Safety Data Sheet

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

Section 1: Identification

Product Name Choline Bitartrate USP
Commercial Name Not available.
Product Use Not available.
Restrictions On Use Not available.

Product Code 30-3712

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

OSHA Haz Com: CFR 1910.1200 Skin irritation (Category 2B), Combustible dust

Signal Word WARNING

Hazard Statement(s) Causes eye irritation. May form combustible dust concentration in air

Pictogram(s) or Symbol(s)



Precautionary Statement(s):

Prevention Wash all exposed external body areas throughly after handling.
Response If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
Storage Not applicable
Disposal Not applicable

Section 3: Composition/Information on Ingredients

Substance/Mixture Substance
Components Choline Bitartrate
% By Weight 98%
CAS# 87-67-2
Molecular Weight 253.25 g/mole
Chemical Formula C9H19NO7
Synonym(s) 2-Hydroxy-N,N,N-trimethylethanaminium bitartrate

Mixtures

Name	CAS#	% by Weight	TLV/PEL	LC50/LD50
Choline Bitartrate	87-67-2	98	Not available	Not available

Section 4: First-Aid Measures

Inhalation ? If fumes, aerosols or combustion products are inhaled remove from contaminated area. ? Other measures are usually unnecessary

Skin Contact If skin or hair contact occurs: ? Flush skin and hair with running water (and soap 1f available). ? Seek medical attention in event of ImtatIon

Eye Contact If in eyes, hold eyelids apart and flush the eye continuously with running water. ? Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or 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 poisoning occurs, contact a doctor or Poisons Information Centre. • 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 orw1th reduced awareness; 1.e., becoming unconscious ? Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. » Seek medical advice

Symptoms/Effects

Acute See section 11

Delayed See section 11

Immediate Medical Attention

For exposures to quaternary ammonium compounds; ? For IngestIon of concentrated solutions (10% or higher): Swallow promptly a large quantity of milk, egg whites/ gelatin solution. If not readily available, a slurry of activated charcoal may be useful. Avoid alcohol. Because of probable mucosal damage omit gastric lavage and emetic drugs. ? For dilute solutions (2% or less): If little or no emesis appears spontaneously, administer syrup of Ipecac or perform gastric lavage. ? If hypotens1on becomes severe, InstItute measures against circulatory shock. ? If respIratIon laboured, administer oxygen and support breathing mechanically. Oropharyngeal airway may be inserted in absence of gag reflex. Epiglottic or laryngeal edema may necessitate a tracheotomy. ? Persistent convulsions may be controlled by cautious intravenous 1nject1on of d1azepam or short-acting barbiturate drugs. [Gosselin et al., Clinical Toxicology of Commercial Products

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

Not available.

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

Section 6: Accidental Release Measures

Personal precautions:See section 8 Environmental precautions: See section 12 Methods and materials for containment and cleaning up: minor spills ? Clean up waste regularly and abnormal spills 1mmed1ately. ? 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 1n suitable containers for disposa major spills ? Clean up waste regularly and abnormal spills 1mmed1ately. ? 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 1n suitable containers for disposa

Section 7: Handling and Storage

? Avoid all personal contact, 1nclud1ng 1nhalat1on. ? 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 1ncompat1ble 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 SOS. ? Atmosphere should be regularly checked against established exposure standards to ensure safe working cond1t1ons are ma1nta1ned. ? 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 (1nclud1ng secondary explosions) » Minimise airborne dust and el1m1nate 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 probab1l1ty of a 'secondary' explosion. According to NFPA Standard 654, dust layers 1/32 inch (0.8 mm) thick can be suff1c1ent to warrant 1mmed1ate 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 orthe1r 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 1nclud1ng 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

Section 8: Exposure Controls/Personal Protection

Exposure Limits

Assess operations based upon available dust explosion 1nformat1on to determine the suitability of preventative or protective systems as precautionary measures againstpossible dustexplosions. Ifprevention is not possible, consider protection by use ofcontainment, venting or suppression ofdust handling equipment. Where explosion venting is considered to be the mostappropriate method ofprotection, ventareas should preferably be calculated based on Kst rather than an St value. Ifnitrogen purging is considered as the protective system, it mustoperate with an oxygen level below the limiting oxygen concentration. The system should include an oxygen monitoring and shut-down facility In the eventofexcessive oxygen being detected

Engineering Controls

Not available.

Personal Protection

When handling very small quant1t1es 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 f1rst-a1d personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye ImgatIon 1mmed1ately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or ImtatIon - 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 Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended. Suitability and durab1l1ty of glove type is dependent on usage. Important factors in the selection of gloves include: frequency and duration of contact, chemical resistance of glove material, glove thickness and dexterit Contaminated gloves should be replaced Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended. ? Rubber gloves (nitrile or low-protein, powder-free latex, latex/ n1trile). Employees allergic to latex gloves should use nitrile gloves in preference. ? Double gloving should be considered. • PVC gloves. ? Change gloves frequently and when contaminated, punctured or torn. ? Wash hands 1mmed1ately after removing gloves. • Protective shoe covers. [AS/NZS 221 OJ ? Head covering For quantities up to 500 grams a laboratory coat may be suitable. Other protection ? For quantItIes up to 1 kilogram a disposable laboratory coat or coverall of low permeability is recommended. Coveralls should be buttoned at collar and cuffs For quantities over 1 kilogram and manufacturing operations, wear disposable coverall of low permeability and disposable shoe covers. ? For manufacturing operations, air-supplied full body suits may be required for the provision of advanced respiratory protection. ? Eye wash unit. Ensure there is ready access to an emergency shower. For Emergencies: vinyl suit

Section 9: Physical and Chemical Properties

Appearance	white crystals
Odor	Not available.
Odor Threshold	Not available.

Melting Point	Not available.	**pH**	3.5 (25% solution)
Freezing Point	150	**Vapor Pressure**	Not available.
Boiling Point/Range	Not available.	**Vapor Density**	Not available.
Decomposition temperature	Not available.	**Viscosity**	Not available.
Partition Coefficient: n-octanol/water	Not available.	**Evaporation Rate**	Not available.
Flash Point	Not available.	**Autoignition temperature**	400
Flammability	Not applicable	**Flammability or Explosive Limits:**	
		Lower	Not available.
		Upper	Not available.

Solubility(ies)	Not available.
Other	Relative density 0.84

Section 10: Stability and Reactivity

Reactivity	see section 7
Chemical Stability	Product is considered stable, unstable in the presence of incompatibility materials, hazardous polymerisation will not occur
Hazardous Polymerization	section 7
Conditions to Avoid	section 7
Incompatible Materials	see section 7
Hazardous Decomposition Products	see section 5

Section 11: Toxicological Information

RTECS Not available.

Acute Toxicity
Not available

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

Inhaled: The material is not thought to produce adverse health effects or 1mtat1on of the respiratory tract . Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting ingestion:Nausea, vomiting, abdominal discomfort and diarrhoea can occur after large doses of choline. Other side effects reported include incontinence or worsening of incontience, depression or worsening of depression and an unpleasant fishy odour, restlessness, fast breathing, and convulsions. Sluggish movement, tremor, and rigidity as well as liver damage have been observed at high doses. Very high doses may be lethal. The material has NOT been classifed by EC D1rect1ves or other class1ficat1on systems as 'harmful by ingestion'. This is because of the lack of corroborating animal or human evidence. skin contact: Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected EYE: direct contact with the eye may cause transient discomfort characterised by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result. chronic: bstance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Prolonged or repeated skin contact may cause degreasing, followed by drying, cracking and skin inflammation.

Symptoms Related to Exposure
Not available.

Potential Health Effects
Not available.

Target Organ(s) Not available.

Section 12: Ecological Information

Ecotoxicity
Not available.

Persistance and Degradability
Persistence: water/soil persistence: air not available

Bioaccumulative Potential
Not available.

Mobility in Soil
Not available.

Other Adverse Effects
Not available.

Section 13: Disposal Considerations

Waste Disposal
Containers may still present a chemical hazard/danger when empty. ? If container can not be cleaned sufficiently well to ensure that residuals do not remain or 1fthe container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill. ? Where possible retain label warnings and SOS and observe all notices pertaining to the product.

Disposal of Container
It may be necessary to collect all wash water for treatment before disposal.

Other Considerations
Not available.

Section 14: Transport Information

DOT Classification
Land transport (DOT): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Section 15: Regulatory Information

Regulations
Federal regulations: Superfund Amendments and Reauthorization Act of 1986 (SARA) State regulations: Not reported

Other
Not available.

Section 16: Other Information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Class1f1cat1on committee using available literature references. The SDS is a Hazard Commun1cat1on tool and should be used to assist In the Risk Assessment. Many factors determine whether the reported Hazards are Risks In the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.