MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Date of issue: 02/04/2013 Version 1.0

SECTION 1. Identification

Product identifier

Product number 820612

Product name Guanidinium nitrate for synthesis

Relevant identified uses of the substance or mixture and uses advised against

Identified uses Chemical for synthesis

Details of the supplier of the safety data sheet

Company EMD Millipore Corporation | 290 Concord Road, Billerica, MA 01821, United States of America | SDS Phone Support: +1-978-715-1335 | General Inquiries: +1-978-715-4321 | Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)

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Emergency telephone 800-424-9300 CHEMTREC (USA)
+1-703-527-3887 CHEMTREC (International)
24 Hours/day; 7 Days/week

SECTION 2. Hazards identification

GHS Classification

Oxidizing solid, Category 3, H272
Chronic aquatic toxicity, Category 3, H412
Acute toxicity, Category 4, Oral, H302
Skin irritation, Category 2, H315
Eye irritation, Category 2, H319

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling

Hazard pictograms

Signal Word
Warning

Hazard Statements
H272 May intensify fire; oxidizer.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H412 Harmful to aquatic life with long lasting effects.

Precautionary Statements
P273 Avoid release to the environment.
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.

OSHA Hazards
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Other hazards
None known.

SECTION 3. Composition/information on ingredients

Formula	$CH_5N_3 * HNO_3$	$CH_6N_4O_3$ (Hill)
CAS-No.	506-93-4	
Molar mass	122.08 g/mol	

Hazardous ingredients
Chemical Name (Concentration)
CAS-No.
Guanidinium nitrate (>= 90 % - <= 100 %)
506-93-4

SECTION 4. First aid measures

Description of first-aid measures

Inhalation
After inhalation: fresh air.

Skin contact
After skin contact: wash off with plenty of water. Remove contaminated clothing.

Eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist.

Ingestion
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed
irritant effects

The following applies to nitrites/nitrates in general: methemoglobinemia after the uptake of large quantities.

Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Water, Carbon dioxide (CO2), Foam, Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Practically noncombustible.
Explosive decomposition possible on heating.
Development of hazardous combustion gases or vapors possible in the event of fire.
Fire may cause evolution of:
nitrogen oxides

Advice for firefighters

Special protective equipment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Cool closed containers exposed to fire with water spray. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid substance contact. Avoid generation of dusts; do not inhale dusts. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

Environmental precautions

Do not empty into drains.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.
Observe possible material restrictions (see sections 7 and 10).
Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

SECTION 7. Handling and storage

Precautions for safe handling

Observe label precautions.

Conditions for safe storage, including any incompatibilities

Tightly closed. Away from combustible materials and sources of ignition and heat. Dry.

Store at +15°C to +25°C (+59°F to +77°F).

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Contains no substances with occupational exposure limit values.

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

Eye/face protection

Safety glasses

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Respiratory protection

required when dusts are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

SECTION 9. Physical and chemical properties

Physical state	powder, finecrystalline
Color	white
Odor	odorless
Odor Threshold	not applicable
pH	4.9 at 165 g/l 77 °F (25 °C)
Melting point	211 - 214 °C
Boiling point	No information available.
Flash point	No information available.

Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapor pressure	No information available.
Relative vapor density	No information available.
Relative density	1.44 g/cm³ at 68 °F (20 °C)
Water solubility	160 g/l at 68 °F (20 °C)
Partition coefficient: n-octanol/water	log Pow: -1.7 (20 °C) OECD Test Guideline 107 Bioaccumulation is not expected (log Pow <1).
Autoignition temperature	No information available.
Decomposition temperature	> 482 °F (> 250 °C)
Viscosity, dynamic	No information available.
Explosive properties	No information available.
Ignition temperature	> 680 °F (> 360 °C)
Bulk density	700 kg/m³

SECTION 10. Stability and reactivity

Reactivity

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

Possibility of hazardous reactions

Risk of explosion with:

Halogenated hydrocarbon, Potassium, nitrates, sulfur

Exothermic reaction with:

Risk of ignition or formation of inflammable gases or vapors with:

combustible substances, Bases, acids

Conditions to avoid
Strong heating (explosive decomposition).

Incompatible materials
no information available

Hazardous decomposition products
in the event of fire: See section 5.

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure
Eye contact, Skin contact, Ingestion

Acute oral toxicity
LD50 rat: 1,260 mg/kg (IUCLID)
Symptoms: We have no description of any toxic symptoms.

absorption

Acute inhalation toxicity
LC50 rat: > 0.853 mg/l; 4 h
Symptoms: Possible damages:, mucosal irritations

Acute dermal toxicity
LD50 rabbit: > 2,000 mg/kg
(IUCLID)

Skin irritation
rabbit
Result: slight irritation
OECD Test Guideline 404

Causes skin irritation.

Eye irritation
rabbit
Result: Eye irritation
(IUCLID)

Causes serious eye irritation.

Sensitization
Sensitization test: guinea pig
Result: negative
(IUCLID)

Genotoxicity in vitro
Ames test
Salmonella typhimurium
Result: negative
Method: OECD Test Guideline 471

Specific target organ systemic toxicity - single exposure
The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ systemic toxicity - repeated exposure
The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard
Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
ACGIH	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Further information
The following applies to nitrites/nitrates in general: methemoglobinemia after the uptake of large quantities.
Further data:
Other dangerous properties can not be excluded.
Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to fish
LC50 Pimephales promelas (fathead minnow): 690 mg/l; 96 h (IUCLID)

Toxicity to daphnia and other aquatic invertebrates
EC50 Daphnia magna (Water flea): 56.6 mg/l; 48 h (IUCLID)

Toxicity to algae
IC50 Desmodesmus subspicatus (green algae): 55 mg/l; 72 h (IUCLID)

Toxicity to bacteria
EC10 Pseudomonas putida: 832 mg/l; 18 h (IUCLID)

Persistence and degradability
No information available.

Bioaccumulative potential
Partition coefficient: n-octanol/water
log Pow: -1.7 (20 °C)
OECD Test Guideline 107
Bioaccumulation is not expected (log Pow <1).

Mobility in soil

No information available.

Other adverse effects

Additional ecological information

Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14. Transport information

Land transport (DOT)

UN number	UN 1467
Proper shipping name	GUANIDINE NITRATE
Class	5.1
Packing group	III
Environmentally hazardous	--

Air transport (IATA)

UN number	UN 1467
Proper shipping name	GUANIDINE NITRATE
Class	5.1
Packing group	III
Environmentally hazardous	--
Special precautions for user	no

Sea transport (IMDG)

UN number	UN 1467
Proper shipping name	GUANIDINE NITRATE
Class	5.1
Packing group	III
Environmentally hazardous	--
Special precautions for user	yes
EmS	F-A S-Q

SECTION 15. Regulatory information

United States of America

OSHA Hazards

Oxidizer
Toxic by inhalation.
Harmful if swallowed.
Skin irritant
Eye irritant

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

SARA 311/312 Hazards

Reactivity Hazard
Acute Health Hazard

SARA 313

SARA 313: 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 302

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

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

Massachusetts Right To Know

Remarks
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know

Ingredients
Guanidinium nitrate

New Jersey Right To Know

Ingredients
Guanidinium nitrate

Notification status

TSCA:	On TSCA Inventory
DSL:	All components of this product are on the Canadian DSL.

SECTION 16. Other information

Training advice

Provide adequate information, instruction and training for operators.

Full text of H-Statements referred to under sections 2 and 3.

H272	May intensify fire; oxidizer.
H302	Harmful if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.

H412	Harmful to aquatic life with long lasting effects.

Key or legend to abbreviations and acronyms used in the safety data sheet
Used abbreviations and acronyms can be looked up at www.wikipedia.org.

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