

Material Safety Data Sheet CHOLINE CHLORIDE

Section 1 - Product Identification

Synonyms : Choline chloride
Molecular Weight : 139.63 g/mol
Chemical Formula : C₅H₁₄CINOC₅H₁₄CINO
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Uses advised against:

Section 2 – Composition/Information on Ingredients

Chemical Name	EC No/CAS No	Purity, %	GHS-US classification
Choline chloride	67-48-1	>60%	<p>Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008</p> <p>Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008</p> <p>This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher</p>

Section 3 – Hazards Identification

3.1 Classification of the substance According to Hazardous Products Regulations (HPR) (SOR/2015-17)

Under the referenced regulation, this product does not contain any components classified for health hazards above the relevant cut off value).

Section 4 – First-Aid Measures

4.1. Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2 .2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

Section 5 – Fire Fighting Measures**5.1. Suitable Extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2. Special Protective Equipment and Precautions for Fire Fighter

Carbon oxides, Nitrogen oxides (NO_x), Hydrogen chloride gas.

5.3. Unusual Fire and Explosion Hazard

Wear self-contained breathing apparatus for firefighting if necessary.

Section 6 – Accidental Release Measures**6.1 Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Avoid breathing dust.

For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

Section 7 – Handling and Storage

7.1. Precautions for safe Handling

Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

Hygroscopic. Store under inert gas. Storage class (TRGS 510): Non Combustible Solids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

Section 8 – Exposure Controls/Personal Protection

8.1 Control parameters

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Respiratory protection is not required. Where protection from nuisance level (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Do not let product enter drains.

Section 9 – Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

a) Appearance

Form: solid

Colour: white

b) Odour

No data available

c) Odour Threshold

No data available

d) pH

5.0 - 6.5 at 140 g/l at 25 °C

e) Melting point/freezing point

Melting point/range: 302 - 305 °C - dec.

f) Initial boiling point and boiling range

No data available

g) Flash point

No data available

h) Evaporation rate

No data available

i) Flammability

(solid, gas) No data available

j) Upper/lower flammability or explosive limits

No data available

k) Vapour pressure

No data available

l) Vapour density

No data available

m) Relative density

No data available

n) Water solubility

140 g/l

o) Partition coefficient: n- octanol/water

No data available

p) Auto-ignition temperature

No data available

q) Decomposition temperature

No data available

r) Viscosity

No data available

s) Explosive properties No data available

t) Oxidizing properties

No data available

9.2 Other safety information

No data available

Section 10 – Stability and Reactivity

10.1. Stability

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong oxidizing agents, Strong acids, Strong bases

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NO_x), Hydrogen chloride gas

Other decomposition products - No data available

In the event of fire: see section 5

Section 11 – Toxicological Information

11.1. Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - 3,500 mg/kg (Choline chloride)

Skin corrosion/irritation

Skin – Rabbit (Choline chloride)

Result: No skin irritation - 20 h

Serious eye damage/eye irritation

Eyes – Rabbit (Choline chloride)

Result: No eye irritation

Respiratory or skin sensitisation

No data available (Choline chloride)

Germ cell mutagenicity

Ames test (Choline chloride)

Salmonella typhimurium

Result: negative

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

No data available (Choline chloride)

Specific target organ toxicity - single exposure

No data available (Choline chloride)

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available (Choline chloride)

Additional Information

RTECS: KH2975000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. (Choline chloride)

Section 12 – Ecological Information

12.1 Toxicity

Toxicity to fish: static test LC50 - *Leuciscus idus* (Golden orfe)- > 10,000 mg/l - 96 h (Choline chloride)

Toxicity to daphnia and other aquatic invertebrates: static test EC50 - *Daphnia magna* (Water flea)- 500 mg/l - 48 h (Choline chloride)

Toxicity to algae: static test EC50 - *Desmodesmus subspicatus* (*Scenedesmus subspicatus*)- > 500 mg/l - 72 h (Choline chloride)

Toxicity to bacteria: EC50 - *Pseudomonas putida* - 132.8 mg/l - 17 h (Choline chloride)

12.2 Persistence and degradability

Biodegradability: aerobic - Exposure time 5 d (Choline chloride)

Result: 60 % - Readily biodegradable

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available (Choline chloride)

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

No data available

Section 13 – Disposal Considerations

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chem scrubber.

Contaminated packaging

Dispose of as unused product.

Section 14 – Transport Information

Land transport

TDG

Not classified as a dangerous good under transport regulations

Sea transport

IMDG

Not classified as a dangerous good under transport regulations

Air transport

IATA/ICAO

Not classified as a dangerous good under transport regulations

Section 15 – Regulatory Information

Federal Regulations

Registration status:

Chemical : DSL, CA

released / listed

Feed : DSL, CA released; restriction on quantity / not listed

NFPA Hazard codes:

Health: 0 Fire: 1 Reactivity: 0 Special:

Assessment of the hazard classes according to UN GHS criteria (most recent version):

Acute Tox.	5 (dermal)	Acute toxicity
Acute Tox.	5 (oral)	Acute toxicity

16 : Additional Information

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.