SAMPLE d-Limonene 95 %

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

1.1. Product identifier

Product name	**SAMPLE d-Limonene 95 %**
Product code	SAMPLE-LIM-95

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

Identified use	Industrial and professional use as a solvent and fragrance ingredient (sample product for illustration).
Uses advised against	Uses other than those recommended.

1.3. Details of the supplier of the safety data sheet

Manufacturer	Example Chemicals Ltd.
Address	12 Sample Street, D02 X000 Dublin, Ireland
Phone	+353 1 000 0000
E-mail	sds@example.com
Website	www.example.com
Person responsible for SDS	Example Chemicals Ltd.
E-mail	sds@example.com

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1.4. Emergency telephone number

Emergency telephone number: +353 1 809 2166

Emergency information: National Poisons Information Centre, Beaumont Hospital, Dublin: Public line +353 1 809 2166 (8am-10pm, 7 days); Healthcare professionals +353 1 809 2566 (24 hours)

Operating hours: Public 08:00-22:00 daily; HCP line 24/7

2 SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Flam. Liq. 3, H226

Asp. Tox. 1, H304

Skin Irrit. 2, H315

Skin Sens. 1B, H317

Aquatic Acute 1, H400

Aquatic Chronic 3, H412

Most important health and environmental effects:

May be fatal if swallowed and enters airways.

Causes skin irritation.

May cause an allergic skin reaction.

Very toxic to aquatic life.

Harmful to aquatic life with long lasting effects.

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2.2. Label elements

Hazard pictograms:



Signal word: **Danger**

Hazard statements:

H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H400	Very toxic to aquatic life.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statements:

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261	Avoid breathing dust/fume/gas/mist/vapours/ spray.
P273	Avoid release to the environment.
P280	Wear protective gloves.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor/ ….
P302+P352	IF ON SKIN: Wash with plenty of water/….
P331	Do NOT induce vomiting.
P391	Collect spillage.

Hazardous substances:

(R)-p-mentha-1,8-diene

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2.3. Other hazards

The substance does not meet the criteria for persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB) substances (Regulation (EC) No 1907/2006, Annex XIII).

The substance is not identified as having endocrine disrupting properties according to the criteria of Regulation (EU) 2017/2100 or (EU) 2018/605.

The substance does not meet the criteria for persistent, mobile and toxic (PMT) or very persistent and very mobile (vPvM) substances (Regulation (EC) No 1272/2008, Annex I).

The substance is not identified as having endocrine disrupting properties for the environment according to the criteria of Regulation (EU) 2017/2100 or (EU) 2018/605.

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3 SECTION 3: Composition/information on ingredients

3.1. Substances

d-Limonene

Identification numbers	Substance name	Concentration (w/w %)	Classification	Specific concentration limits, M-factors, ATE	Notes
CAS: 5989-27-5 EC: 227-813-5 Index: 601-096-00-2	(R)-p-mentha-1,8-diene	95 - 100	Flam. Liq. 3, H226 Asp. Tox. 1, H304 Skin Irrit. 2, H315 Skin Sens. 1B, H317 Aquatic Acute 1, H400 Aquatic Chronic 3, H412	M=1 (acute)	-

Full text of all classifications and standard hazard statements can be found in section 16.

4 SECTION 4: First aid measures

4.1. Description of first aid measures

General information: First aiders must be protected with appropriate personal protective equipment. In case of doubt or persistent symptoms, seek medical attention. Show the data sheet or label to the physician. The affected person must not be left unattended. In case of unconsciousness: place in the recovery position. In case of vomiting, keep the head low so that vomit does not enter the airways.

If inhaled: Move affected person to fresh air. If symptoms persist, seek medical attention.

If on skin: Remove contaminated clothing. Wash skin with soap and plenty of water. Seek medical advice if allergic reaction occurs.

If in eyes: Rinse eyes with plenty of water for at least 15 minutes. Remove contact lenses

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if easy to do.

If swallowed: Rinse mouth. Do NOT induce vomiting - aspiration hazard! Immediate medical attention.

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

If inhaled: No symptoms expected.

If on skin: Causes skin irritation. May cause an allergic skin reaction.

If in eyes: May cause mild irritation.

If swallowed: May be fatal if swallowed and enters airways.

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

Medical attention: In case of allergic skin reaction: Seek medical advice. Inform the doctor about the sensitising properties of the substance. No specific antidote is known. Symptomatic treatment is recommended. Show the safety data sheet or the label to the doctor. If necessary, call the POISON CENTER or consult a doctor.

5 SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media: Foam, CO2, dry powder, water spray.

Unsuitable extinguishing media: For safety reasons, do not use full water jet for firefighting as it may cause the fire to spread.

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5.2. Special hazards arising from the substance or mixture

Risk of container rupture due to increased vapour pressure when heated. Toxic and/or irritating vapours and gases may form in case of fire. Thermal decomposition products: Thermal decomposition may produce carbon monoxide (CO), carbon dioxide (CO_2) and irritating vapours.

5.3. Advice for firefighters

Firefighters must wear self-contained breathing apparatus (EN 137) and heat-resistant full protective equipment (EN 469). Cool containers exposed to fire with water spray from a safe distance. Evacuate the danger zone. Only trained personnel should fight the fire.

Collect contaminated extinguishing water and dispose of it in accordance with environmental regulations. Do not allow to enter drains or watercourses. DO NOT inhale smoke! Move upwind of the fire. Extinguishing water must not be discharged directly into drains as it may cause environmental contamination.

6 SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Do not touch or walk through spilled material. Avoid breathing vapours. Ensure adequate ventilation. Use personal protective equipment (see Section 8). Remove unauthorised persons from the area. If necessary, wear self-contained breathing apparatus (SCBA) and full chemical protective clothing.

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6.2. Environmental precautions

Stop the leak if this can be done without risk. Prevent release to the environment. Collect spilled product in a closed container. Treat as hazardous waste. Prevent entry of spilled material into watercourses, drains or soil.

6.3. Methods and material for containment and cleaning up

In case of small spill: absorb with inert material (sand, vermiculite, diatomaceous earth) and place in a closed container.

In case of large spill: prevent spread of spilled material. Block drains and gullies.

Absorb spilled liquid with inert material (e.g. sand, vermiculite). Collect contaminated material in suitable containers for disposal.

The contaminated area must be rinsed with plenty of water. The contaminated wash water must be collected and must not be discharged into drains, surface water or groundwater. The collected wash water must be handed over to an authorized waste handler in accordance with applicable waste management regulations.

6.4. Reference to other sections

For personal protective equipment, see Section 8. For disposal, see Section 13.

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7 SECTION 7: Handling and storage

7.1. Precautions for safe handling

General occupational health and safety measures for handling chemicals must be observed. Do not eat, drink or smoke in the workplace. Take fire prevention measures. Use non-sparking tools. Apply antistatic measures.

7.2. Conditions for safe storage, including any incompatibilities

Store in original packaging, tightly closed, in a dry, cool and well-ventilated place. Protect from direct sunlight. Store away from heat, open flames, sparks and other ignition sources.

7.3. Specific end use(s)

See section 1.2.

8 SECTION 8: Exposure controls/personal protection

8.1. Control parameters

National occupational exposure limits - expert review required.

DNEL values:

No data available.

PNEC values:

No data available.

Monitoring procedures: Workplace exposure should be monitored - where necessary - taking into account the conditions of use and the applicable exposure limit values. The

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standards EN 689 and EN 482 may be applied for measuring airborne contaminants.

8.2. Exposure controls

Appropriate engineering controls: Ensure adequate ventilation. Where ventilation is insufficient, apply local exhaust ventilation.

General protective and hygiene measures: Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be taken out of the workplace. Avoid contact with skin, eyes and clothing.

Eye/face protection: Safety goggles according to EN 166. Wear safety goggles (EN 166). In case of splash risk, wear face shield.

Skin protection

a) Hand protection: Gloves must comply with EN 374. The glove material must be impermeable and resistant to chemicals. When selecting glove material, consider breakthrough time, permeation rate and degradation. Consult the glove supplier for advice. Replace gloves if damaged or punctured.

b) Body protection: Wearing protective clothing is recommended.

Respiratory protection: Ensure adequate ventilation.

Environmental exposure controls: Prevent release to the environment. Observe applicable local environmental regulations. Do not allow to enter drains, sewers or watercourses.

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9 SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

a) Physical state	Liquid
b) Colour	colourless
c) Odour	citrus
d) Melting point/freezing point (°C)	-74 °C
e) Boiling point or initial boiling point and boiling range (°C)	176 °C
f) Flammability	Flammable liquid (Flam. Liq. 3, H226)
g) Upper and lower explosive limits	not determined
h) Flash point (°C)	48 °C (closed cup)
i) Auto-ignition temperature (°C)	not determined
j) Decomposition temperature (°C)	not determined
k) pH	Not applicable
l) Kinematic viscosity	approx. 1 mm^2/s (40 °C)
m) Solubility	13.8 mg/l (25 °C)
n) Partition coefficient: n-octanol/water (log value)	log Kow 4.38
o) Vapour pressure	1.9 hPa (20 °C)
p) Density and/or relative density	
Relative density	0.84 (20 °C)
q) Relative vapour density	not determined
r) Particle characteristics	not determined

Not determined / no data available / not relevant: The manufacturer has not conducted tests for the parameter concerned for this product, or the test results are not available at the time of issuing the safety data sheet, or it is not relevant due to the nature of the product.

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9.2. Other information

No further relevant information.

10 SECTION 10: Stability and reactivity

10.1. Reactivity

The product is stable under the recommended storage and use conditions.

10.2. Chemical stability

The product is stable under the recommended storage and use conditions.

10.3. Possibility of hazardous reactions

No hazardous reactions are known under normal storage and use conditions.

10.4. Conditions to avoid

Extreme temperatures, direct sunlight, moisture.

10.5. Incompatible materials

Strong oxidisers, strong acids, strong bases.

10.6. Hazardous decomposition products

No hazardous decomposition products are formed under the recommended storage and use conditions.

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11 SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity:

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

Skin corrosion/irritation:

Causes skin irritation.

Serious eye damage/eye irritation:

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

Respiratory/skin sensitisation:

May cause an allergic skin reaction.

Germ cell mutagenicity:

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.

STOT - single exposure:

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

STOT - repeated exposure:

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

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Aspiration hazard:

May be fatal if swallowed and enters airways.

Additional data:

The above classification is based on the harmonised classification of Regulation (EC) No 1272/2008, Annex VI, where applicable, and on available data on the substance.

11.2. Information on other hazards

Endocrine disrupting properties:

The substance is not identified as having endocrine disrupting properties according to the criteria of Regulation (EU) 2017/2100 or (EU) 2018/605.

Other information:

Classification is based on available toxicological data on the substance and the criteria of Regulation (EC) No 1272/2008.

12 SECTION 12: Ecological information

12.1. Toxicity

Ecological information is based on available data on the substance.

Very toxic to aquatic life.

Harmful to aquatic life with long lasting effects.

Very toxic to aquatic life.

Harmful to aquatic life with long lasting effects.

SAMPLE - NOT VALID

12.2. Persistence and degradability

Persistence and degradability: Insufficient data for assessment of degradability.

12.3. Bioaccumulative potential

Bioaccumulative potential: Insufficient data for assessment of bioaccumulation.

12.4. Mobility in soil

The substance does not meet the criteria for persistent, mobile and toxic (PMT) or very persistent and very mobile (vPvM) substances (Regulation (EC) No 1272/2008, Annex I).

12.5. Results of PBT and vPvB assessment

The substance does not meet the criteria for persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB) substances (Regulation (EC) No 1907/2006, Annex XIII).

12.6. Endocrine disrupting properties

The substance is not identified as having endocrine disrupting properties for the environment according to the criteria of Regulation (EU) 2017/2100 or (EU) 2018/605.

12.7. Other adverse effects

Other adverse effects: Based on available data, no other adverse environmental effects are expected.

SAMPLE - NOT VALID

13 SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste generation should be avoided or minimised wherever possible.

Product residue: dispose of in accordance with applicable local, regional, national and international regulations. Incineration or landfill should only be considered when recycling is not feasible.

Packaging: empty containers should be collected for recycling, or handed over to an authorised waste management organisation for disposal.

Waste codes should be assigned by the user based on the application for which the product was used.

Legal regulations on waste:

EU regulations:

- Directive 2008/98/EC on waste
- Decision 2014/955/EU on the list of waste
- Regulation (EU) 2025/40 on packaging and packaging waste

SAMPLE - NOT VALID

14 SECTION 14: Transport information

14.1. UN number or ID number

UN number: UN 2052

14.2. UN proper shipping name

DIPENTENE

14.3. Transport hazard class(es)

Class: 3

14.4. Packing group

III

14.5. Environmental hazards

Environmental hazard: Yes

Marine pollutant: Yes

14.6. Special precautions for user

Avoid damage to the packaging. Follow standard industrial hygiene and safety practices during transport. Mode-specific transport data (ADR/RID/IMDG/IATA) is listed in the subsections above and in the Supplementary information block.

14.7. Maritime transport in bulk according to IMO instruments

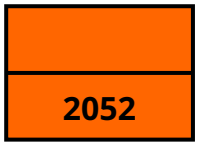
Not applicable.

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SAMPLE d-Limonene 95 %

Supplementary information

UN number	UN 2052
Classification code	F1
Labels	3



Road transport

Class	3
Classification code	F1
Packing group	III
Labels	3
Limited quantity	5 L
Excepted quantity	E1
Transport category	3
Tunnel restriction code	(D/E)

ADR tank

Transport category	3
Tunnel restriction code	(D/E)

Rail transport - RID

Class	3
Classification code	F1
Packing group	III
Limited quantity	5 L
Excepted quantity	E1
Transport category	3

Air transport ICAO/IATA

Class	3
Packing group	III
Labels	3

Sea transport - IMDG

Class	3
Packing group	III
Labels	3
Limited quantity	5 L
Excepted quantity	E1
Marine pollutant	Yes

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Inland waterway transport - ADN

Class	3
Classification code	F1
Packing group	III

15 SECTION 15: Regulatory information

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

Chemical safety:

- Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH) Concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
- Commission Regulation (EU) 2020/878 On the format of safety data sheets (amendment to REACH Annex II)
- Regulation (EC) No 1272/2008 of the European Parliament and of the Council (CLP) On classification, labelling and packaging of substances and mixtures
- S.I. No. 116/2012 European Communities (REACH) Enforcement Regulations

Occupational safety:

- Regulation (EU) 2016/425 on personal protective equipment
- 2004/37/EC Directive on the protection of workers from risks related to exposure to carcinogens or mutagens at work
- S.I. No. 619/2010 Chemical Agents Regulations Irish regulations implementing the chemical agents directive

Hazardous waste:

- Directive 2008/98/EC of the European Parliament and of the Council on waste (Waste Framework Directive)

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- Commission Decision 2014/955/EU amending Decision 2000/532/EC on the list of waste (European List of Waste)
- Waste Management Act 1996 (as amended)

Transport:

- ADR 2025 - European Agreement concerning the International Carriage of Dangerous Goods by Road

Other:

- REACH Annex XIV: Does not contain substance(s) listed in Annex XIV of REACH at a concentration equal to or greater than 0.1%.
- REACH SVHC: Does not contain SVHC or substance(s) on the REACH Candidate List at a concentration equal to or greater than 0.1%.
- PIC Regulation (Prior Informed Consent): Does not contain substance(s) on the PIC list (Regulation (EU) No 649/2012 on the export and import of hazardous chemicals) at a concentration equal to or greater than 0.1%.
- POP Regulation (Persistent Organic Pollutants): Does not contain substance(s) on the POP list at a concentration equal to or greater than 0.1% (Regulation (EU) 2019/1021 on persistent organic pollutants).
- Regulation (EU) 2024/590 of the European Parliament and of the Council of 7 February 2024 on substances that deplete the ozone layer and repealing Regulation (EC) No 1005/2009: Does not contain substance(s) listed in the EU regulation on ozone-depleting substances at a concentration equal to or greater than 0.1%.
- Regulation on explosives precursors (2019/1148): Does not contain substance(s) on the list of explosives precursors at a concentration equal to or greater than 0.1% (Regulation (EU) 2019/1148 on the marketing and use of explosives precursors).
- Regulation on drug precursors: Does not contain substance(s) on the list of drug precursors at a concentration equal to or greater than 0.1% (Regulation (EC) No 273/2004).
- The substance is not included in the EU list of endocrine disruptors.
- Directive 2012/18/EU (SEVESO III) may apply to this product. Check threshold quantities.

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- REACH Annex XVII (Restriction List): contains substance(s) listed in Annex XVII of REACH at a concentration equal to or greater than 0.1%:

Substance name	Restrictions	Conditions of restriction
(R)-p-mentha-1,8-diene	3	Liquid substances or mixtures which are regarded as meeting the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: (a) hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F; (b) hazard classes 3.1 to 3.6, 3.7 (adverse effects on sexual function and fertility or on development), 3.8 (effects other than narcotic effects), 3.9 and 3.10; (c) hazard class 4.1; (d) hazard class 5.1. 1. Shall not be used in: — ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays, — tricks and jokes, — games for one or more participants, or any article intended to be used as such, even with ornamental aspects. 2. Articles not complying with paragraph 1 shall not be placed on the market. 3. Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, if they: — can be used as fuel in decorative oil lamps for supply to the general public, and — present an aspiration hazard and are labelled with H304. 4. Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted by the European Committee for Standardisation (CEN).

15.2. Chemical safety assessment

A chemical safety assessment has not been carried out for this substance by the supplier.

SAMPLE - NOT VALID

16 SECTION 16: Other information

Explanation of abbreviations used in the safety data sheet:

Acute Tox.	Acute toxicity
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
Asp. Tox.	Aspiration toxicity
ATE	Acute Toxicity Estimate
Aquatic Acute	Hazardous to the aquatic environment (acute)
Aquatic Chronic	Hazardous to the aquatic environment (chronic)
BCF	Bioconcentration Factor
Carc.	Carcinogenicity
CAS No.	Chemical Abstracts Service identification number for chemical substances
EC No.	European Community identification number
EmS	Emergency procedures for ships carrying dangerous goods
Eye Dam.	Serious eye damage
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquid
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
IMO	International Maritime Organization
INCI	International Nomenclature of Cosmetic Ingredients
ISO	International Organization for Standardization
LC_{50}	Lethal Concentration that kills 50% of test organisms
LD_{50}	Lethal Dose that kills 50% of test organisms
log Kow	Partition coefficient: n-octanol/water
Met. Corr.	Substance or mixture corrosive to metals
Muta.	Germ cell mutagenicity
NOEC	No Observed Effect Concentration

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OEL	Occupational Exposure Limit
PBT	Persistent, Bioaccumulative and Toxic
PMT	Persistent, Mobile and Toxic
Repr.	Reproductive toxicity
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
Skin Corr.	Skin corrosion
Skin Irrit.	Skin irritation
Skin Sens.	Skin sensitisation
STOT RE	Specific Target Organ Toxicity – Repeated Exposure
STOT SE	Specific Target Organ Toxicity – Single Exposure
UN No.	Four-digit UN identification number for substances and articles
UVCB	Substances of Unknown or Variable composition, Complex reaction products or Biological materials
VOC	Volatile Organic Compound
vPvB	very Persistent and very Bioaccumulative
vPvM	very Persistent and very Mobile

Sources of information used in compiling the safety data sheet:

- Data from the product manufacturer
- Data from the manufacturers of raw materials used in product manufacturing
- Data available on the ECHA website (registration data, classification and labelling data) in the ECHA CHEM database (chem.echa.europa.eu)
- Annex VI of Regulation (EC) No 1272/2008 (CLP) on classification, labelling and packaging of substances and mixtures (Harmonised classification and labelling of hazardous substances)

Classification procedure:

The classification was performed by applying the classification criteria set out in Annex I of Regulation (EC) No 1272/2008.

List of hazard statements used in the safety data sheet:

H226	Flammable liquid and vapour.

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H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H400	Very toxic to aquatic life.
H412	Harmful to aquatic life with long lasting effects.

Training advice:

Workers must be provided with training on the intended and recommended use of the product, the mandatory use of personal protective equipment, first aid procedures, and any contraindicated or prohibited methods of use.

Other safety information:

The user is responsible for compliance with health protection regulations related to the product.

Disclaimer:

The compiler of the safety data sheet and the company making it available do not know the actual conditions of use and handling of the product, and therefore cannot be held liable for any damages, losses, injuries, accidents, or other similar consequences arising from use that deviates from the prescribed requirements, is not in accordance with the intended purpose, or is unforeseeable.

The party carrying out activities related to the product is obliged to fully comply with all applicable legal requirements.

The compiler of the safety data sheet and the company making it available shall not be held liable for any damages arising from modifications to the safety data sheet and/or label design provided to the Client, where such modifications were not carried out by the compiler of the safety data sheet.

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