



**Safety Data Sheet
Guanidine Hydrochloride**

Section 1: Identification

1.1 Product Identifiers

Product Name: Guanidine Hydrochloride
CAS# 50-01-1
RTECS#: MF4300000
Synonyms: Guanidine Monohydrochloride, Guanidinium Chloride, Guanidinium Hydrochloride.

1.2 Recommended Use of the Chemical and restrictions of Use

Chemical manufacturing

1.3 Supplier Details

BioSpectra, Inc.
 100 Majestic Way
 Bangor, PA 18013
 610.599.3400

1.4 Emergency Numbers

US & Canada: 1-800-424-9300
Outside the US & Canada: +1 703-527-3887

Section 2: Hazard Identification

2.1 Classification of Substance or Mixture GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 4) H302
 Skin irritation (Category 2) H315
 Eye irritation (Category 2A) H319

Target Organs: Bone marrow, Nerves.

2.2 GHS Label Elements Including Precautionary Statements



Pictogram:
Signal Word: Warning

Hazard Statement(s):

H302	Harmful if swallowed.
H315	Causes skin irritation
H319	Causes serious eye irritation

Precautionary statement(s)

P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/eye protection/face protection.
P301+P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P302-P352	IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P321	Specific treatment (see supplemental first aid instructions on this SDS)
P330	Rinse mouth.
P332+P313	If skin irritation occurs: Get medical advice/ attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P362	Take off contaminated clothing and wash before reuse.
P501	Dispose of contents/containers to an approved waste disposal plant.

2.3 Hazards not Classified or not Covered by the GHS
 Not Available.

Section 3: Composition, Information on Ingredients

3.1 Substances

Synonyms: Guanidine Monohydrochloride, Guanidinium Chloride, Guanidinium Hydrochloride.

Formula: $\text{NH}_2\text{C}(\text{NH})\text{NH}_2\cdot\text{HCl}$

Molecular Weight: 95.53 g/mol

CAS#: 50-01-1

EC#: 200-002-3

Section 4: First Aid Measures

4.1 Description of necessary first aid measures

General Advice: Consult a physician. Show this safety data sheet to the treating physician.

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lift the upper and lower lids. Consult a physician.

Skin: Immediately flush skin with plenty water for at least 15 minutes. Remove contaminated clothing and shoes. Consult a physician if irritation develops or persists.

Serious Skin Contact: Wash with disinfectant soap and cover contaminated skin with antibacterial cream. Consult a physician.

Ingestion: Do not induce vomiting. Never give anything by mouth to an unconscious person. If person is awake, rinse mouth out with water. Consult a physician.

Inhalation: Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Consult a physician if cough or other symptoms appear.

4.2 Most Important symptoms/effects, acute and delayed

Refer to Section 2.2 for Precautionary Statements if any are applicable

4.3 Indication of Immediate Medical Attention and Special Treatment

No information available

Section 5: Firefighting Measures

5.1 Extinguishing media

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

5.2 Specific Hazards Associated with this Chemical

Carbon oxides, nitrogen oxides (NOx), Hydrogen chloride gas.

5.3 Special Equipment/Precautions for Firefighters

May be combustible at high temperatures. As with most organic solids, fire is possible at elevated temperatures or by contact with an ignition source. In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode. Explosion will appear as fine dust

Component	Classification	Concentration
Guanidinium chloride	Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; H302, H315, H319	Crystal: 90-100% Solution: 6M

dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

5.4 Other information

None available

Section 6: Accidental Release Measures

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Avoid breathing dust.

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 a suitable, closed container for disposal.

6.4 Other information

None available

Section 7: Handling and Storage

7.1 Precautions for Safe Handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

7.2 Conditions for Storage Including any Incompatibilities

Store in a cool, dry, well-ventilated area away from incompatible and combustible substances. Keep containers tightly closed.

7.3 Other information

None available

Physical State: Solid or solution	Melting Point: 185-189°C
Appearance: White crystal or clear liquid	Boiling Point: Not available
Odor: Not available	Decomposition Temperature: >310 °C
pH: 4.0-6.0	Specific Gravity/Density: 1.3450g/cm ³
Vapor Pressure: Negligible	Solubility: 573 g/L at 20°C
Vapor Density: Not available	Molecular Formula: NH ₂ C(NH)NH ₂ ·HCl
Viscosity: Not available	Molecular Weight: 95.53 g/mol

Section 8: Exposure Controls, Personal Protection

8.1 Control Parameters

Chemical does not contain any substances with occupational exposure limits.

8.2 Engineering Controls

Use adequate ventilation to keep airborne concentrations low.

8.3 Personal protective measures

Respiratory protection: For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand 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. Wear impervious

gloves: Nitrile rubber with layer thickness 0.11mm. Wash and dry hands.

Eye protection: Safety glasses with side-shields conforming to ANSI- Z87 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection: Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

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

Section 9- Physical and Chemical Properties

Section 10: Stability and Reactivity

10.1 Chemical Stability

Stable. However, may decompose if heated.

10.2 Conditions to Avoid

Incompatible materials, temperatures above 300 °C.

10.3 Incompatibilities with Other Materials

Strong oxidizing agents, moisture.

10.4 Hazardous Decomposition Products

Hydrogen chloride, nitrogen oxides, carbon monoxide, carbon dioxide.

10.5 Hazardous Polymerization

Has not been reported.

Section 11: Toxicological Information

11.1 Toxicological effects

Carcinogenicity: CAS# 50-01-1: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

LD50 Oral: rat - 475 mg/kg
 Remarks: Behavioral: Altered sleep time (including change in righting reflex). Behavioral: Excitement. Diarrhoea
 LD50 Oral: mouse - 571 mg/kg
 Remarks: Behavioral: Altered sleep time (including change in righting reflex). Behavioral: Muscle contraction or spasticity.
 Behavioral: Irritability.
 LD50 Oral: rat - 1,120 mg/kg
 Inhalation: no data available
 Dermal: no data available
Skin corrosion/irritation
 Skin - rabbit
 Result: Skin irritation
Serious eye damage/eye irritation
 Eyes - rabbit
 Result: Irritating to eyes.
Respiratory or skin sensitisation
 Buehler Test - guinea pig
 Did not cause sensitisation on laboratory animals.
Potential Health Effects:
Eyes: May cause eye irritation. Inflammation is characterized by redness, watering, and itching.
Skin: May cause skin irritation. Skin inflammation is characterized by itching, scaling, reddening or occasionally blistering.
Ingestion: Harmful if swallowed. May cause irritation of the digestive tract. May cause minor neurological effects.
Inhalation: Irritating to the respiratory tract.
Epidemiology: No information available.
Teratogenicity: No information available.
Reproductive Effects: No information available.
Neurotoxicity: No information available.
Mutagenicity: No information available.
Additional Information
 RTECS: MF4300000
 To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
 Liver - Irregularities - Based on Human Evidence

Section 12: Ecological Information

12.1 Ecotoxicity:

Toxicity to fish LC50 - *Leuciscus idus* (Golden orfe) - 1,759 mg/l

12.2 Persistence and Degradability

Biodegradability Result: Not readily biodegradable.

12.3 Bioaccumulative Potential

No information available

12.4 Mobility in Soil

No information available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other Adverse Effects

No information available

Section 13: Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

Section 14: Transport Information

Regulations	US DOT	IATA	IMDG
Shipping Name	Not Dangerous Goods.	Not Dangerous Goods.	Not Dangerous Goods.
Hazard Class			
UN Number			
Packing Group			

Section 15: Regulatory Information

15.1 EHS Chemical Specific Regulations

OSHA Hazards: Target Organ Effect, Toxic by ingestion, Irritant

TSCA: CAS# 50-01-1 is listed on the 8(b) TSCA inventory.

Chemical Test Rules: None of the chemicals in this product are under a Chemical Test Rule.

Section 12b: None of the chemicals are listed under TSCA Section 12b.

SARA 302 Components: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards: Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components: No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components:

Guanidinium chloride CAS-No. 50-01-1

New Jersey Right To Know Components:

Guanidinium chloride CAS-No. 50-01-1

California Prop. 65 Components: This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Section 16: Additional Information

HMIS Classification

Health hazard: 2

Flammability: 0

Physical hazards: 0

NFPA Rating

Health hazard: 2

Fire: 0

Reactivity Hazard: 0

The information conveyed in this Safety Data Sheet is only a representation of what BioSpectra has found to be accurate based on the current information that is available in regards to this compound. BioSpectra makes no warranty, expressed or implied, with respect to such information, and therefore assumes no liability resulting from product usage. It is strongly recommended that users of this product perform their own investigations to determine the accuracy and suitability of the information for their specific purposes. In no way will BioSpectra assume liability for any claims, losses, damages to any third party, any lost profits or any special, indirect, incidental, consequential or exemplary damages that may arise, even if BioSpectra has been advised of the possibility of such damages.