

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Glycine, USP-NF Grade
SYNONYMS: None
SUPPLIER:

NFPA Rating: Health: 1 Flammability: 2 Reactivity: 1
HMIS Classification: Health: 1 Flammability: 2 Reactivity: 1

EMERGENCY TELEPHONE: CHEMTREC: (800) 424-9300
Outside USA - 00 1 (703) 527-3687 collect calls accepted

EMERGENCY OVERVIEW:

White powder with no odor. Dust explosion hazard.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient / CAS No.	Weight %	OSHA - PEL's	ACGIH 2002 - TLV's
Glycine 59-40-6	> 99.5 %	None Established.	None Established.

3. HAZARDS IDENTIFICATION

Hazard Information: May cause eye, skin and respiratory tract irritation.
Eye Contact: Dust may irritate eyes.
Inhalation: Dust may cause irritation to upper respiratory tract (nose and throat).
Skin Contact: Prolonged or repeated exposure may cause slight skin irritation. May cause itching. A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts.
Ingestion: Single dose oral toxicity is considered to be extremely low. No hazards anticipated from swallowing small amounts incidental to normal handling operations.
Aggravated Conditions: None known.
Systemic (Other Target Organ) Effects: Observations in animals include weight and growth reduction following high dietary doses. Effects have been reported on the following organs: kidney.
Cancer Information: Excessive doses of glycine have caused necrosis, calculi (stones) and tumors in the kidney of rats; however glycine, an essential amino acid and an approved food additive for certain applications, is believed safe under normal conditions of use.
Teratology (Birth Defects): Birth defects are unlikely. Exposures having no adverse effects on the mother should have no effect on the fetus.
Reproductive Effects: No relevant information found.

4. FIRST AID MEASURES

Inhalation:	Remove to fresh air if effects occur. Consult a physician.
Skin Contact:	Immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and footwear. Wash contaminated clothing before reuse. Get medical attention if irritation develops.
Eye Contact:	Remove contact lenses. Immediately flush with plenty of water for at least 15 minutes, holding eyelids apart to ensure flushing of the entire surface. Washing within one minute is essential to achieve maximum effectiveness. Seek immediate medical attention. Immediately flush with plenty of water for at least 15 minutes, holding eyelids apart to ensure flushing of the entire surface. Washing within one minute is essential to achieve maximum effectiveness. Seek medical attention if irritation should develop.
Ingestion:	No adverse effects anticipated by this route of exposure incidental to proper industrial handling.
Notes To Physician:	No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

5. FIRE FIGHTING MEASURES

Flash Point (°F/°C)	Not Determined
Flash Point Method:	N/A
Autoignition Temp. (°F):	Not Determined
Flammable Limits in Air - Lower (%):	Not Determined
Flammable Limits in Air - Upper (%):	Not Determined
Extinguishing Media:	Water fog, carbon dioxide, foam, dry chemical.
Fire Fighting Procedures:	Keep people away. Isolate fire area and deny unnecessary entry. Soak thoroughly with water to cool and prevent re-ignition. Cool surroundings with water to localize fire zone. Fight fire from protected location or safe distance. Consider use of unmanned hose holder or monitor nozzles. Immediately withdraw all personnel from area in case of rising sound from venting safety device or discoloration of the container. Move container from fire area if this is possible without hazard. Hand held carbon dioxide or dry chemical extinguishers may be used for small fires. Dust explosion hazard may result from forceful application of fire extinguishing agents.
Special Exposure Hazards:	Container may rupture from gas generation in a fire situation. Do not permit dust to accumulate. Dust layers can be ignited by spontaneous combustion or other ignition sources. When suspended in air dust can pose an explosion hazard.
Special Protective Equipment:	Fire fighters should wear full protective clothing, including self-contained breathing equipment.

6. ACCIDENTAL RELEASE MEASURES

Procedure for Cleaning/Absorption:	Clear non-emergency personnel from area. Avoid contamination of all waterways. Remove with shovel. Transfer to suitable and properly labeled containers for disposal.
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7. HANDLING AND STORAGE

PRECAUTIONARY STATEMENTS:	CAUTION! May cause skin, eye, and respiratory tract irritation. Avoid breathing dust. Avoid contact with eyes, skin and clothing. Use with adequate ventilation and employ respiratory protection where a dust atmosphere may be generated. Wear dust mask, goggles, gloves and protective clothing when handling. Wash thoroughly after handling. FOR INDUSTRIAL USE ONLY.
Handling:	Keep container tightly closed when not in use.
Storage:	Store in a cool, dry place away from ignition sources and open flame.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:	Local exhaust ventilation as necessary to maintain exposures to within applicable limits. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.
Respiratory Protection:	In dusty atmospheres, use an approved dust respirator.
Gloves:	Appropriate chemical resistant gloves should be worn.
Skin Protection:	Wear clean, long-sleeved, body covering clothing. Use gloves impervious to this material.
Eye Protection:	Safety glasses or goggles.
Other Personal Protection Data:	Eyewash fountains and safety showers must be easily accessible.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	POWDER
Color:	WHITE
Odor:	ODORLESS
pH:	Not Applicable
Specific Gravity:	1.1
Density @ 20° C:	Unknown
Boiling Point (°F/°C):	Not Determined
Melting Point Range (°F/°C):	Product decomposes at elevated temperatures.
Freezing Point/Range (°F/°C):	Not Determined
Vapor Pressure:	Not Determined
Vapor Density (Air=1):	Not Determined
% Volatile by Volume:	0.2 % max
Evaporation Rate (BuAc=1):	Not Determined
Solubility in Water Description:	25 g/ 100 g water
VOCs (lbs/gallon):	Not Determined
Viscosity, Dynamic (Centipoise) @ 20° C:	Not Determined
Molecular Weight:	Not Applicable

10. STABILITY AND REACTIVITY

Chemical Stability:	Stable under normal conditions of handling, use and transportation.
Conditions to Avoid:	Avoid temperatures above 180C. Product decomposes above melting temperature.
Materials to Avoid:	Avoid contact with oxidizing materials. Avoid unintended contact with acids, bases, halogenated hydrocarbons.
Hazardous Decomposition Products:	Hazardous decomposition products depend upon temperature, air supply and the presence of other materials. Gases are released during decomposition. Carbon dioxide, carbon monoxide, and nitrogen oxides can be expected.
Hazardous Polymerization:	WILL NOT OCCUR
Additional Guidelines:	None.

11. TOXICOLOGICAL INFORMATION

PRINCIPAL ROUTES OF EXPOSURE:	Skin, eyes and respiratory tract.
Ingestion:	Single dose oral toxicity is considered to be extremely low. No hazards anticipated from swallowing small amounts incidental to normal handling operations.
Skin Contact:	Prolonged or repeated exposure may cause slight skin irritation. May cause itching. A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts.
Inhalation:	Dust may cause irritation to upper respiratory tract (nose and throat).
Eye Contact:	Dust may irritate eyes.

Carcinogenicity Status:
(Chemical Name, Wt. %, CAS No.)

Glycine > 98.5 % 68-40-6

IARC Group 1, Group 2A or Group 2B Carcinogen:

Not Listed

National Toxicology Program Known or Suspect Carcinogen:

Not Listed

ACGIH Confirmed or Suspected Carcinogen:

Not Listed

OSHA Select or Possible Select Carcinogen:

Not Listed

Acute Oral LD50 (mg/kg):

7930 mg/kg (rats)

Acute Dermal LD50 (mg/kg):

Not Determined

Acute Inhalation LC50 (mg/l):

Not Determined

Mutagenicity/Genotoxicity:

In vitro mutagenicity studies were negative.

Other Information:

Conclusions are drawn from sources other than direct testing.

12. ECOLOGICAL INFORMATION

Mobility:

Bioconcentration potential is low (BCF less than 100 or Log Pow less than 3). Potential for mobility in soil is very high (Koc between 0 and 50). Log octanol/water partition coefficient (log Pow) is estimated using a structural fragment method to be -3.41. Measured log octanol/water partition coefficient (log Pow) is -3.21. Henry's Law Constant(H) is estimated to be 1.12E-09 atm-m³/mole. Soil organic carbon/water partition coefficient (Koc) is estimated to be 1.

Persistence:

Biodegradation under aerobic static laboratory conditions is high (BCD20 or BCD28/ThOD >40%). 20-Day biochemical oxygen demand (BOD20) is 78.13%. In the atmospheric environment, material is estimated to have a tropospheric half-life of 4.578 hours.

Bioaccumulative:

Not Determined

Ecotoxicological Information:

Acute Fish Toxicity:

Acute LC50 in fathead minnow (*Pimephales promelas*) is >100 mg/L. Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50 >100 mg/L in most sensitive species).

Acute Crustaceans Toxicity:

Not Determined

Acute Algae Toxicity:

Not Determined

Chemical Fate Information:

Not Determined

Other Information:

None

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Dispose of product in an approved chemical waste landfill or incinerate in accordance with applicable Federal, state and local regulations.

RCRA

Is the unused product a RCRA hazardous waste if discarded? (Yes/No)

No

If yes, the EPA Hazardous Waste Code is:

N/A

14. TRANSPORTATION INFORMATION

DOT:

DOT Status:

NOT HAZARDOUS, NOT REGULATED.

ICAO/IATA:

Status:

NOT REGULATED.

INDG:

Status:

NOT REGULATED.

Flash Point (°F/°C)

Not Determined

15. REGULATORY INFORMATION

International Inventories:

USA TSCA Inventory Status:	All of the components of this product are listed on the US EPA TSCA Inventory, or exempt from listing.
Canadian DSL:	All of the components of this product are listed on the Canadian Domestic Substances List.
European - EINECS:	All of the components of this product are listed on EINECS, or exempt from notification.
Japanese Chemical Inventory:	All of the components of this product are listed on the JPENCS Inventory.
Philippines Chemical Inventory:	All of the components of this product are found on the Philippines Inventory.
Australian Chemical Inventory:	All of the components of this product are listed on the Australian Chemical Inventory.
Korean Chemical Inventory:	All of the components of this product are found on the Korean Existing Chemical Substances List.

State and Federal Regulations: (Chemical Name, WL %, CAS No.)

Glycine > 99.5 % 56-40-6
CAA - Hazardous Air Pollutants:

Listed

SARA Section 311/312 Hazard Class:

This product is classified as a SARA ACUTE HEALTH HAZARD.

Other Information:

This product does not contain any ingredients subject to the reporting requirements of SARA Title III, Section 313 (40 CFR Part 372).

16. OTHER INFORMATION

Prepared / Edited By:

Telephone Number:

Reference Number: GLYCINE USP NF PRD

Revision Date: 10/27/2005

Additional information: None.

Important Note:

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

END OF MSDS