazard
Aquatic Chronic	hazardous to the aquatic environment - chronic hazard
ATE	Acute Toxicity Estimate
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
DGR	Dangerous Goods Regulations (see IATA/DGR)
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
Eye Dam.	seriously damaging to the eye
Eye Irrit.	irritant to the eye
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
index No	the Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
M-factor	means a multiplying factor. It is applied to the concentration of a substance classified as hazardous to the aquatic environment acute category 1 or chronic category 1, and is used to derive by the summation method the classification of a mixture in which the substance is present
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
VOC	Volatile Organic Compounds
vPvB	very Persistent and very Bioaccumulative

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Key literature references and sources for data

- Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU
- Regulation (EC) No. 1272/2008 (CLP, EU GHS)

List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H302	harmful if swallowed
H318	causes serious eye damage
H400	very toxic to aquatic life
H410	very toxic to aquatic life with long lasting effects

Disclaimer

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.