



CALAN COOL

Fire Protection Solutions

**Antifreeze agent for
special applications to -30°C**

Manual



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**Antifreeze agent
for special applications to -30°C**

Technical information

Key data for CALAN COOL

Appearance	Clear, green liquid	
Freezing point	-30°C	ASTM D 1177
Density (20°C)	1.041–1.043 g/cm ³	DIN 51757
Refraction nD20	1.3890–1.3892	DIN 51423
pH value (20°C)	7.9–8.1	ASTM D 1287
Viscosity (20°C)	6–7 mm ² /s	DIN 51562
Reserve alkalinity	> 5.5 ml 0.1 m HCl	ASTM D 1121

The above data represents the average values when this technical information went to print. It does not have the status of a product specification. The specified parameters are taken from a separate product specification.

Properties

CALAN COOL is a clear, green, virtually odourless liquid based on propylene glycol, which is not harmful to health. Undiluted, this long-term stable, non-segregating product offers frost protection to -30°C.

CALAN COOL is used as an antifreeze solution for special applications wherever frost poses a risk, such as in freezer warehouses and outdoor areas. It can be used in a pressure range of 0 to 16 bar. Density values from 0 to 16 bar within a temperature range of -30 to +50°C are summarised on page 3 of this technical information.

The corrosion inhibitors in CALAN COOL protect all metals commonly used in sprinkler systems – e.g. copper, solder, brass, steel, cast iron and cast aluminium – against corrosion, ageing and incrustation, including in mixed-metal systems. The inhibitor system in the product does not contain borax, nitrite, phosphate or amine.

Miscibility

CALAN COOL must not be mixed with other antifreeze agents. The product can be diluted with water (drinking water quality with maximum 100 mg/kg chloride or distilled water). However, it is important to remember that dilution leads to a corresponding reduction in both the frost and the corrosion protection of the medium.

Corrosion protection effect

The table below shows the corrosion protection effect of CALAN COOL after a two-week test at 88°C under conditions of permanent ventilation. Corrosion test conducted in line with ASTM D 1384 (American Society for Testing and Materials).

Material	Average change in weight
Copper (SF Cu)	- 0.30 g/m ²
Solder (L Sn 30)	- 0.68 g/m ²
Brass (MS 63)	- 0.38 g/m ²
Steel (HI)	± 0.00 g/m ²
Cast iron (GG26)	± 0.00 g/m ²
Cast aluminium (G AlSi6Cu4)	± 0.00 g/m ²

Physical substance data of CALAN COOL

T [°C]	Density [kg/m ³]	Kin. viscosity [mm ² /s]	Spec. heat capacity [kJ/kg·K]
50	1022	2.2	3690
40	1029	3.0	3665
30	1036	4.2	3640
20	1042	6.3	3615
10	1049	9.9	3590
0	1055	17.42	3570
-10	1060	34.09	3550
-20	1066	77.38	3530
-30	1071	209.90	3515

Compatibility of material

CALAN COOL does not attack the sealing materials commonly used in sprinkler systems, such as EPDM, NBR, hemp and thread sealants.

When elastomers are in use, it is important to remember that the usage properties of these materials are not determined solely by the properties of the starting rubber (e.g. EPDM), but also by the type and quantity of additives and the production conditions during vulcanisation. It is therefore advisable to conduct a suitability test with CALAN COOL before using it for the first time. This applies in particular to elastomers that are intended for use in the membranes of pressure equalisation vessels to DIN EN 12828 / DIN 4807 Part 2.

Since the surface tension of CALAN COOL is lower than that of water, leaks may occasionally occur when using sealing strips made from polytetrafluoroethylene (PTFE).

CALAN COOL must not be used with internally galvanised pipes or other galvanised components in the sprinkler circuit, as zinc can be stripped away by CALAN COOL.

Usage guidelines

Due to the special properties of CALAN COOL, the following usage guidelines must be observed in order to achieve long-term protection for the sprinkler system.

1. The system must have a closed design. The contact with atmospheric oxygen associated with open systems causes the inhibitors to degrade faster.
2. Membrane pressure equalisation vessels must comply with DIN EN 12828 / DIN 4807 Part 2.
3. Fluctuations in temperature and the associated changes in volume can cause unacceptable pressure levels in the pipe network. This can be avoided by using safety valves, pressure equalisation vessels and automatic pressure-holding pumps.
4. Solder connections should preferably be made using silver or copper brazing alloy. If chloride-containing fluxes are used in soft solder, all residues of this material must be thoroughly rinsed out of the circuit. If these residues are not completely removed, there is a risk that the chloride content of the medium will become too high and cause pitting corrosion e.g. in stainless steel materials.
5. Only metal hoses should be used as flexible connecting elements.
6. All lines must be laid so as to prevent any potential circuit blockages caused by gas pockets or deposits.
7. During assembly, care must be taken to ensure dirt etc. does not get into the system. After the system has been assembled and installed and before it is filled with CALAN COOL, the entire sprinkler circuit must be rinsed to remove any metal cuttings, flux, assembly/installation aids and other impurities.
8. During and after filling, it is important to ensure there is no air in the system. Pockets of air and/or gas can cause a vacuum to form in the circuit when the temperature drops, thereby potentially drawing more air into the system.

9. Installed dirt traps must be cleaned no later than 14 days after filling and start-up to ensure the sprinkler system remains fully functional.

10. VdS stipulates that, at least once a year, Calanbau Brandschutzanlagen GmbH must check that the frost protection provided by CALAN COOL and its material values comply with the required values. To find out which of our service sites throughout Germany can perform the check for you, go to www.calanbau.de or call +49 (0)40/790 90 79-0.

11. In the case of leaks or following removal, the sprinkler system must be topped up using only CALAN COOL.

12. Use is only permitted in a sprinkler system with ceiling protection in conjunction with shelf protection in line with VdS CEA 4001 Section 11.5: Based on the least favourable sprinkler under operating pressure, it must be proved that clear water is produced after no more than 1 minute (ceiling and/or shelf).

- With meshed pipe networks, the total network volume must be taken into account.
- With end-line systems, the case where water flows through the largest proportion of the network is to be taken as a basis.

13. In the case of ceiling protection only, application is restricted to sprinklers with a k factor > 115. The branchline network volume filled with CALAN COOL 30 is then to be limited to 120 l per pipe section. The supply lines to the branchlines must be filled with water.

Guarantee

CALAN COOL comes with a 2-year guarantee that commences on official acceptance of the sprinkler system by the customer. This guarantee no longer applies in the event of improper operation of the sprinkler system or structural changes to the system (in the area filled with CALAN COOL) by the customer / operator or a third-party company.

Storage stability

CALAN COOL can be stored for at least three years in air-tight, sealed containers. It must not be stored in galvanised containers as zinc is stripped away by CALAN COOL.

Delivery form and packaging

CALAN COOL can be supplied by tanker truck, in 1000 litre IBC containers, in 200 litre drums and in PE canisters with a capacity of 30, 20 or 10 litres.

Disposal

Spillages or leakages of CALAN COOL should be soaked up with a liquid-binding material and disposed of in line with regulations. Further information can be found in the safety data sheet.

Ecology

CALAN COOL has been rated as water hazard class 1 (slightly hazardous to water, WGK 1 in Germany) in accordance with the *German administrative regulation for substances hazardous to waters* dated 17 May 1999. CALAN COOL is readily biodegradable.

Handling

When handling CALAN COOL, all necessary precautionary and health and safety measures for the handling of chemicals must be observed, as must all information and directions contained in the safety data sheet.

Safety data sheet

A safety data sheet in line with EC Regulation 1907/2006/EC [REACH] has been compiled for CALAN COOL.

Density of CALAN COOL in a pressure range from 0 to 16 bar [kg/m³]

as a function of temperature

p [bar]	-30 °C	-20 °C	-10 °C	0 °C	10 °C	20 °C	30 °C	40 °C	50 °C
0	1071.15	1065.70	1060.15	1054.46	1048.55	1042.39	1035.93	1029.21	1022.18
1	1071.19	1065.74	1060.19	1054.50	1048.59	1042.43	1035.97	1029.25	1022.22
2	1071.23	1065.78	1060.23	1054.54	1048.63	1042.47	1036.01	1029.29	1022.26
3	1071.28	1065.82	1060.28	1054.59	1048.68	1042.51	1036.05	1029.33	1022.30
4	1071.32	1065.86	1060.32	1054.63	1048.72	1042.56	1036.09	1029.37	1022.34
5	1071.37	1065.91	1060.37	1054.68	1048.76	1042.60	1036.13	1029.41	1022.38
6	1071.41	1065.95	1060.41	1054.72	1048.81	1042.64	1036.18	1029.46	1022.43
7	1071.45	1065.99	1060.45	1054.76	1048.85	1042.68	1036.22	1029.50	1022.47
8	1071.50	1066.04	1060.50	1054.81	1048.89	1042.72	1036.26	1029.54	1022.51
9	1071.54	1066.08	1060.55	1054.85	1048.93	1042.77	1036.30	1029.58	1022.55
10	1071.59	1066.13	1060.60	1054.90	1048.98	1042.81	1036.34	1029.62	1022.59
11	1071.63	1066.17	1060.64	1054.94	1049.02	1042.84	1036.38	1029.66	1022.63
12	1071.68	1066.21	1060.68	1054.98	1049.06	1042.88	1036.42	1029.70	1022.67
13	1071.73	1066.26	1060.73	1055.03	1049.11	1042.92	1036.46	1029.74	1022.71
14	1071.77	1066.30	1060.77	1055.07	1049.15	1042.97	1036.50	1029.78	1022.75
15	1071.82	1066.35	1060.82	1055.12	1049.19	1043.01	1036.55	1029.83	1022.80
16	1071.86	1066.39	1060.92	1055.16	1049.24	1043.05	1036.59	1029.87	1022.84

The data given in this product information is based on our current knowledge and experience. Due to the wide-ranging influences that processing and application can have on our products, this data does not free the user from the responsibility to conduct his own tests and experiments. The information we have provided cannot be used as a basis for a legally binding guarantee of certain properties or suitability for a specific usage. The recipient of our products is responsible for ensuring compliance with all trade mark rights and applicable laws and regulations.

according to Regulation (EC) No. 1907/2006

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

- 1.1. Product identifier:** CALAN COOL 30 - ready mixed, freezing point -30 °C
- 1.2. Relevant identified uses of the substance or mixture and uses advised against**
Relevant identified uses: Antifreeze solution for Sprinkler Systems
- 1.3. Details of the supplier of the safety data sheet**
Company: Calanbau Brandschutzanlagen GmbH
 Wenderter Straße 12, D - 31157 Sarstedt
Telephone/Telefax: Tel.: +49 (0)40 790 90 79-0, Fax: +49 (0)40 790 90 79-909
E-Mail: info@calanbau.de (E-Mail address of person responsible for SDS)
- 1.4. Emergency telephone number:** Tel.: +49 (0)551-19240 GIZ-Nord Poison Center

SECTION 2: Hazards identification

- 2.1. Classification of the substance or mixture**
Classification according to Regulation (EC) No. 1272/2008 [CLP]
 The product is not subject to classification.
- 2.2. Label elements**
Labelling according to Regulation (EC) No. 1272/2008 [CLP]
 The product is not subject to labelling.
- 2.3. Other hazards:** None known.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical nature: Aqueous solution of Propane-1,2-diol (propylene glycol) with inhibitors.

Substance / REACH registration number	Content	CAS number	EC number	INDEX number	Classification acc. CLP
Propane-1,2-diol 01-2119456809-23	< 50 %	57-55-6	200-338-0	-	-

The full text of the abbreviations is listed in section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

- Protection of first-aiders:** No special precautions are necessary for first aid responders.
- If inhaled:** If inhaled, remove to fresh air. Get medical attention if symptoms occur.
- On skin contact:** Wash thoroughly with soap and water. Get medical attention if symptoms occur.
- On contact with eyes:** Wash affected eyes for at least 15 minutes under running water with eyelids held open. Get medical attention if irritation develops and persists.
- On ingestion:** Rinse mouth thoroughly with water. DO NOT induce vomiting. Get medical attention if symptoms occur.

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

None known.

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

- Treatment:** Symptomatic treatment (decontamination, vital functions), no known specific antidote.

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

Suitable extinguishing media: Water spray. Alcohol-resistant foam. Dry powder. Carbon dioxide (CO₂).

Unsuitable extinguishing media: None known.

5.2. Special hazards arising from the substance or mixture

Specific hazards during firefighting: Exposure to combustion products may be a hazard to health.

Hazardous combustion products: Carbon oxides.

5.3. Advice for fire-fighters

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

Specific extinguishing methods: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so.

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

Personal precautions: Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.

6.2. Environmental precautions

Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up: Soak up with inert absorbent material. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbent. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. Sections 13 and 15 provide information regarding certain local or national requirements.

6.4. Reference to other sections: See sections 7, 8, 11, 12 and 13.

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

Technical measures: See Engineering measures in section 8.

Local/total ventilation: Use only with adequate ventilation.

Advice on safe handling: Handle in accordance with good industrial hygiene and safety practice. Take care to prevent spills, waste and minimize release to the environment.

Advice on protection against fire and explosion: Observe the general rules of industrial fire protection.

Hygiene measures: When using do not eat, drink or smoke. Wash contaminated clothing before re-use.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers: Store containers tightly sealed in a cool, dry and well ventilated place. Store in accordance with the particular national regulations.

Advice on common storage: Do not store with strong oxidizing agents. Keep away from food, beverages and animal feedstuffs.

7.3. Specific end uses

For the relevant identified uses listed in section 1 the advice mentioned in this section 7 is to be observed.

SECTION 8: Exposure control/personal protection

8.1. Control parameters

Components with occupational exposure limits

Contains no substances with occupational exposure limit values.

DNEL values - information on component Propane-1,2-diol

End use	Exposure routes	Potential health effects	Value
Workers	Inhalation	Long-term local effects	10 mg/m ³
Workers	Inhalation	Long-term systemic effects	168 mg/m ³
Consumers	Inhalation	Long-term local effects	10 mg/m ³
Consumers	Inhalation	Long-term systemic effects	50 mg/m ³

PNEC values - information on component Propane-1,2-diol

Fresh water	Marine water	Water (intermittent release)	Fresh water sediment	Marine water sediment	Soil	Sewage treatment plant
260 mg/l	26 mg/l	183 mg/l	572 mg/kg	57.2 mg/kg	50 mg/kg	20000 mg/l

8.2. Exposure controls

Engineering measures:

Ensure adequate ventilation, especially in confined areas. Minimize workplace exposure concentrations.

Personal protective equipment

Eye protection:

Safety glasses with side-shields (frame goggles, e.g. EN 166).

Hand protection:

Chemical resistant protective gloves (EN 374). Material: butyl rubber. Protective index 2. Break through time: >30 minutes. Glove thickness: 0.7 mm. Material: nitrile rubber. Protective index 2. Break through time: >30 minutes. Glove thickness: 0.4 mm. Remarks: Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the manufacturer. Wash hands before breaks and at the end of workday.

Skin and body protection:

Wash skin thoroughly after contact.

Respiratory protection:

Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines. Filter type: Particulate type (P).

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance:	liquid.	
Colour:	green.	
Odour:	almost odourless.	
Odour threshold:	No data available.	
pH value (20 °C):	ca. 8.0.	(ASTM D 1287)
Freezing point:	ca. -30 °C.	(ASTM D 1177)
Solidification temperature:	ca. -40 °C.	(DIN ISO 3016)
Initial boiling point/boiling range:	>100 °C.	(ASTM D 1120)
Flash point:	not applicable.	(DIN EN 22719, ISO 2719)
Evaporation rate:	No data available.	
Flammability (solid, gas):	not applicable.	
Upper explosion limit:	12.6 % vol.	(Inform. on Propylene glycol)
Lower explosion limit:	2.6 % vol.	(Inform. on Propylene glycol)
Vapour pressure (20 °C):	ca. 20 hPa.	(calculated)
Vapour density:	No data available.	
Density (20 °C):	ca. 1.042 g/cm ³ .	(DIN 51757)
Solubility:	Water solubility: soluble.	
Partition coefficient n-octanol/H ₂ O:	log P _{ow} (20.5 °C): -1.07.	(Inform. on Propylene glycol)
Auto-ignition temperature:	No data available.	

SECTION 9: Physical and chemical properties - Continuation

Decomposition temperature:	No data available.	
Viscosity (kinematic, 20 °C):	ca. 6.3 mm ² /s.	(DIN 51562)
Explosive properties:	not explosive.	
Oxidizing properties:	not oxidizing.	
9.2. Other Information:	No other information.	

SECTION 10: Stability and reactivity

10.1. Reactivity:	No hazardous reactions if stored and handled as prescribed/indicated. Corrosion to metals: No corrosive effect on metals.
10.2. Chemical stability:	The product is stable if stored and handled as prescribed/indicated.
10.3. Possibility of hazardous reactions:	No hazardous reactions if stored and handled as prescribed/indicated.
10.4. Conditions to avoid:	No conditions to avoid anticipated.
10.5. Incompatible materials:	Substances to avoid: strong oxidising agents.
10.6. Hazardous decomposition products:	No hazardous decomposition products if stored and handled as prescribed/indicated.

SECTION 11: Toxicological information**11.1. Information on toxicological effects**

Information on likely routes of exposure:	Inhalation. Skin contact. Ingestion. Eye contact.
Acute toxicity:	Not classified based on available information. Information on component Propane-1,2-diol: Acute oral toxicity: LD50 (Rat): 19400 - 36000 mg/kg. Assessment: The substance has no acute oral toxicity. Acute inhalation toxicity: No data available. Acute dermal toxicity: LD50 (Rabbit): 20800 mg/kg. Assessment: The substance has no acute dermal toxicity.
Skin corrosion/irritation:	Not classified based on available information. Information on component Propane-1,2-diol: slight skin irritation (Rabbit), IUCLID.
Serious eye damage/eye irritation:	Not classified based on available information. Information on component Propane-1,2-diol: slight eye irritation (Rabbit), IUCLID.
Respiratory or skin sensitisation:	Skin sensitisation: Not classified based on available information. Respiratory sensitisation: Not classified based on available information.
Germ cell mutagenicity:	Not classified based on available information. Information on component Propane-1,2-diol: Genotoxicity in vitro: not mutagenic (Bacteria, AMES Test), method: OECD test guideline 471.
Carcinogenicity:	Not classified based on available information. Information on component Propane-1,2-diol: Not carcinogenic in animal studies (IUCLID).
Reproductive toxicity:	Not classified based on available information. Information on component Propane-1,2-diol: No impairment of reproductivity in animal studies (IUCLID).
Specific target organ toxicity (single exposure):	Not classified based on available information.
Specific target organ toxicity (repeated exposure):	Not classified based on available information.
Repeated dose toxicity:	Not classified based on available information.
Aspiration toxicity:	Not classified based on available information.

SECTION 12: Ecological information

12.1. Toxicity

Information on component Propane-1,2-diol

Toxicity to	Value / exposure time	Species
fish	LC50: 51600 mg/l / 96 h	Oncorhynchus mykiss (Rainbow trout) Method: OECD test guideline 203
daphnia and other aquatic invertebrates	EC50: 34400 mg/l / 48 h	Daphnia magna (Water flea)
algae	EC50: 19000 mg/l / 72 h	Pseudokirchneriella subcapitata (Green algae) Method: OECD test guideline 201
bacteria	EC50: 26800 mg/l / 30 min EC50: >1000 mg/l / 3 h	Photobacterium phosphoreum Activated sludge

12.2. Persistence and degradability:

Information on component Propane-1,2-diol: Biodegradability: Biodegradation: 87 - 92 % (28 d), method: OECD test guideline 301 D. Result: readily biodegradable.

12.3. Bioaccumulative potential:

Information on component Propane-1,2-diol: Partition coefficient n-octanol/H₂O: : log P_{ow} (20.5 °C): -1.07.

12.4. Mobility in soil:

No data available.

12.5. Results of PBT and vPvB assessment:

The product does not contain a substance fulfilling the PBT criteria (persistent/bioaccumulative/toxic) or the vPvB criteria (very persistent/very bioaccumulative).

12.6. Other adverse effects:

No data available.

12.7. Further information:

No further information.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product:

Dispose of in accordance with local regulations. According to the European Waste Catalogue (EWC), waste codes are not product specific, but application specific. Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

Contaminated packaging:

Dispose of as the product. Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14: Transport information

	ADR/ RID	ADN	IMDG	IATA/ ICAO
	Not classified as a dangerous good under transport regulations			
14.1. UN number	-	-	-	-
14.2. UN proper shipping name	-	-	-	-
14.3. Transport hazard classes	-	-	-	-
14.4. Packing group	-	-	-	-
14.5. Environmental hazards	-	-	-	-
14.6. Special precautions for user	-	-	-	-

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not evaluated.

SECTION 15: Regulatory information

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

Legal basis	Remark / Evaluation
Regulation (EC) No. 649/2012 of the European Parliament and the Council concerning the export and import	Not applicable
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59)	Not applicable
Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer	Not applicable
Regulation (EC) No. 850/2004 on persistent organic pollutants	Not applicable
Seveso III - Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances	Not applicable

Other regulations

No further information.

15.2. Chemical Safety Assessment

A Chemical Safety Assessment was not carried out for the product.

SECTION 16: Other information

Full text of the abbreviations of classifications and H-Statements used in sections 2 and 3

Not applicable

Other abbreviations used in this safety data sheet in alphabetical order

ADN	European agreement concerning the international carriage of dangerous goods by inland waterways
ADR	European agreement concerning the international carriage of dangerous goods by road
ASTM	American Society for Testing and Materials
CAS number	Chemical Abstracts Service number
CLP	Regulation (EC) No. 1272/2008 on classification, labeling and packaging of chemical substances and mixtures
DIN	German Institute for Standardisation/German Industrial Standard
DNEL	Derived No Effect Level
EC50	Median Effective Concentration
EC number	EINECS number (European Inventory of Existing Substances) or ELINCS number (European List of Notified Chemical Substances)
IATA	International Air Transport Association
IBC	International Bulk Chemicals
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
INDEX number	Identification code for hazardous substances, Annex VI of Regulation (EC) No. 1272/2008
ISO	International Organisation for Standardisation/International Standard
IUCLID	International Uniform Chemical Information Database
LC50	Median Lethal Concentration
LD50	Median Lethal Dose
MARPOL	International Convention for the Prevention of Marine Pollution from Ships
OECD	Organisation for Economic Cooperation and Development
PNEC	Predicted No Effect Concentration
REACH	Regulation (EC) No. 1907/2006 on Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Regulation concerning the international carriage of dangerous goods by rail

Further information

Sources of key data used to compile the safety data sheet: Internal technical data, data from component SDS, OECD eChem Portal search results and European Chemicals Agency [ECHA].

Revision date: 01.08.2018

Date of previous version: 01.05.2016

SECTION 16: Other information - Continuation

Vertical lines in the left hand margin indicate an amendment from the previous version.

The information provided in this safety data sheet (SDS) is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific product identified at the top of this SDS and may not be valid when the SDS product is used in combination with any other materials or in any process, unless specified in the text. Product users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS product in the user's end product, if applicable.