






GARDENA, CA
NEW BRUNSWICK, NJ

Material Safety Data Sheet

NFPA	HMIS	Personal Protective Equipment						
	<table><tr><td>Health Hazard</td><td>2</td></tr><tr><td>Fire Hazard</td><td>1</td></tr><tr><td>Reactivity</td><td>0</td></tr></table>	Health Hazard	2	Fire Hazard	1	Reactivity	0	<div></div> <div>See Section 15.</div>
Health Hazard	2							
Fire Hazard	1							
Reactivity	0							

Section 1. Chemical Product and Company Identification			Page Number: 1	
Common Name/ Trade Name	Choline dihydrogen citrate		Catalog Number(s).	XX245, C1327, C1229
			CAS#	77-91-8
Manufacturer	SPECTRUM CHEMICAL MFG. CORP. 14422 S. SAN PEDRO STREET GARDENA, CA 90248		RTECS	GA2582000
			TSCA	TSCA 8(b) inventory: Choline dihydrogen citrate
Commercial Name(s)	Not available.		CI#	Not available.
Synonym	(2-hydroxyethyl)trimethylammonium citrate		<u>IN CASE OF EMERGENCY</u> <u>CHEMTREC (24hr) 800-424-9300</u> CALL (310) 516-8000	
Chemical Name	Not available.			
Chemical Family	Not available.			
Chemical Formula	C11H21NO8			
Supplier	SPECTRUM CHEMICAL MFG. CORP. 14422 S. SAN PEDRO STREET GARDENA, CA 90248			

Section 2. Composition and Information on Ingredients					
		Exposure Limits			
Name	CAS #	TWA (mg/m ³)	STEL (mg/m ³)	CEIL (mg/m ³)	% by Weight
1) Choline dihydrogen citrate	77-91-8				100
Toxicological Data on Ingredients Not applicable.					

Section 3. Hazards Identification	
Potential Acute Health Effects	Hazardous in case of ingestion. Slightly hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of inhalation.
Potential Chronic Health Effects	Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of inhalation. CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available.

Continued on Next Page

Section 4. First Aid Measures

Eye Contact	Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used.
Skin Contact	After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cold water may be used. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.
Serious Skin Contact	Not available.
Inhalation	Allow the victim to rest in a well ventilated area. Seek immediate medical attention.
Serious Inhalation	Not available.
Ingestion	Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.
Serious Ingestion	Not available.

Section 5. Fire and Explosion Data

Flammability of the Product	May be combustible at high temperature.
Auto-Ignition Temperature	Not available.
Flash Points	Not available.
Flammable Limits	Not available.
Products of Combustion	These products are carbon oxides (CO, CO ₂), nitrogen oxides (NO, NO ₂ ...).
Fire Hazards in Presence of Various Substances	Not available.
Explosion Hazards in Presence of Various Substances	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.
Special Remarks on Fire Hazards	Not available.
Special Remarks on Explosion Hazards	Not available.

Section 6. Accidental Release Measures

Small Spill	Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
Large Spill	Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

Section 7. Handling and Storage

Precautions	Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not breathe dust.
Storage	Keep container dry. Keep in a cool place. Ground all equipment containing material. Keep container tightly closed. Keep in a cool, well-ventilated place. Combustible materials should be stored away from extreme heat and away from strong oxidizing agents.

Section 8. Exposure Controls/Personal Protection

Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection	Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.
Personal Protection in Case of a Large Spill	Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Exposure Limits	Not available.

Section 9. Physical and Chemical Properties

Physical state and appearance	Solid. (Powdered solid. Hygroscopic powder.)	Odor	Amine like. (Slight.)
Molecular Weight	295.29 g/mole	Taste	Not available.
pH (1% soln/water)	5 [Acidic.]	Color	White.
Boiling Point	Decomposes.		
Melting Point	107°C (224.6°F)		
Critical Temperature	Not available.		
Specific Gravity	Not available.		
Vapor Pressure	Not applicable.		
Vapor Density	Not available.		
Volatility	Not available.		
Odor Threshold	Not available.		
Water/Oil Dist. Coeff.	Not available.		
Ionicity (in Water)	Not available.		
Dispersion Properties	See solubility in water.		
Solubility	Easily soluble in cold water.		

Section 10. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	Not available.
Incompatibility with various substances	Not available.
Corrosivity	Non-corrosive in presence of glass.

Continued on Next Page

Special Remarks on
Reactivity

Not available.

Special Remarks on
Corrosivity

Not available.

Polymerization

No.

Section 11. Toxicological Information

Routes of Entry

Ingestion.

Toxicity to Animals

LD50: Not available.
LC50: Not available.

Chronic Effects on Humans

Not available.

Other Toxic Effects on
Humans

Hazardous in case of ingestion.
Slightly hazardous in case of skin contact (irritant, permeator), of inhalation.

Special Remarks on
Toxicity to Animals

Not available.

Special Remarks on
Chronic Effects on Humans

Not available.

Special Remarks on other
Toxic Effects on Humans

Nuisance dust.

Section 12. Ecological Information

Ecotoxicity

Not available.

BOD5 and COD

Not available.

Products of Biodegradation

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products
of Biodegradation

The products of degradation are more toxic.

Special Remarks on the
Products of Biodegradation

Not available.

Section 13. Disposal Considerations

Waste Disposal

Section 14. Transport Information

DOT Classification

Not a DOT controlled material (United States).

Identification

Not applicable.

Special Provisions for
Transport

Not applicable.

DOT (Pictograms)



Section 15. Other Regulatory Information and Pictograms

Federal and State Regulations

TSCA 8(b) inventory: Choline dihydrogen citrate

California
Proposition 65
Warnings

Other Regulations

Not available..

Other Classifications

WHMIS (Canada)

Not controlled under WHMIS (Canada).

DSCL (EEC)

This product is not classified according to the EU regulations.

HMIS (U.S.A.)

Health Hazard	2
Fire Hazard	1
Reactivity	0
Personal Protection	E

National Fire Protection
Association (U.S.A.)

Health



Flammability

Reactivity

Specific hazard

WHMIS (Canada)
(Pictograms)DSCL (Europe)
(Pictograms)TDG (Canada)
(Pictograms)ADR (Europe)
(Pictograms)

Protective Equipment



Gloves.



Lab coat.



Dust respirator. Be sure to use an approved/certified respirator or equivalent.



Safety glasses.

Section 16. Other Information**MSDS Code** C4184**References** Not available.**Other Special Considerations** Not available.

Validated by Sonia Owen on 8/11/2006.

Verified by Sonia Owen.

Printed 9/11/2006.

CALL (310) 516-8000

Notice to Reader

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.