



Be Right™

SAFETY DATA SHEET

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)

Issue Date 16-Jun-2005

Revision Date 14-Feb-2023

Version 2.2

Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Code(s) 2070142
Product Name Chlorine Dioxide Reagent 2
Molecular weight No data available

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

Recommended Use Determination of chlorine dioxide.
Uses advised against Consumer use

1.3. Details of the supplier of the safety data sheet

Supplier

HACH UK
Laser House
Ground Floor, Suite B
Waterfront Quay, Salford Quays
GB - Manchester, M50 3XW
Tel. +44 (0) 161 872 1487
info-uk@hach.com

HACH Ireland
Unit 34 GB Business Park
Little Island
IRL-Co. Cork
T45 H681
Tel. +353 (0)146 02 522
info-ie@hach.com

1.4. Emergency telephone number

UK: Poison Control Center Mainz: Tel: +49 (0) 6131 19240 - 24 hour emergency service
IE: National Poisons Information Centre (NPIC) 01 809 2566 (24/7)

Section 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP]

2.2. Label elements

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP]

Hazard statements

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP]
EUH208 - Contains Formaldehyde May produce an allergic reaction.

2.3. Other hazards

No information available.

PBT & vPvB

This mixture contains no substance considered to be persistent, bioaccumulating or toxic (PBT)

This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB)

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Not applicable

3.2 Mixtures

Full text of H- and EUH-phrases: see section 16

Acute Toxicity Estimate No information available

Section 4: FIRST AID MEASURES

4.1. Description of first aid measures

General advice	Take off contaminated clothing and shoes immediately. Show this safety data sheet to the doctor in attendance.
Inhalation	Remove to fresh air. If symptoms persist, call a doctor.
Eye contact	Rinse thoroughly with plenty of water, also under the eyelids. If symptoms persist, call a doctor.
Skin contact	Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a doctor.
Ingestion	Rinse mouth.
Self-protection of the first aider	Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8). Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

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

Symptoms No information available.

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

Note to doctors Treat symptomatically.

Section 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Product itself does not burn.
Unsuitable extinguishing media	No information available.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	Thermal decomposition can lead to release of irritating and toxic gases and vapours.
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5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.
Additional information	Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	Evacuate personnel to safe areas. Use personal protective equipment as required. See section 8 for more information.
For emergency responders	Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions	Do not flush into surface water or sanitary sewer system. See Section 12 for additional Ecological Information.
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6.3. Methods and material for containment and cleaning up

Methods for containment	Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see Section 13).
Methods for cleaning up	Take up mechanically, placing in appropriate containers for disposal.
Prevention of secondary hazards	Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections	See section 8 for more information. See section 13 for more information.
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Section 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Advice on safe handling	Avoid contact with skin, eyes or clothing. Avoid breathing dust/fume/gas/mist/vapours/spray.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice. Avoid contact with

skin, eyes or clothing. Wash hands before breaks and after work.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Keep container tightly closed in a dry and well-ventilated place.

7.3. Specific end use(s)

Specific use(s) Analytical reagent.

Risk Management Methods (RMM) The information required is contained in this Safety Data Sheet.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

Derived No Effect Level (DNEL) No information available.

Predicted No Effect Concentration (PNEC) No information available.

Additional information No information available.

8.2. Exposure controls

Engineering controls Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Personal protective equipment
Eye/face protection** Wear safety glasses with side shields (or goggles).

Hand protection Wear suitable gloves. Barrier creams may help to protect the exposed areas of skin. Gloves must be inspected prior to use. The selected protective gloves have to satisfy the specifications of EU Directive 2016/425 and the standard EN 374-1:2016 derived from it. Chemical resistant gloves made of butyl rubber or nitrile rubber category III acco.

Skin and body protection Avoid contact with eyes, skin and clothing.

Respiratory protection Ensure adequate ventilation.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Wash hands before breaks and after work.

Environmental exposure controls Do not allow into any sewer, on the ground or into any body of water.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state Liquid

Colour Dark violet**Odour** Mild hydrocarbon**Odour threshold** No data available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Molecular weight	No data available	
pH	9.0	@ 20 °C
Melting point / freezing point	~ 0 °C / 32 °F	
Initial boiling point and boiling range	~ 100 °C / 212 °F	
Evaporation rate	0.62 (water = 1)	
Vapour pressure	17.477 mm Hg / 2.33 kPa at 20 °C / 68 °F	
Relative vapor density	0.62	
Specific Gravity	0.99	
Partition coefficient	Not applicable	
Soil Organic Carbon-Water Partition Coefficient	Not applicable	
Autoignition temperature	No data available	
Decomposition temperature	No data available	
Dynamic viscosity	~ 1 cP (mPa s) at 20 °C / 68 °F	
Kinematic viscosity	~ 1.01 cSt (mm ² /s) at 20 °C / 68 °F	
Relative density	0.99 g/mL	@ 20 °C

Solubility(ies)**Water solubility**

<u>Water solubility classification</u>	<u>Water solubility</u>	<u>Water Solubility Temperature</u>
Soluble	> 1000 mg/L	25 °C / 77 °F

Solubility in other solvents

<u>Chemical Name</u>	<u>Solubility classification</u>	<u>Solubility</u>	<u>Solubility Temperature</u>
Acid	Soluble	> 1000 mg/L	25 °C / 77 °F
Most Polar Organic Solvents	Soluble	> 1000 mg/L	25 °C / 77 °F

Metal Corrosivity**Steel Corrosion Rate**

No data available

Aluminum Corrosion Rate

No data available

Explosive properties**Upper explosion limit**

No data available

Lower explosion limit

No data available

Flammable properties

Flash point No data available

Flammability

Upper flammability limit: No data available

Lower flammability limit No data available

Oxidising properties

No data available.

Bulk density

No data available

9.2. Other information

No information available.

Section 10: STABILITY AND REACTIVITY**10.1. Reactivity**

Reactivity No information available.

10.2. Chemical stability

Stability Stable under normal conditions.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

10.4. Conditions to avoid

Conditions to avoid Extremes of temperature and direct sunlight.

10.5. Incompatible materials

Incompatible materials None known based on information supplied.

10.6. Hazardous decomposition products

Hazardous Decomposition Products None known based on information supplied.

Section 11: TOXICOLOGICAL INFORMATION**11.1. Information on toxicological effects****Acute toxicity**

Based on available data, the classification criteria are not met

Mixture No data available.

Substance Test data reported below.

Oral Exposure Route:

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde	Rat	100 mg/kg	None reported	None reported	GESTIS

	LD ₅₀				
Poly(oxy-1,2-ethaned yl), .alpha.-[4-(1,1,3,3-tetr amethylbutyl)phenyl]- .omega.-hydroxy-	Rat LD ₅₀	1800 mg/kg	None reported	None reported	ERMA

Dermal Exposure Route:

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde	Rabbit LD ₅₀	270 mg/kg	None reported	None reported	GESTIS

Inhalation (Dust/Mist) Exposure Route:

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde	Rat LC ₅₀	0.578 mg/L	4 hours	None reported	LOLI

Inhalation (Vapor) Exposure Route:**Acute Toxicity Estimate (ATE)****Unknown acute toxicity**

0.001 % of the mixture consists of ingredient(s) of unknown toxicity.

Skin corrosion/irritation

Based on available data, the classification criteria are not met.

Mixture No data available.

Substance Test data reported below.

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Formaldehyde	Draize Test	Human	0.150 mg	72 hours	Corrosive to skin	RTECS
Sodium hydroxide	Patch test	Human	20 mg	24 hours	Corrosive to skin	RTECS
Methanol	OECD Test 439: In Vitro Skin Irritation: Reconstructed Human Epidermis (Rhe) Test Method	Rabbit	None reported	20 hours	Not corrosive or irritating to skin	ECHA

Serious eye damage/eye irritation

Based on available data, the classification criteria are not met.

Mixture No data available.

Substance Test data reported below.

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Formaldehyde	Rinse Test	Human	1 ppm	6 minutes	Corrosive to eyes	RTECS

Sodium hydroxide	Draize Test	Rabbit	0.05 mg	24 hours	Corrosive to eyes	RTECS
Methanol	OECD Test 439: In Vitro Skin Irritation: Reconstructed Human Epidermis (Rhe) Test Method	Rabbit	0.05 mL	24 hours	Not corrosive or irritating to eyes	ECHA
Poly(oxy-1,2-ethaned iyl), .alpha.-[4-(1,1,3,3-tetra methylbutyl)phenyl]-.omega.-hydroxy-	Draize Test	Rabbit	None reported	None reported	Corrosive to eyes	RTECS

Respiratory or skin sensitisation

Based on available data, the classification criteria are not met.

Mixture No data available.

Substance Test data reported below.

Skin Sensitization Exposure Route:

Chemical name	Test method	Species	Results	Key literature references and sources for data
Formaldehyde	Patch test	Human	Confirmed to be a skin sensitizer	ERMA
Methanol	OECD Test No. 406: Skin Sensitisation	Guinea pig	No sensitisation responses were observed.	ECHA

Respiratory Sensitization Exposure Route:

Chemical name	Test method	Species	Results	Key literature references and sources for data
Formaldehyde	IgE Specific Immune Response Test	Guinea pig	Confirmed to be a respiratory sensitizer	CICAD

STOT - single exposure

Based on available data, the classification criteria are not met.

Mixture No data available.

Substance Test data reported below.

Oral Exposure Route:

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde	Human LD _{Lo}	70 mg/kg	None reported	Gastrointestinal Kidney, Ureter, or Bladder Liver Other changes Ulcerated stomach Other changes	RTECS
Methanol	Human LD _{Lo}	143 mg/kg	None reported	Lungs, Thorax, or Respiration Dyspnea	RTECS

Inhalation (Vapor) Exposure Route:

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Methanol	Human TC _{Lo}	300 mg/L	None reported	Lungs, Thorax, or Respiration Other changes	RTECS

STOT - repeated exposure

Based on available data, the classification criteria are not met.

Mixture No data available.

Substance Test data reported below.

Oral Exposure Route:

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Methanol	Monkey	2340 mg/kg	3 days	None reported	ECHA

Inhalation (Vapor) Exposure Route:

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde	Human TC _{Lo}	0.017 mg/L	0.5 days	Eye Lungs, Thorax, or Respiration Lacrimation Other changes	RTECS

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Mixture invitro **Data** No data available.

Substance invitro **Data** Test data reported below.

Chemical name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data
Methanol	DNA inhibition	Human lymphocyte	300 mmol/L	None reported	Positive test result for mutagenicity	RTECS

Mixture in vivo **Data** No data available.

Substance in vivo **Data** Test data reported below.

Oral Exposure Route:

Chemical name	Test	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Methanol	DNA damage	Rat	0.405 mg/kg	None reported	Positive test result for mutagenicity	RTECS

Inhalation (Vapor) Exposure Route:

Chemical name	Test	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Formaldehyde	Micronucleus test	Human	.000985 mg/L	8.5 years	Positive test result for	RTECS

					mutagenicity	
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Carcinogenicity

Based on available data, the classification criteria are not met.

Mixture No data available.

Substance Test data reported below.

Inhalation (Vapor) Exposure Route:

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde	Rat	15 mg/L	78 weeks	Olfaction Tumors	RTECS

Reproductive toxicity

Based on available data, the classification criteria are not met.

Mixture No data available.

Substance Test data reported below.

Oral Exposure Route:

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Methanol	Rat TD _{Lo}	4118 mg/kg	10 days	Effects on Embryo or Fetus Specific Developmental Abnormalities Ear Eye Fetotoxicity (except death e.g. stunted fetus) Urogenital System	RTECS

Inhalation (Dust/Mist) Exposure Route:

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Methanol	Rat TC _{Lo}	0.0026 mg/L	22 days	Effects on Embryo or Fetus Fetotoxicity (except death e.g. stunted fetus)	RTECS

Inhalation (Vapor) Exposure Route:

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde	Rat TC _{Lo}	40 mg/L	14 days	Effects on Embryo or Fetus Fetotoxicity (except death e.g. stunted fetus)	RTECS

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2 Information on other hazards

Other dangerous properties can not be excluded. Handle in accordance with good industrial hygiene and safety practice.

11.2.1. Endocrine disrupting properties

Endocrine disrupting properties No information available.

11.2.2. Other information**Other adverse effects**

No information available.

Section 12: ECOLOGICAL INFORMATION**12.1. Toxicity****Ecotoxicity**

Based on available data, the classification criteria are not met.

Unknown aquatic toxicity

Contains 0.001 % of components with unknown hazards to the aquatic environment.

Mixture**Acute aquatic toxicity:**

No data available.

Aquatic Chronic Toxicity:

No data available.

Substance**Acute aquatic toxicity:**

Test data reported below.

Fish:

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Phenol, 2,4,6-trinitro-	96 hours	<i>Oncorhynchus mykiss</i>	LC ₅₀	109.6 mg/L	GESTIS
Formaldehyde	96 hours	<i>Morone saxatilis</i>	LC ₅₀	6.7 mg/L	PEEN
Sodium hydroxide	96 hours	<i>Oncorhynchus mykiss</i>	LC ₅₀	45.4 mg/L	IUCLID
Poly(oxy-1,2-ethane diyl), .alpha.-[4-(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	96 hours	<i>Pimephales promelas</i>	LC ₅₀	4.5 mg/L	ERMA

Crustacea:

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Formaldehyde	48 Hours	<i>Daphnia pulex</i>	EC ₅₀	5.8 mg/L	PEEN
Sodium hydroxide	48 Hours	<i>Daphnia sp.</i>	EC ₅₀	40.4 mg/L	IUCLID
Poly(oxy-1,2-ethane diyl), .alpha.-[4-(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	48 Hours	<i>Daphnia magna</i>	LC ₅₀	18 mg/L	Vendor SDS

Algae:

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Poly(oxy-1,2-ethane diyl), .alpha.-[4-(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	96 hours	None reported	EC ₅₀	0.21 mg/L	ERMA

Aquatic Chronic Toxicity:

No data available.

12.2. Persistence and degradability

Mixture No data available.

12.3. Bioaccumulative potential

Mixture: No data available.

Partition coefficient Not applicable

12.4. Mobility in soil

Soil Organic Carbon-Water Partition Coefficient Not applicable

12.5. Results of PBT and vPvB assessment

The components in this formulation do not meet the criteria for classification as PBT or vPvB.

12.6. Endocrine disrupting properties

Endocrine Disruptor Information: This product does not contain any known or suspected endocrine disruptors

12.7. Other adverse effects

No information available.

Ozone: Not applicable

Ozone depletion potential (ODP): No information available

Section 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Advice on Disposal

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Waste disposal number of waste from residues/unused products

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste.

Waste disposal number of used product

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste.

Contaminated packaging Dispose of contents/containers in accordance with local regulations.

Other Information Do not reuse empty containers.

Section 14: TRANSPORT INFORMATION

IMDG

14.1 UN number or ID number	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing Group	Not regulated
14.5 Marine pollutant	Not applicable
14.6 Special precautions for user	See section 6-8 for more information
14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code	Not applicable

ADR

14.1 UN number or ID number	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing Group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	See section 6-8 for more information

IATA

14.1 UN number or ID number	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	See section 6-8 for more information

Additional information

There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is not in a reagent set or kit, the classification given above applies.

If the item is part of a reagent set or kit the classification would change to the following:

UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III.

If the item is not regulated, the Chemical Kit classification does not apply.

Section 15: REGULATORY INFORMATION

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

National regulations

European Union

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

Authorisations and/or restrictions on use:

This product does not contain substances subject to authorisation (Regulation (EC) No. 1907/2006 (REACH), Annex XIV) This product does not contain substances subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

Persistent Organic Pollutants Not applicable

Dangerous substance category per Seveso Directive (2012/18/EU)

- Non-controlled

Ozone-depleting substances (ODS) regulation (EC) 1005/2009

Not applicable

Germany

Water hazard class (WGK) slightly hazardous to water (WGK 1)

International Inventories

EINECS/ELINCS	Complies
TSCA	Complies
DSL/NDSL	Complies
ENCS	Does not comply
IECSC	Complies
KECL - Existing substances	Complies
PICCS	Complies
AICS	Complies

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

15.2. Chemical safety assessment

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

Section 16: OTHER INFORMATION

Issue Date	16-Jun-2005
Revision Date	14-Feb-2023
Revision Note	New SDS, SDS sections updated, 3, 9, 11, 12.

Key or legend to abbreviations and acronyms used in the safety data sheet**Legend**

**	Hazard Designation
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieure
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
CAS	Chemical Abstracts Service Number
Ceiling	Maximum limit value
CLP	Classification, Labelling and Packaging of substances and mixtures [Regulation (EC) No. 1272/2008]
DNEL	Derived No Effect Level (DNEL)
EC	European Community
ECHA	ECHA (The European Chemicals Agency)
EC50	Effective Concentration to 50% of a test population

EEC	European Economic Community
EN	European Standard
IMDG	International Maritime Dangerous Goods (IMDG)
IATA	International Air Transport Association (IATA)
IATA-DGR	International Air Transport Association - Dangerous Goods Regulations
ICAO	International Civil Aviation Organization
ICAO-TI	International Civil Aviation Organization - Technical Instructions
IUCLID	IUCLID (The International Uniform Chemical Information Database)
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
LOAEL	Lowest observed adverse effect level
LOAEC	Lowest observed adverse effect concentration
LC50	Lethal Concentration to 50% of a test population
LD50	Lethal Dose to 50% of a test population (Median Lethal Dose)
LOLI	LOLI (List of Lists - An International Chemical Regulatory Database)
MAK	Maximale Arbeitsplatz-Konzentration, a German expression corresponding to threshold limit value, which relates to safe daily exposure levels to chemical substances
NOAEL	NOAEL (No observed adverse effect level)
NOAEC	No observed adverse effect concentration
OSHA	OSHA (Occupational Safety and Health Administration of the US Department of Labour)
PEC	Predicted Effect Concentration
PNEC	Predicted No Effect Concentration (PNEC)
PBT	Persistent, Bioaccumulative, and Toxic (PBT) Chemicals
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals [Regulation (EC) No. 1907/2006]
RID	Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
RTECS	RTECS (Registry of Toxic Effects of Chemical Substances)
TWA	TWA (time-weighted average)
SKN*	Skin designation
SKN+	Skin sensitisation
STEL	STEL (Short Term Exposure Limit)
STOT	Specific Target Organ Toxicity
STOT RE	Specific target organ toxicity — repeated exposure
STOT SE	Specific target organ toxicity — single exposure
SVHC	Substances of Very High Concern
TLV	Threshold Limit Value
TRGS	Technical rules for hazardous substances, Germany
TSCA	Toxic Substances Control Act
UN	United Nations
vPvB	very persistent and very bioaccumulative
VOC	Volatile organic compounds
AwSV	Administrative regulation of water polluting substances, Germany

Key literature references and sources for data

See Section 11: TOXICOLOGICAL INFORMATION

See Section 12: ECOLOGICAL INFORMATION

Classification procedure

Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - Vapour	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	Calculation method
Serious eye damage/eye irritation	Calculation method
Respiratory sensitisation	Calculation method
Skin sensitisation	Calculation method
Mutagenicity	Calculation method

Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Acute aquatic toxicity	Calculation method
Chronic aquatic toxicity	Calculation method
Aspiration toxicity	Calculation method
Ozone	Calculation method

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

Restrictions on use For Laboratory Use Only.

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

End of Safety Data Sheet