BIOSPECTRA
Premium Pharmaceutical Ingredients

Guanidine Hydrochloride

Safety Data Sheet
According to Regulation (EC) 1272/2008

SECTION 1: Identification

1.1 Product Identifier

Product Name	:	Guanidine Hydrochloride
CAS#	:	50-01-1
RTECS#	:	MF4300000
REACH Registration #	:	01-2119977063-35-0009
Synonyms	:	Guanidine Monohydrochloride, Guanidinium Chloride, Guanidinium Hydrochloride.

1.2 Recommended Use of the Chemical and Restrictions of Use

Chemical manufacturing

1.3 Supplier Details

Supplier

BioSpectra, Inc.
100 Majestic Way
Bangor, PA 18013
T: 610.599.3400
ra@biospectra.us

1.4 Emergency Numbers

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
Serious Eye Damage/Irritation (Category 2)	:	H319
Harmful if Inhaled (Category 4)	:	H332

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
: H332 – Harmful if inhaled

Precautionary Statement(s):

: P261 – Avoid breathing dust/fume/gas/mist/vapors/spray.
: P264 – Wash hands thoroughly after handling.
: P270 – Do not eat, drink, or smoke when using this product.
: P280 - Wear protective gloves/protective clothing/eye protection/face protection.
: P301 + P330 + P312 – IF SWALLOWED: Rinse Mouth. Call a POISON CENTER/physician if feeling 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.
: 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

May form explosible dust-air mixture if dispersed.

SECTION 3: Composition, Information on Ingredients

3.1 Substances

Synonyms	:	Guanidine Monohydrochloride, Guanidinium Chloride, Guanidinium Hydrochloride
Formula	:	$NH_2C(NH)NH_2 \cdot HCl$
Molecular Weight	:	Weight: 95.53 g/mol
CAS#	:	50-01-1
EC#	:	200-002-3

Component	Classification	Concentration
Guanidinium chloride	Acute Tox. 4 - H302 Skin Irrit. 2 - H315 Eye Irrit. 2A - H319 Harmful Inhalation -H332	100%

SECTION 4: First Aid Measures

4.1 Description of Necessary First Aid Measures

First-aid measures general	:	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.
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, Ammonia.

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 (or equivalent)-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 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 combustible dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Avoidbreathing 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 below 30°C. Store in a dry, well-ventilated area away from incompatible and combustible substances. Keep containers tightly closed. Do notstore in metal containers.

7.3 Other Information

This product is hygroscopic.

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

Physical State	:	Solid
Appearance	:	White crystal or clear liquid
Odor	:	Not available
pH	:	4.0-6.0
Vapor Pressure	:	Negligible
Vapor Density	:	Not available
Viscosity	:	Not available
Melting Point	:	185-189°C
Boiling Point	:	Not available
Decomposition Temperature	:	>310 ° C
Specific Gravity/Density	:	1.3450g/cm^3
Solubility	:	215g/100g at 20°C
Molecular Formula	:	$NH_2C(NH)NH_2 \cdot HCl$
Molecular Weight	:	95.53 g/mol

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, strong bases, strong acids.

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 Effect

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. Diarrhea.

LD50 Oral	:	mouse - 571 mg/kg.
Remarks	:	Behavioral: Altered sleep time (including change in righting reflex). Behavioral: Muscle contraction or spasticity.
Behavioral	:	Irritability.
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 sensitization:

Buehler Test	:	Guinea pig
Result	:	Did not cause sensitization 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.

11.2 Additional Information

None available.

SECTION 12: Ecological Information

12.1 Ecotoxicity:

Toxicity to Microtox EC50 Pseudomonas putida (18hr) 88.7 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	ADR
Shipping Name	Not Dangerous Goods.	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:

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.

STATE SPECIFIC:

Massachusetts Right To Know Components	:	No components are subject to the Massachusetts Right to Know Act.
Pennsylvania Right To Know Components	:	No components are subject to the Pennsylvania Right to Know Act.
New Jersey Right To Know Components	:	No components are subject to the New Jersey Right to Know Act.
New York Right To Know Components	:	No components are subject to the New York Right to Know Act.
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