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

1.1 Product identifier

Trade name: Copper Lubricant Spray

This safety data sheet pertains to the following products:
147707 = Copper Lubricant Spray
408455 = Copper Lubricant Spray

UFI: 6A26-1EUC-V00Q-9ESD

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

General use: Lubricant.
Reserved for industrial and professional use.

1.3 Details of the supplier of the safety data sheet

Company name: Berner Produkten b.v.
Street/POB-No.: Vogelzankweg 175
Postal Code, city: 6374 AC Landgraaf
Netherlands
WWW: www.berner.nl
E-mail: info@berner.nl
Telephone: +31 45 53 39 133
Department responsible for information:
E-mail: Productsafety.Chemicals@berner-group.com

1.4 Emergency telephone number

Poisons information service:
National Poisons Information Service (Birmingham Unit): 844 892 0111

Transport:
CONSULTANK Lutz Harder GmbH (Contract Qualisys/Berner)
Telephone: +49 (178) 4337434 (from USA: 01149 178 4337434)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to EC regulation 1272/2008 (CLP)

Aerosol 1; H222; H229	Extremely flammable aerosol. Pressurised container: May burst if heated.
Water-react. 1; H260	In contact with water releases flammable gases which may ignite spontaneously.
STOT SE 3; H336	May cause drowsiness or dizziness.
Asp. Tox. 1; H304	May be fatal if swallowed and enters airways.
Aquatic Chronic 1; H410	Very toxic to aquatic life with long lasting effects.
(EUH066)	Repeated exposure may cause skin dryness or cracking.

2.2 Label elements

Labelling (CLP)

Signal word: **Danger**

Hazard statements:	H222	Extremely flammable aerosol.
	H229	Pressurised container: May burst if heated.
	H260	In contact with water releases flammable gases which may ignite spontaneously.
	H336	May cause drowsiness or dizziness.
	H410	Very toxic to aquatic life with long lasting effects.
	EUH066	Repeated exposure may cause skin dryness or cracking.
Precautionary statements:	P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
	P211	Do not spray on an open flame or other ignition source.
	P251	Do not pierce or burn, even after use.
	P273	Avoid release to the environment.
	P280	Wear protective gloves/protective clothing/eye protection.
	P302+P335+P334	IF ON SKIN: Brush off loose particles from skin. Immerse in cool water.
	P312	Call a POISON CENTER/doctor if you feel unwell.
	P391	Collect spillage.
	P402+P404	Store in a dry place. Store in a closed container.
	P410+P412	Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.

Special labelling

Text for labelling:

Contains:
Pentane
Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics
Paraffin oils (petroleum), catalytic dewaxed heavy

2.3 Other hazards

Potentially explosive mixtures may form if adequate ventilation is not provided.
Inhaling can lead to irritations of the respiratory tract and mucous membrane.
Higher doses may lead to a narcotic effect.
The product is skin resorptive.

Endocrine disrupting properties, Results of PBT and vPvB assessment:

CAS 128-37-0 3,5-Di-tert-butyl-4-hydroxytoluene: list II

SECTION 3: Composition/information on ingredients

3.1 Substances: not applicable

3.2 Mixtures

Chemical characterisation: Blend of active ingredients with propellant.

Hazardous ingredients:

Identifiers	Designation Classification	Content
REACH 01-2119473851-33-xxxx list no. 920-750-0	Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics Flam. Liq. 2; H225. STOT SE 3; H336. Asp. Tox. 1; H304. Aquatic Chronic 2; H411. (EUH066).	10 - 25 %
EC No. 203-692-4 CAS 109-66-0	Pentane Flam. Liq. 2; H225. STOT SE 3; H336. Asp. Tox. 1; H304. Aquatic Chronic 2; H411. (EUH066).	10 - 25 %
REACH 01-2119487080-42-xxxx EC No. 265-174-4 CAS 64742-70-7	Paraffin oils (petroleum), catalytic dewaxed heavy Asp. Tox. 1; H304.	2.5 - 10 %
EC No. 231-159-6 CAS 7440-50-8	Copper Acute Tox. 4; H302. Acute Tox. 3; H331. Eye Irrit. 2; H319. Aquatic Acute 1; H400. Aquatic Chronic 1; H410. M-factors: Aquatic Chronic 1: M = 10.	< 10 %
REACH 01-2119474691-32-xxxx EC No. 203-448-7 CAS 106-97-8	n-Butane , <0,1% Butadiene Flam. Gas 1; H220. Press. Gas (Comp.); H280.	10 - 25 %
REACH 01-2119486944-21-xxxx EC No. 200-827-9 CAS 74-98-6	Propane Flam. Gas 1; H220. Press. Gas (Comp.); H280.	10 - 25 %
REACH 01-2119485395-27-xxxx EC No. 200-857-2 CAS 75-28-5	i-Butane, <0,1% Butadiene Flam. Gas 1; H220. Press. Gas (Comp.); H280.	2.5 - 10 %

Full text of H- and EUH-statements: see section 16.

Additional information: Contains: 3,5-Di-tert-butyl-4-hydroxytoluene. The maximum workplace exposure limits are, where necessary, listed in section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information: If medical advice is needed, have product container or label at hand.

In case of inhalation: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Seek medical treatment in case of troubles.

Following skin contact: Immediately clean with water and soap followed by thorough rinsing. Take off contaminated clothing and wash it before reuse.
In case of skin reactions, consult a physician.

After eye contact: Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing. Subsequently consult an ophthalmologist.

After swallowing: Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Do not induce vomiting. Immediately get medical attention.

4.2 Most important symptoms and effects, both acute and delayed

May cause drowsiness or dizziness.
May be fatal if swallowed and enters airways.
Repeated exposure may cause skin dryness or cracking.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: Water mist, alcohol resistant foam, Extinguishing powder, Carbon dioxide.

Extinguishing media which must not be used for safety reasons:

full water jet

5.2 Special hazards arising from the substance or mixture

Extremely flammable aerosol. Pressurised container: May burst if heated.
May form dangerous gases and vapours in case of fire. Furthermore, there may develop: carbon monoxide and carbon dioxide.

5.3 Advice for firefighters

Special protective equipment for firefighters:

Wear self-contained positive pressure breathing apparatus and full firefighting protective clothing.

Additional information: Hazchem-Code: -

Heating will lead to pressure increase: Danger of bursting and explosion.
Move undamaged containers from immediate hazard area if it can be done safely.
In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid breathing vapours/spray. Avoid contact with the substance.
In case of leakage, eliminate all ignition sources. Provide adequate ventilation.
Wear appropriate protective equipment. Take off contaminated clothing and wash it before reuse. Keep unprotected people away.
Cordon off downwind area at risk and warn inhabitants.

6.2 Environmental precautions

Do not allow to enter into ground-water, surface water or drains. Danger of explosion!
In case of release, notify competent authorities.

6.3 Methods and material for containment and cleaning up

Isolate leaked material using non-flammable absorption agent (e.g. sand, earth, vermiculit, diatomaceous earth) and collect it for disposal in appropriate containers in accordance with the local regulations (see section 13).
Thoroughly clean surrounding area.
Do not remove residual product with water and detergent.
In case of greater quantities: Collect mechanically (use only explosion-proof equipment when pumping out).

6.4 Reference to other sections

Refer additionally to section 8 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advices on safe handling: Provide adequate ventilation, and local exhaust as needed. Avoid breathing vapours/spray. Do not get in eyes, on skin, or on clothing. Wear appropriate protective equipment.
Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.
Take off contaminated clothing and wash it before reuse.
Guarantee sufficient ventilation during and after use, in order to prevent vapour accumulation.
Have eye wash bottle or eye rinse ready at work place. When handling large quantities, supply emergency spray.

Precautions against fire and explosion:
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not pierce or burn, even after use. Do not spray on an open flame or other ignition source. When handling larger quantities, take precautionary measures against electrostatic charging.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storerooms and containers:
Keep container tightly closed and in a well-ventilated place.
Keep container dry. Keep only in the original container.
Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.
Store containers in upright position. Keep in a cool place.

Hints on joint storage: Keep away from food, drink and animal feedingstuffs.

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values:

CAS No.	Designation	Type	Limit value
-	Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics	Great Britain: WEL-TWA	1200 mg/m³ (> or = C7, Normal and branched chain alkanes)
		Great Britain: WEL-TWA	800 mg/m³ (> or = C7, Cycloalkanes)
109-66-0	Pentane	Great Britain: WEL-TWA	1800 mg/m³; 600 ppm
7440-50-8	Copper	Great Britain: WEL-STEL	2 mg/m³ (Dusts and mist calculated as Cu)
		Great Britain: WEL-TWA	0.2 mg/m³ (Smoke)
		Great Britain: WEL-TWA	1 mg/m³ (Dusts and mist calculated as Cu)
106-97-8	n-Butane , <0,1% Butadiene	Great Britain: WEL-STEL	1810 mg/m³; 750 ppm
		Great Britain: WEL-TWA	1450 mg/m³; 600 ppm
128-37-0	3,5-Di-tert-butyl-4-hydroxytoluene	Great Britain: WEL-TWA	10 mg/m³

DNEL/DMEL:

Information about Pentane:
DNEL consumers, long-term, systemic, oral: 214 mg/kg bw/d
DNEL workers, long-term, systemic, dermal: 432 mg/kg bw/d
DNEL consumers, long-term, systemic, dermal: 214 mg/kg bw/d
DNEL workers, long-term, systemic, inhalative: 3,000 mg/m³
DNEL consumers, long-term, systemic, inhalative: 643 mg/m³

Information about Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics:
DNEL long-term, consumers, oral, systemic: 699 mg/kg bw/d
DNEL long-term, consumers, dermal, systemic: 699 mg/kg bw/d
DNEL long-term, workers, dermal, systemic: 773 mg/kg bw/d
DNEL long-term, workers, inhalative, systemic: 2,035 mg/m³
DNEL long-term, consumers, inhalative, systemic: 608 mg/m³

Information about Copper:
DNEL consumers, long-term, systemic, oral: 0.041 mg/kg bw/d
DNEL workers, long-term, systemic, dermal: 137 mg/kg bw/d
DNEL consumers, short-term, systemic, dermal: 273 mg/kg bw/d

PNEC:

Information about Copper:
PNEC water (freshwater): 0.0078 mg/L
PNEC water (marine water): 0.0052 mg/L
PNEC sediment (freshwater): 87 mg/kg dw
PNEC sediment (marine water): 676 mg/kg dw
PNEC soil: 65,500 mg/kg dw
PNEC sewage treatment plant: 0.23 mg/L

8.2 Exposure controls

Provide good ventilation and/or an exhaust system in the work area.

Personal protection equipment

Occupational exposure controls

Respiratory protection:

In case of inadequate ventilation wear respiratory protection. Respiratory protection must be worn whenever the WEL levels have been exceeded.
Recommendation: Use combination filter type A2/P2 according to EN 14387.
The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, self-contained breathing apparatus must be used.

Hand protection:

Protective gloves according to EN 374.
Glove material: Nitrile rubber - Layer thickness: >= 0.5 mm.
Breakthrough time: > 480 min.
Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

Eye protection:

Tightly sealed goggles according to BS EN ISO 16321-1:2022.

Body protection:

Flame retardant, antistatic and chemical resistant protective clothing.

General protection and hygiene measures:

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Do not pierce or burn, even after use. Do not spray on an open flame or other ignition source.
Avoid breathing vapours/spray. Do not get in eyes, on skin, or on clothing.
When using do not eat or drink. Contaminated work clothing should not be allowed out of the workplace. Wash hands thoroughly after handling. Take off contaminated clothing and wash it before reuse.
Have eye wash bottle or eye rinse ready at work place. When handling large quantities, supply emergency spray.

Environmental exposure controls

See subsection 6.2

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	Physical state at 20 °C and 101.3 kPa: liquid Form: Aerosol Colour: Varying colours
Odour:	Characteristic
Odour threshold:	No data available
pH:	No data available
Melting point/freezing point:	No data available
Initial boiling point and boiling range:	-44.5 °C
Flash point/flash point range:	2 °C
Evaporation rate:	No data available
Flammability:	Extremely flammable aerosol.
Explosion limits:	LEL (Lower Explosion Limit): 0.70 Vol-% UEL (Upper Explosive Limit): 7.00 Vol-%
Vapour pressure:	at 20 °C: 30 hPa
Vapour density:	No data available
Density:	0.704 kg/L
Water solubility:	Not/slightly miscible
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	Not self-igniting. In contact with water releases flammable gases which may ignite spontaneously.
Decomposition temperature:	No data available
Viscosity, kinematic:	at 40 °C: < 20.5 mm²/s
Explosive properties:	Vapours can form explosive mixtures with air.
Oxidizing characteristics:	No data available

9.2 Other information

Ignition temperature:	> 200 °C
Solvent content:	72.4 %
Solid content:	78.0 %

SECTION 10: Stability and reactivity

10.1 Reactivity

Extremely flammable aerosol.
Vapours can form explosive mixtures with air.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Pressurised container: May burst if heated.
In contact with water releases flammable gases which may ignite spontaneously.

10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not pierce or burn, even after use. Do not spray on an open flame or other ignition source. Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.
Protect from moisture contamination.

10.5 Incompatible materials

Water

10.6 Hazardous decomposition products

No decomposition when used properly.

Thermal decomposition: No data available

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity:
LD50 Rat, oral: 3483 - 29022 mg/kg
LC50 Rat, inhalative: 59.3 mg/l/4h

Toxicological effects: The statements are derived from the properties of the single components. No toxicological data is available for the product as such.

Acute toxicity (oral): Based on available data, the classification criteria are not met.

Acute toxicity (dermal): Based on available data, the classification criteria are not met.

Acute toxicity (inhalative): Based on available data, the classification criteria are not met.

Skin corrosion/irritation: Based on available data, the classification criteria are not met.

Serious eye damage/irritation: Based on available data, the classification criteria are not met.

Sensitisation to the respiratory tract: Based on available data, the classification criteria are not met.

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

Germ cell mutagenicity/Genotoxicity: Based on available data, the classification criteria are not met.

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

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

Effects on or via lactation: Lack of data.

Specific target organ toxicity (single exposure): STOT SE 3; H336 = May cause drowsiness or dizziness.

Specific target organ toxicity (repeated exposure): Based on available data, the classification criteria are not met.

Aspiration hazard: Asp. Tox. 1; H304 = May be fatal if swallowed and enters airways.

Other information:
Information about Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics:
LD50 Rat, oral: > 5,840 mg/kg bw
LD50 Rabbit, dermal: > 2,920 mg/kg bw
LC50 Rat, inhalative: > 23.3 mg/L/4h

Information about Pentane:
LD50 Rat, oral: > 5,000 mg/kg

Information about Paraffin oils (petroleum), catalytic dewaxed heavy:
LD50 Rat, oral: > 5,000 mg/kg bw
LD50 Rabbit, dermal: > 2,000 mg/kg bw
LC50 Rat, inhalative: > 5 mg/L/4h

Information about Copper:
LD50 Rat, oral: 300 - 2,500 mg/kg bw
NOAEL Rat, oral: 16.7 mg/kg/d
LD50 Rabbit, dermal: > 2,000 mg/kg bw
LC50 Rat, inhalative: 5.11 mg/L/4h

Symptoms

Inhaling can lead to irritations of the respiratory tract and mucous membrane.
Higher doses may lead to a narcotic effect.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity: Very toxic to aquatic life with long lasting effects.

Information about Pentane:
Fish toxicity:
LC50 Oncorhynchus mykiss: 4.26 mg/L/96h
Daphnia toxicity:
EC50 Daphnia magna (Big water flea): 2.7 mg/L/48h
Algae toxicity:
EC50 Pseudokirchneriella subcapitata (green algae): 10.7 mg/L/72h
NOEC Pseudokirchneriella subcapitata (green algae): 2.04 mg/L/72h

Information about Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics:
Fish toxicity:
LC50 Oncorhynchus mykiss: 3 - 10 mg/L/96h
NOEC Oncorhynchus mykiss: 0.574 mg/L/28d
Daphnia toxicity:
EC50 Daphnia magna (Big water flea): 4.6 - 10 mg/L/48h
NOEC Daphnia magna (Big water flea): 1 mg/L/21d

Information about Copper:
Fish toxicity:
LC50: 2 mg/L/96h

12.2 Persistence and degradability

Further details: Product is not readily biodegradable.

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water:
No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

No data available

12.6 Other adverse effects

General information: Do not allow to enter into ground-water, surface water or drains.
Avoid spills and leaks. Very small amounts contaminates drinking water.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste key number: 16 05 04* = Gases in pressure containers (including halons) containing hazardous substances/Aerosol
* = Evidence for disposal must be provided.

Recommendation: Do not pierce or burn, even after use.
Special waste. Dispose of waste according to applicable legislation.
Do not dispose of with household waste.

Package

Recommendation: Dispose of waste according to applicable legislation.
Empty carefully and completely, if possible. Handle empty containers with care. Incineration may cause explosion.

SECTION 14: Transport information

14.1 UN number

ADR/RID, IMDG, IATA-DGR: UN 1950

14.2 UN proper shipping name

ADR/RID: UN 1950, AEROSOLS
IMDG: UN 1950, AEROSOLS (Pentane Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics), MARINE POLLUTANT
IATA-DGR: UN 1950, AEROSOLS, FLAMMABLE

14.3 Transport hazard class(es)

ADR/RID: Class 2, Code: 5F
IMDG: Class 2.1, Subrisk -
IATA-DGR: Class 2.1

14.4 Packing group

ADR/RID, IATA-DGR: not applicable
IMDG: -

14.5 Environmental hazards

Marine pollutant: yes

14.6 Special precautions for user

Land transport (ADR/RID)

Warning board: RID: Kemmler-number 23, UN number UN 1950
Hazard label: 2.1
Special Provisions: 190 327 344 625
Limited quantities: 1 L
EQ: E0
Package - Instructions: P207 LP200
Package - Special Provisions: PP87 RR6 L2
Special provisions for packing together: MP9
Tunnel restriction code: D

Sea transport (IMDG)

EmS:	F-D, S-U
Special Provisions:	63 190 277 327 344 381 959
Limited quantities:	1000 mL
Excepted quantities:	E0
Package - Instructions:	P207, LP200
Package - Provisions:	PP87, L2
IBC - Instructions:	-
IBC - Provisions:	-
Tank instructions - IMO:	-
Tank instructions - UN:	-
Tank instructions - Provisions:	-
Stowage and handling:	SW1 SW22
Segregation:	SG69
Properties and observations:	-
Segregation group:	none

Air transport (IATA)

Hazard label:	Flamm. gas
Excepted Quantity Code:	E0
Passenger and Cargo Aircraft: Ltd.Qty.:	Pack.Instr. Y203 - Max. Net Qty/Pkg. 30 kg G
Passenger and Cargo Aircraft:	Pack.Instr. 203 - Max. Net Qty/Pkg. 75 kg
Cargo Aircraft only:	Pack.Instr. 203 - Max. Net Qty/Pkg. 150 kg
Special Provisions:	A145 A167 A802
Emergency Response Guide-Code (ERG):	10L

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

No data available

SECTION 15: Regulatory information

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

National regulations - Great Britain

Hazchem-Code: -

No data available

National regulations - EC member states

Further regulations, limitations and legal requirements:

Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances [Seveso-III-Directive]
Physical hazards: Code P3a, Quantity threshold 150 000 kg / 500 000 kg
Environmental hazards: Code E1, Quantity threshold 100 000 kg / 200 000 kg
Other hazards: Code O2, Quantity threshold 100 000 kg / 500 000 kg

Use restriction according to REACH annex XVII, no.: 3, 40, 75
Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances [Seveso-III-Directive]: P3a, O2, E2

15.2 Chemical Safety Assessment

For this mixture a chemical safety assessment is not required.

SECTION 16: Other information

Further information

Wording of the H-phrases under paragraph 2 and 3:

H220 = Extremely flammable gas.
H222 = Extremely flammable aerosol.
H225 = Highly flammable liquid and vapour.
H229 = Pressurised container: May burst if heated.
H260 = In contact with water releases flammable gases which may ignite spontaneously.
H280 = Contains gas under pressure; may explode if heated.
H302 = Harmful if swallowed.
H304 = May be fatal if swallowed and enters airways.
H319 = Causes serious eye irritation.
H331 = Toxic if inhaled.
H336 = May cause drowsiness or dizziness.
H400 = Very toxic to aquatic life.
H410 = Very toxic to aquatic life with long lasting effects.
H411 = Toxic to aquatic life with long lasting effects.
EUH066 = Repeated exposure may cause skin dryness or cracking.

Abbreviations and acronyms:

Acute Tox.: Acute toxicity
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
Aerosol: Aerosol
Aquatic Acute: Hazardous to the aquatic environment - acute
Aquatic Chronic: Hazardous to the aquatic environment - chronic
AS/NZS: Australian Standards/New Zealand Standards
Asp. Tox.: Aspiration toxicity
CAS: Chemical Abstracts Service
CFR: Code of Federal Regulations
CLP: Classification, Labelling and Packaging
DMEL: Derived minimal effect level
DNEL: Derived no-effect level
EC: European Community
EC50: Effective Concentration 50%
EN: European Standard
EQ: Excepted quantities
EU: European Union
Eye Irrit.: Eye irritation
Flam. Gas: Flammable gases
Flam. Liq.: Flammable liquid
IATA: International Air Transport Association
IATA-DGR: International Air Transport Association – Dangerous Goods Regulations
IBC Code: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IMDG Code: International Maritime Dangerous Goods Code
LC50: Median lethal concentration
LD50: Lethal dose 50%
LEL: Lower Explosion Limit
MARPOL: Maritime Pollution: The International Convention for the Prevention of Pollution from Ships
M-factor: Multiplication factor
NOAEL: No Observed Adverse Effect Level
NOEC: No Observed Effect Concentration
OEL: Occupational Exposure Limit Value
OSHA: Occupational Safety and Health Administration
PBT: Persistent, bioaccumulative and toxic
PNEC: Predicted no-effect concentration
Press. Gas: Gases under pressure
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
RID: Regulations Concerning the International Carriage of Dangerous Goods by Rail
STOT SE: Specific target organ toxicity - single exposure
TLV: Threshold Limit Value
TRGS: Technical Rules for Hazardous Substances
UN: United Nations
vPvB: Very persistent and very bioaccumulative
Water-react.: Water-reactive
WEL: Workplace Exposure Limit

Date of first version: 4/10/2021

Department issuing data sheet

Contact person: see section 1: Department responsible for information

The information in this data sheet has been established to our best knowledge and was up-to-date at time of revision. It does not represent a guarantee for the properties of the product described in terms of the legal warranty regulations.