# Safety Data Sheet

For Compliance with OSHA 29 CFR 1910.1200 and ANSI Z400.1-1998

## Section 1: Identification

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|---|---|
| **Product Name** | Choline Chloride USP |
| **Commercial Name** | Not available. |
| **Product Use** | Ingredient in foods and dietary supplements |
| **Restrictions On Use** | Not available. |
| **Product Code** | 30-3683 |

**Company**

PCCA
9901 South Wilcrest
Houston, TX 77099
Phone: 1-800-331-2498
Fax: 1-800-874-5760

In case of emergency contact:
**CHEMTREC (24hr) 1-800-424-9300**

## Section 2: Hazard(s) Identification

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|---|---|
| **OSHA Haz Com: CFR 1910.1200** | Not available. |
| **Signal Word** | NON-HAZARDOUS |
| **Hazard Statement(s)** | Not available. |
| **Pictogram(s) or Symbol(s)** | |

**Precautionary Statement(s):**

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| **Prevention** | Not available. |
| **Response** | Not available. |
| **Storage** | Not available. |
| **Disposal** | Not available. |

## Section 3: Composition/Information on Ingredients

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| **Substance/Mixture** | Mixture |
| **Components** | Choline chloride and water |
| **% By Weight** | Choline Chloride:99.5 - 100%, Water:<0.5 |
| **CAS#** | 67-48-1 and 7732-18- |
| **Molecular Weight** | 139.62 g/mole |
| **Chemical Formula** | $C_5H_{14}ClNO$ |
| **Synonym(s)** | 2-Hydroxy-N,N,N-trimethylethanaminium chloride |

**Mixtures**

| Name | CAS# | % by Weight | TLV/PEL | LC50/LD50 |
|---|---|---|---|---|
| Choline chloride | 67-48-1 | 99.5-100 | Not available | Not available |
| Water | 7732-18-5 | <0.5% | Not available | Not available |

## Section 4: First-Aid Measures

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| **Inhalation** | If fumes, aerosols or combustion products are inhaled remove from contaminated area. Other measures are usually unnecessary. |
| **Skin Contact** | Immediately remove all contaminated clothing, including footwear. Flush skin and hair with running water (and soap if available). Seek medical attention in event of irritation. |
| **Eye Contact** | If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing for at least 15 minutes. Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. If pain persists or recurs seek medical attention. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. |
| **Ingestion** | If swallowed DO NOT induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. Observe the patient carefully. Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e., becoming unconscious. Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. Seek medical advice. If poisoning occurs, contact a doctor or Poisons Information Centre. |
| **Symptoms/Effects** | |
| **Acute** | Not available. |
| **Delayed** | Not available. |

**Immediate Medical Attention**
Not available.

## Section 5: Fire-Fighting Measures

**Suitable Extinguishing Media**
Water spray or fog. Foam. Dry chemical powder. BCF (where regulations permit). Carbon dioxide.

**Unsuitable Extinguishing Media**
Not available.

**Products of Combustion**
Avoid contamination with oxidising agents, e.g., nitrates, oxidising acids, chlorine bleaches, pool chlorine etc., as ignition may result.

**Firefighters Special Equipment and Precautions**
Alert Fire Brigade and tell them location and nature of hazard. Wear breathing apparatus plus protective gloves. Prevent spillage from entering drains or water courses. Use water delivered as a fine spray to control fire and cool adjacent area. DO NOT approach containers suspected to be hot. Cool fire exposed containers with water spray from a protected location. If safe to do so, remove containers from path of fire. This product may present a dust explosion risk in the form it is manufactured and sold. This conclusion is based on the product composition and on results of Kst testing of similar products. Further processing of the product, such as manipulation of particle size, and the environment in which it is used (e.g., humidity effects) may increase or decrease the risk of dust explosions. Dusts fall into one of three Kst* classes. Class 1 dusts; Kst 1-200 m3/sec; Class 2 dusts; 201-299 m3/sec. Class 3 dusts; Kst 300 or more. Most agricultural dusts (grains, flour etc.) are Class 1; pharmaceuticals and other speciality chemicals are typically Class 1 or 2; most unoxidised metallic dusts are Class 3. The higher the Kst, the more energetically the dust will burn and the greater is the explosion risk and the greater is the speed of the explosion. Standard test conditions, used to derive the Kst, are representative of industrial conditions, but do not represent an absolute worst case. Increased levels of turbulence increase the speed of the explosion dramatically.

## Section 6: Accidental Release Measures

Methods and material for containment and cleaning up: Minor Spills: Clean up waste regularly and abnormal spills immediately. Avoid breathing dust and contact with skin and eyes. Wear protective clothing, gloves, safety glasses and dust respirator. Use dry clean up procedures and avoid generating dust. Vacuum up or sweep up. NOTE: Vacuum cleaner must be fitted with an exhaust micro filter (HEPA type) (consider explosion-proof machines designed to be grounded during storage and use). Dampen with water to prevent dusting before sweeping. Place in suitable containers for disposal. Major Spills: Moderate hazard. CAUTION:Advise personnel in area. Alert Emergency Services and tell them location and nature of hazard. Control personal contact by wearing protective clothing. Prevent spillage from entering drains or water courses. Recover product wherever possible. IF DRY: Use dry clean up procedures and avoid generating dust. Collect residues and place in sealed plastic bags or other containers for disposal. IF WET: Vacuum/shovel up and place in labelled containers for disposal. ALWAYS: Wash area down with large amounts of water and prevent runoff into drains.

## Section 7: Handling and Storage

Handling: Avoid all personal contact, including inhalation. Wear protective clothing when risk of exposure occurs. Use in a well-ventilated area. DO NOT enter confined spaces until atmosphere has been checked. Avoid contact with incompatible materials. When handling, DO NOT eat, drink or smoke. Keep containers securely sealed when not in use. Avoid physical damage to containers. Always wash hands with soap and water after handling. Work clothes should be laundered separately. Launder contaminated clothing before re-use. Use good occupational work practice. Observe manufacturer's storage and handling recommendations contained within this SDS. Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained. Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions) Minimise airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame. Establish good housekeeping practices. Remove dust accumulations on a regular basis by vacuuming or gentle sweeping to avoid creating dust clouds. Use continuous suction at points of dust generation to capture and minimise the accumulation of dusts. Particular attention should be given to overhead and hidden horizontal surfaces to minimise the probability of a 'secondary' explosion. According to NFPA Standard 654, dust layers 1/32 inch (0.8 mm) thick can be sufficient to warrant immediate cleaning of the area. Do not use air hoses for cleaning. Minimise dry sweeping to avoid generation of dust clouds. Vacuum dust-accumulating surfaces and remove to a chemical disposal area. Vacuums with explosion-proof motors should be used. Control sources of static electricity. Dusts or their packages may accumulate static charges, and static discharge can be a source of ignition. Solids handling systems must be designed in accordance with applicable standards (e.g., NFPA including 654 and 77) and other national guidance. Do not empty directly into flammable solvents or in the presence of flammable vapors. The operator, the packaging container and all equipment must be grounded with electrical bonding and grounding systems. Plastic bags and plastics cannot be grounded, and antistatic bags do not completely protect against development of static charges. Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source. DO NOT cut, drill, grind or weld such containers. In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorisation or permit. Storage: Store in original containers. Keep

## Section 8: Exposure Controls/Personal Protection

**Exposure Limits** Not available.

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|---|---|
| **Engineering Controls** | Enclosed local exhaust ventilation is required at points of dust, fume or vapour generation. HEPA terminated local exhaust ventilation should be considered at point of generation of dust, fumes or vapours. Barrier protection or laminar flow cabinets should be considered for laboratory scale handling. A fume hood or vented balance enclosure is recommended for weighing/ transferring quantities exceeding 500 mg. When handling quantities up to 500 grams in either a standard laboratory with general dilution ventilation (e.g., 6-12 air changes per hour) is preferred. Quantities up to 1 kilogram may require a designated laboratory using fume hood, biological safety cabinet, or approved vented enclosures. Quantities exceeding 1 kilogram should be handled in a designated laboratory or containment laboratory using appropriate barrier/containment technology. Manufacturing and pilot plant operations require barrier/ containment and direct coupling technologies. Barrier/ containment technology and direct coupling (totally enclosed processes that create a barrier between the equipment and the room) typically use double or split butterfly valves and hybrid unidirectional airflow/ local exhaust ventilation solutions (e.g., powder containment booths). Glove bags, isolator glove box systems are optional. HEPA filtration of exhaust from dry product handling areas is required. Fume-hoods and other open-face containment devices are acceptable when face velocities of at least 1 m/s (200 feet/minute) are achieved. Partitions, barriers, and other partial containment technologies are required to prevent migration of the material to uncontrolled areas. For non-routine emergencies maximum local and general exhaust are necessary. Air contaminants generated in the workplace possess varying 'escape' velocities which, in turn, determine the 'capture velocities' of fresh circulating air required to effectively remove the contaminant |
| **Personal Protection** | Eye and face protection: When handling very small quantities of the material eye protection may not be required. For laboratory, larger scale or bulk handling or where regular exposure in an occupational setting occurs: Chemical goggles  Face shield. Full face shield may be required for supplementary but never for primary protection of eyes. Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent.  Hands/feet protection: The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application. The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice. Respiratory protection: Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:001, ANSI Z88 or national equivalent) Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important. |

## Section 9: Physical and Chemical Properties

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| **Appearance** | White crystals. Solid. |
| **Odor** | Not available. |
| **Odor Threshold** | Not available. |

| | | | |
|---|---|---|---|
| **Melting Point** | Not available. | **pH** | Not available. pH as a solution (10 |
| **Freezing Point** | Not available. | **Vapor Pressure** | Not available. |
| **Boiling Point/Range** | Not available. | **Vapor Density** | Not available. |
| **Decomposition temperature** | 247 | **Viscosity** | Not available. |
| **Partition Coefficient: n-octanol/water** | Not available. | **Evaporation Rate** | Not available. |
| **Flash Point** | Not available. | **Autoignition temperature** | Not available. |
| **Flammability** | Not available. | | |

**Flammability or Explosive Limits:**

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| **Lower** | Not available. |
| **Upper** | Not available. |

| | |
|---|---|
| **Solubility(ies)** | Miscible in water. |
| **Other** | Not available. |

## Section 10: Stability and Reactivity

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|---|---|
| **Reactivity** | Not considered reactive. |
| **Chemical Stability** | Product is considered stable. |
| **Hazardous Polymerization** | Hazardous polymerization will not occur. |
| **Conditions to Avoid** | Not available |
| **Incompatible Materials** | Not available |
| **Hazardous Decomposition Products** | Not available. |

## Section 11: Toxicological Information

**RTECS** KH2975000

**Acute Toxicity**

Oral (rat) LD50: 3400 mg/kg[2] Eye: no adverse effect observed (not irritating)[1] Skin: no adverse effect observed (not irritating)

**Skin Corrosion/Irritation**

Not available.

**Serious Eye Damage/Irritation**

Not available.

**Respiratory or Skin Sensitization**

Not available.

**Germ Cell Mutagenicity**

Not available.

**Carcinogenicity**

Not available.

**Reproductive Toxicity**

Not available.

**Routes of Entry**

Ingestion. Eye.

**Symptoms Related to Exposure**

Not available.

**Potential Health Effects**
Not available.

**Target Organ(s)** Not available.

## Section 12: Ecological Information

**Ecotoxicity**
LC50 96 Fish >10 mg/L 2 EC50 48 Crustacea >320 mg/L 4 EC50 72 Algae or other aquatic plants >500 mg/L 2 NOEC 96 Fish 10 mg/L 2

**Persistance and Degradability**
Not available.

**Bioaccumulative Potential**
LOW (LogKOW = -3.1555)

**Mobility in Soil**
HIGH (KOC = 1.717)

**Other Adverse Effects**
Not available.

## Section 13: Disposal Considerations

**Waste Disposal**
It may be necessary to collect all wash water for treatment before disposal. In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. Where in doubt contact the responsible authority.

**Disposal of Container**
Not available.

**Other Considerations**
Not available.

## Section 14: Transport Information

**DOT Classification**
Not a DOT controlled material (United States). This material is not classified dangerous good according to international transportation regulations (ADR/RID-IMDG-ICAO/IATA).

## Section 15: Regulatory Information

**Regulations**
CHOLINE CHLORIDE IS FOUND ON THE FOLLOWING REGULATORY LISTS GESAMP/EHS Composite List - GESAMP Hazard Profiles IMO IBC Code Chapter 17: Summary of minimum requirements IMO MARPOL (Annex II) - List of Noxious Liquid Substances Carried in Bulk US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory US TSCA Chemical Substance Inventory - Interim List of Active Substances

**Other**
Not available.

## Section 16: Other Information

Not available.