

ALFAAJ65104

Guanidine thiocyanate, Molecular Biology Grade

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

产品说明:
Product Description: 异硫氰酸胍, 分子生物学级
 Guanidine thiocyanate, Molecular Biology Grade

Cat No. : J65104
Synonyms Guanidinium isothiocyanate; Thiocyanic acid, compound with Guanidine (1:1)
CAS No 593-84-0
Molecular Formula C2 H6 N4 S

Supplier Avocado Research Chemicals Ltd.
 (Part of Thermo Fisher Scientific)
 Shore Road, Heysham
 Lancashire, LA3 2XY,
 United Kingdom
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 Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99
CHEMTREC Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

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Recommended Use Laboratory chemicals.
Uses advised against No Information available

SECTION 2. HAZARD IDENTIFICATION

Physical State
 Powder Solid

Appearance
 Off-white

Odor
 Odorless

Emergency Overview

Harmful if swallowed. Harmful in contact with skin. Causes severe skin burns and eye damage. Harmful if inhaled. Harmful to aquatic life with long lasting effects. Contact with acids liberates very toxic gas. Corrosive to the respiratory tract. Sensitivity to light.

Classification of the substance or mixture

| | |
|---|--------------|
| Acute Oral Toxicity | Category 4 |
| Acute Dermal Toxicity | Category 4 |
| Acute Inhalation Toxicity - Dusts and Mists | Category 4 |
| Skin Corrosion/Irritation | Category 1 C |
| Serious Eye Damage/Eye Irritation | Category 1 |
| Chronic aquatic toxicity | Category 3 |

Label Elements

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**Signal Word****Danger****Hazard Statements**

H314 - Causes severe skin burns and eye damage

H412 - Harmful to aquatic life with long lasting effects

H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled

Precautionary Statements**Prevention**

P264 - Wash face, hands and any exposed skin thoroughly after handling

P270 - Do not eat, drink or smoke when using this product

P271 - Use only outdoors or in a well-ventilated area

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P284 - Wear respiratory protection

Response

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P310 - Immediately call a POISON CENTER or doctor

P330 - Rinse mouth

P331 - Do NOT induce vomiting

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower

P362 + P364 - Take off contaminated clothing and wash it before reuse

Storage

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

Physical and Chemical Hazards

Contact with acids liberates very toxic gas.

Health Hazards

Harmful if swallowed. Harmful in contact with skin. Corrosive. Causes skin and eye burns. Harmful if inhaled.

Environmental hazards

Harmful to aquatic life with long lasting effects. Will likely be mobile in the environment due to its water solubility. The product is water soluble, and may spread in water systems.

Toxic to terrestrial vertebrates. This product does not contain any known or suspected endocrine disruptors.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Component | CAS No | Weight % |
|--|----------|----------|
| Thiocyanic acid, compound with guanidine (1:1) | 593-84-0 | >95 |

SECTION 4. FIRST AID MEASURES**General Advice**

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required. Keep eye wide open while rinsing.

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Skin Contact

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Call a physician immediately.

Inhalation

Remove to fresh air. If not breathing, give artificial respiration. Call a physician or poison control center immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Ingestion

Immediate medical attention is required. Do NOT induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person.

Most important symptoms and effects

Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Self-Protection of the First Aider

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

Notes to Physician

Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

CO₂, dry chemical, dry sand, alcohol-resistant foam.

Extinguishing media which must not be used for safety reasons

No information available.

Specific Hazards Arising from the Chemical

The product causes burns of eyes, skin and mucous membranes.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions

Use personal protective equipment as required. Evacuate personnel to safe areas. Avoid contact with skin, eyes or clothing.

Environmental Precautions

Should not be released into the environment. Do not allow material to contaminate ground water system. Do not flush into surface water or sanitary sewer system.

Methods for Containment and Clean Up

Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

Refer to protective measures listed in Sections 8 and 13.

SECTION 7. HANDLING AND STORAGE

Handling

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Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe dust. Do not ingest. If swallowed then seek immediate medical assistance.

Storage

Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from light. Corrosives area. Keep under nitrogen.

Specific Use(s)

Use in laboratories

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters**Monitoring methods**

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

Exposure Controls**Engineering Measures**

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

Personal protective equipment**Eye Protection**

Goggles (European standard - EN 166)

Hand Protection

Protective gloves

| Glove material | Breakthrough time | Glove thickness | EU standard | Glove comments |
|----------------|-------------------|-----------------|-------------|-----------------------|
| Natural rubber | See manufacturers | - | EN 374 | (minimum requirement) |
| Nitrile rubber | recommendations | | | |
| Neoprene | | | | |
| PVC | | | | |

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Skin and body protection

Long sleeved clothing

Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Large scale/emergency use

Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced
Recommended Filter type: Particulates filter conforming to EN 143

Small scale/Laboratory use

Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Recommended half mask:- Particle filtering: EN149:2001
When RPE is used a face piece Fit Test should be conducted

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Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls Prevent product from entering drains.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

| | | |
|--|---------------------------------|--|
| Appearance | Off-white | |
| Physical State | Powder Solid | |
| Odor | Odorless | |
| Odor Threshold | No data available | |
| pH | approx 4.8 - 6.0 | 20% aq. solution |
| Melting Point/Range | 118 - 122 °C / 244.4 - 251.6 °F | |
| Softening Point | No data available | |
| Boiling Point/Range | No information available | |
| Flash Point | No information available | Method - No information available |
| Evaporation Rate | Not applicable | Solid |
| Flammability (solid,gas) | No information available | |
| Explosion Limits | No data available | |
| Vapor Pressure | negligible | |
| Vapor Density | Not applicable | Solid |
| Specific Gravity / Density | No data available | |
| Bulk Density | No data available | |
| Water Solubility | 1420 g/L (20°C) | |
| Solubility in other solvents | No information available | |
| Partition Coefficient (n-octanol/water) | | |
| Component | log Pow | |
| Thiocyanic acid, compound with guanidine (1:1) | -1.38 | |
| Autoignition Temperature | Not applicable | |
| Decomposition Temperature | No data available | |
| Viscosity | Not applicable | Solid |
| Explosive Properties | No information available | |
| Oxidizing Properties | No information available | |
| Molecular Formula | C2 H6 N4 S | |
| Molecular Weight | 118.16 | |

SECTION 10. STABILITY AND REACTIVITY

| | |
|---|--|
| Stability | Light sensitive. |
| Hazardous Reactions | None under normal processing. |
| Hazardous Polymerization | No information available. |
| Conditions to Avoid | Avoid dust formation. Incompatible products. Exposure to light. Excess heat. |
| Materials to avoid | Acids. Strong oxidizing agents. |
| Hazardous Decomposition Products | Hydrogen cyanide (hydrocyanic acid). Carbon monoxide (CO). Carbon dioxide (CO ₂). Nitrogen oxides (NO _x). Sulfur oxides. |

SECTION 11. TOXICOLOGICAL INFORMATION

Product Information

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(a) acute toxicity;

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|--|------------------------------------|-------------|---|
| Thiocyanic acid, compound with guanidine (1:1) | LD50 = 593 mg/kg (rat) OECD 401 | | LC50 combined: 5.319 mg/L LC50 Males: 7.655 mg/L LC50 Females: 3.181 mg/L (Rat) OECD 403 |

(b) skin corrosion/irritation; Category 1 C

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

Respiratory
Skin

Based on available data, the classification criteria are not met

Based on available data, the classification criteria are not met

(e) germ cell mutagenicity;

Based on available data, the classification criteria are not met

(f) carcinogenicity;

Based on available data, the classification criteria are not met

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity;

Based on available data, the classification criteria are not met

(h) STOT-single exposure;

Based on available data, the classification criteria are not met

(i) STOT-repeated exposure;

Based on available data, the classification criteria are not met

Target Organs

None known.

(j) aspiration hazard;

Not applicable
Solid

Symptoms / effects, both acute and delayed

Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity effects

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

| Component | Freshwater Fish | Water Flea | Freshwater Algae | Microtox |
|--|--|--------------------|------------------|----------|
| Thiocyanic acid, compound with guanidine (1:1) | Poecilia reticulata: LC50=89.1 mg/L 96h | EC50=42.4 mg/L 48h | | |

Persistence and Degradability**Persistence**

Persistence is unlikely.

| Component | Degradability |
|--|---------------|
| Thiocyanic acid, compound with guanidine (1:1) 593-84-0 (>95) | 46% OECD302B |

Degradation in sewage treatment plant

Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

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| Component | log Pow | Bioconcentration factor (BCF) |
|--|---------|-------------------------------|
| Thiocyanic acid, compound with guanidine (1:1) | -1.38 | No data available |

Mobility in soil The product is water soluble, and may spread in water systems Will likely be mobile in the environment due to its water solubility Highly mobile in soils**Endocrine Disruptor Information** This product does not contain any known or suspected endocrine disruptors**Persistent Organic Pollutant** This product does not contain any known or suspected substance**Ozone Depletion Potential** This product does not contain any known or suspected substance**SECTION 13. DISPOSAL CONSIDERATIONS****Waste from Residues/Unused Products** Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.**Contaminated Packaging** Dispose of this container to hazardous or special waste collection point.**Other Information** Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms. Do not let this chemical enter the environment.**SECTION 14. TRANSPORT INFORMATION****Road and Rail Transport**

UN-No UN3261
Proper Shipping Name Corrosive solid, acidic, organic, n.o.s.
Technical Shipping Name Guanidine thiocyanate
Hazard Class 8
Packing Group III

IMDG/IMO

UN-No UN3261
Proper Shipping Name Corrosive solid, acidic, organic, n.o.s.
Technical Shipping Name Guanidine thiocyanate
Hazard Class 8
Packing Group III

IATA

UN-No UN3261
Proper Shipping Name Corrosive solid, acidic, organic, n.o.s.
Technical Shipping Name Guanidine thiocyanate
Hazard Class 8
Packing Group III

Special Precautions for User No special precautions required**SECTION 15. REGULATORY INFORMATION****International Inventories**

X = listed, China (IECSC), Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), Korea (KECL).

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| Component | The Inventory of Hazardous Chemicals (2015 Edition) | List of dangerous goods GB 12268 - 2012 | TCSI | IECSC | EINECS | TSCA | DSL | PICCS | ENCS | ISHL | AICS | KECL |
|--|---|---|------|-------|-----------|------|-----|-------|------|------|------|------|
| Thiocyanic acid, compound with guanidine (1:1) | - | - | X | X | 209-812-1 | X | X | X | X | X | X | - |

National Regulations

SECTION 16. OTHER INFORMATION

Prepared By Health, Safety and Environmental Department
Creation Date 26-Oct-2009
Revision Date 14-Jan-2025
Revision Summary Not applicable.

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Legend

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

DNEL - Derived No Effect Level

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

NOEC - No Observed Effect Concentration

PBT - Persistent, Bioaccumulative, Toxic

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

PNEC - Predicted No Effect Concentration

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

OECD - Organisation for Economic Co-operation and Development

BCF - Bioconcentration factor

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

MARPOL - International Convention for the Prevention of Pollution from Ships

ATE - Acute Toxicity Estimate

VOC - (Volatile Organic Compound)

Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadviser - LOLI, Merck index, RTECS

Disclaimer

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,

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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 Safety Data Sheet