

Creation Date 10-Jun-2020

Revision Date 11-Oct-2023

Revision Number 10

## SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1. Product identifier

<b>Product Description:</b>	<b>Guanidine thiocyanate</b>
<b>Cat No. :</b>	<b>433940000; 433941000; 433945000</b>
<b>Synonyms</b>	Guanidinium isothiocyanate; Thiocyanic acid, compound with Guanidine (1:1)
<b>CAS No</b>	593-84-0
<b>EC No</b>	209-812-1
<b>Molecular Formula</b>	C <sub>2</sub> H <sub>6</sub> N <sub>4</sub> S
<b>REACH registration number</b>	01-2120735072-65-0015

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

<b>Recommended Use</b>	Laboratory chemicals.
<b>Sector of use</b>	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU24 - Scientific research and development
<b>Product category</b>	PC21 - Laboratory chemicals
<b>Process categories</b>	PROC3 - Use in closed batch process (synthesis or formulation); Industrial setting PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities
<b>Environmental release category</b>	PROC15 - Use as a laboratory reagent ERC2 - Formulation of preparations ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
<b>Uses advised against</b>	SU21 - Consumer uses: Private households (= general public = consumers)

### 1.3. Details of the supplier of the safety data sheet

<b>Company</b>	<b>UK entity/business name</b> Fisher Scientific UK Bishop Meadow Road, Loughborough, Leicestershire LE11 5RG, United Kingdom
	<b>EU entity/business name</b> Thermo Fisher Scientific Janssen Pharmaceuticaan 3a, 2440 Geel, Belgium
<b>E-mail address</b>	begel.sdsdesk@thermofisher.com

### 1.4. Emergency telephone number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11  
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

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the substance or mixture

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## CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

### Physical hazards

Based on available data, the classification criteria are not met

### Health hazards

Acute oral toxicity	Category 4 (H302)
Acute dermal toxicity	Category 4 (H312)
Acute Inhalation Toxicity - Dusts and Mists	Category 4 (H332)
Skin Corrosion/Irritation	Category 1 C (H314)
Serious Eye Damage/Eye Irritation	Category 1 (H318)

### Environmental hazards

Chronic aquatic toxicity	Category 3 (H412)
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Full text of Hazard Statements: see section 16

## 2.2. Label elements



Signal Word

Danger

### Hazard Statements

H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled  
H314 - Causes severe skin burns and eye damage  
H412 - Harmful to aquatic life with long lasting effects  
EUH032 - Contact with acids liberates very toxic gas  
EUH071 - Corrosive to the respiratory tract

### Precautionary Statements

P280 - Wear protective gloves/protective clothing/eye protection/face protection  
P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting  
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower  
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/physician

## 2.3. Other hazards

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB)

Toxic to terrestrial vertebrates

This product does not contain any known or suspected endocrine disruptors

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## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1. Substances

Component	CAS No	EC No	Weight %	CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567
Thiocyanic acid, compound with guanidine (1:1)	593-84-0	EEC No. 209-812-1	>95	Acute Tox. 4 (H302) Acute Tox. 4 (H312) Acute Tox. 4 (H332) Skin Corr. 1C (H314) Eye Dam. 1 (H318) Aquatic Chronic 3 (H412) (EUH032) (EUH071)

REACH registration number

01-2120735072-65-0015

Full text of Hazard Statements: see section 16

## SECTION 4: FIRST AID MEASURES

### 4.1. Description of first aid measures

<b>General Advice</b>	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
<b>Eye Contact</b>	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.
<b>Skin Contact</b>	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Call a physician immediately.
<b>Ingestion</b>	Immediate medical attention is required. Do NOT induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person.
<b>Inhalation</b>	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.
<b>Self-Protection of the First Aider</b>	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

### 4.2. Most important symptoms and effects, both acute and delayed

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

### 4.3. Indication of any immediate medical attention and special treatment needed

**Notes to Physician** Treat symptomatically.

## SECTION 5: FIREFIGHTING MEASURES

ACR43394

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## 5.1. Extinguishing media

### **Suitable Extinguishing Media**

CO<sub>2</sub>, dry chemical, dry sand, alcohol-resistant foam.

### **Extinguishing media which must not be used for safety reasons**

No information available.

## 5.2. Special hazards arising from the substance or mixture

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

### **Hazardous Combustion Products**

Hydrogen cyanide (hydrocyanic acid), Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Nitrogen oxides (NO<sub>x</sub>), Sulfur oxides.

## 5.3. Advice 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

### 6.1. Personal precautions, protective equipment and emergency procedures

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

### 6.2. 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.

### 6.3. Methods and material for containment and cleaning up

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

### 6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

## SECTION 7: HANDLING AND STORAGE

### 7.1. Precautions for safe handling

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.

### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

### 7.2. Conditions for safe storage, including any incompatibilities

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

Technical Rules for Hazardous Substances (TRGS) 510

Class 8A

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Storage Class (LGK) (Germany)

## 7.3. Specific end use(s)

Use in laboratories

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

#### Exposure limits

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

#### Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

#### Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

See table for values

Component	Acute effects local (Dermal)	Acute effects systemic (Dermal)	Chronic effects local (Dermal)	Chronic effects systemic (Dermal)
Thiocyanic acid, compound with guanidine (1:1) 593-84-0 ( >95 )				DNEL = 0.31mg/kg bw/day

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
Thiocyanic acid, compound with guanidine (1:1) 593-84-0 ( >95 )		DNEL = 3.28mg/m <sup>3</sup>		DNEL = 1.092mg/m <sup>3</sup>

#### Predicted No Effect Concentration (PNEC)

See values below.

Component	Fresh water	Fresh water sediment	Water Intermittent	Microorganisms in sewage treatment	Soil (Agriculture)
Thiocyanic acid, compound with guanidine (1:1) 593-84-0 ( >95 )	PNEC = 42.4µg/L	PNEC = 165µg/kg sediment dw	PNEC = 424µg/L	PNEC = 20mg/L	PNEC = 8.03µg/kg soil dw

Component	Marine water	Marine water sediment	Marine water intermittent	Food chain	Air
Thiocyanic acid, compound with guanidine (1:1) 593-84-0 ( >95 )	PNEC = 4.24µg/L	PNEC = 16.5µg/kg sediment dw	PNEC = 424µg/L		

### 8.2. Exposure controls

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## 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				

**Skin and body protection** Long sleeved clothing.

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 compatability, 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.

**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

**Environmental exposure controls** Prevent product from entering drains.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

<b>Physical State</b>	Powder Solid	
<b>Appearance</b>	Off-white	
<b>Odor</b>	Odorless	
<b>Odor Threshold</b>	No data available	
<b>Melting Point/Range</b>	118 - 122 °C / 244.4 - 251.6 °F	
<b>Softening Point</b>	No data available	
<b>Boiling Point/Range</b>	No information available	
<b>Flammability (liquid)</b>	Not applicable	Solid
<b>Flammability (solid,gas)</b>	No information available	
<b>Explosion Limits</b>	No data available	
<b>Flash Point</b>	No information available	<b>Method -</b> No information available
<b>Autoignition Temperature</b>	Not applicable	
<b>Decomposition Temperature</b>	No data available	

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pH	approx 4.8 - 6.0	20% aq. solution
Viscosity	Not applicable	Solid
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	
Vapor Pressure	negligible	
Density / Specific Gravity	No data available	
Bulk Density	No data available	
Vapor Density	Not applicable	Solid
Particle characteristics	No data available	

## 9.2. Other information

Molecular Formula	C2 H6 N4 S
Molecular Weight	118.16
Evaporation Rate	Not applicable - Solid

## SECTION 10: STABILITY AND REACTIVITY

### 10.1. Reactivity

Yes Contact with acids liberates very toxic gas

### 10.2. Chemical stability

Light sensitive.

### 10.3. Possibility of hazardous reactions

Hazardous Polymerization	No information available.
Hazardous Reactions	None under normal processing.

### 10.4. Conditions to avoid

Avoid dust formation. Incompatible products. Exposure to light. Excess heat.

### 10.5. Incompatible materials

Acids. Strong oxidizing agents.

### 10.6. Hazardous decomposition products

Hydrogen cyanide (hydrocyanic acid). Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Nitrogen oxides (NO<sub>x</sub>). Sulfur oxides.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### Product Information

#### (a) acute toxicity;

Oral	Category 4
Dermal	Category 4
Inhalation	Category 4

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Thiocyanic acid, compound with guanidine	282 mg/kg (rat)	-	-

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(1:1)	593 mg/kg (rat)		
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(b) skin corrosion/irritation; Category 1 C

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

Respiratory

Based on available data, the classification criteria are not met

Skin

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.

## 11.2. Information on other hazards

**Endocrine Disrupting Properties** Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

#### 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
Thiocyanic acid, compound with guanidine (1:1)	Poecilia reticulata: LC50=89.1 mg/L 96h	EC50=42.4 mg/L 48h	

### 12.2. Persistence and degradability

#### Persistence

May persist.



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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.

**12.3. Bioaccumulative potential**

Bioaccumulation is unlikely

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

**12.4. 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

**12.5. Results of PBT and vPvB assessment**

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB).

**12.6. Endocrine disrupting properties**

**Endocrine Disruptor Information**

This product does not contain any known or suspected endocrine disruptors

**12.7. Other adverse effects  
Persistent Organic Pollutant  
Ozone Depletion Potential**

This product does not contain any known or suspected substance  
This product does not contain any known or suspected substance

## SECTION 13: DISPOSAL CONSIDERATIONS

**13.1. Waste treatment methods**

**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.

**European Waste Catalogue (EWC)**

According to the European Waste Catalog, Waste Codes are not product specific, but application specific.

**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

**IMDG/IMO**

**14.1. UN number**

UN3261

**14.2. UN proper shipping name  
Technical Shipping Name**

Corrosive solid, acidic, organic, n.o.s.  
Guanidine thiocyanate

**14.3. Transport hazard class(es)**

8

**14.4. Packing group**

III

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## ADR

<b>14.1. UN number</b>	UN3261
<b>14.2. UN proper shipping name</b>	Corrosive solid, acidic, organic, n.o.s.
<b>Technical Shipping Name</b>	Guanidine thiocyanate
<b>14.3. Transport hazard class(es)</b>	8
<b>14.4. Packing group</b>	III

## IATA

<b>14.1. UN number</b>	UN3261
<b>14.2. UN proper shipping name</b>	Corrosive solid, acidic, organic, n.o.s.
<b>Technical Shipping Name</b>	Guanidine thiocyanate
<b>14.3. Transport hazard class(es)</b>	8
<b>14.4. Packing group</b>	III

<b>14.5. Environmental hazards</b>	No hazards identified
<b>14.6. Special precautions for user</b>	No special precautions required.
<b>14.7. Maritime transport in bulk according to IMO instruments</b>	Not applicable, packaged goods

## SECTION 15: REGULATORY INFORMATION

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### International Inventories

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Thiocyanic acid, compound with guanidine (1:1)	593-84-0	209-812-1	-	-	X	X	-	X	X

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Thiocyanic acid, compound with guanidine (1:1)	593-84-0	X	ACTIVE	X	-	X	X	X

**Legend:** X - Listed '-' - Not Listed

**KECL** - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

#### Authorisation/Restrictions according to EU REACH

Not applicable

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Thiocyanic acid, compound with guanidine (1:1)	593-84-0	-	-	-

#### Seveso III Directive (2012/18/EC)

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Thiocyanic acid, compound	593-84-0	Not applicable	Not applicable

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with guanidine (1:1)			
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**Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals**

Not applicable

**Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?**

Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

## National Regulations

**UK** - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

## WGK Classification

See table for values

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
Thiocyanic acid, compound with guanidine (1:1)	WGK2	

## 15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

## SECTION 16: OTHER INFORMATION

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

H302 - Harmful if swallowed  
H312 - Harmful in contact with skin  
H332 - Harmful if inhaled  
H314 - Causes severe skin burns and eye damage  
H318 - Causes serious eye damage  
H412 - Harmful to aquatic life with long lasting effects  
EUH032 - Contact with acids liberates very toxic gas  
EUH071 - Corrosive to the respiratory tract

### 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

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer  
Predicted No Effect Concentration (PNEC)

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**RPE** - Respiratory Protective Equipment  
**LC50** - Lethal Concentration 50%  
**NOEC** - No Observed Effect Concentration  
**PBT** - Persistent, Bioaccumulative, Toxic

**LD50** - Lethal Dose 50%  
**EC50** - Effective Concentration 50%  
**POW** - Partition coefficient Octanol:Water  
**vPvB** - very Persistent, very Bioaccumulative

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road  
**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code  
**OECD** - Organisation for Economic Co-operation and Development  
**BCF** - Bioconcentration factor

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association  
**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, Chemadvisor - LOLI, Merck index, RTECS

**Training Advice**

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

**Creation Date** 10-Jun-2020  
**Revision Date** 11-Oct-2023  
**Revision Summary** Not applicable.

**This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as amended.**

**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, 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**

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

### Guanidine thiocyanate -Exposure scenarios

<b>CAS No</b> 593-84-0	<b>REACH registration number</b> 01-2120735072-65-0015	<b>EC No</b> 209-812-1
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Exposure Scenarios Overview				
Title	Sector of use	Process category(ies)	Environmental release category	ES Identifier
Formulation of preparations and/or re-packaging	SU24 - Scientific research and development	3, 8a	ERC2 - Formulation of preparations	ES1-F1 GUANIDINE SCN
Laboratory use	SU24 - Scientific research and development	15	ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles	ES2-L1 GUANIDINE SCN
Manufacture or use as an intermediate or process chemical or extraction agent	SU24 - Scientific research and development	3	ERC2 - Formulation of preparations	ES3-M1 GUANIDINE SCN

### Exposure scenario

**guanidine thiocyanate - formulation and repacking - ES1-F1 GUANIDINE SCN**

### Section 1 - Title

<b>Main user group</b>	Research and development
<b>Type</b>	Worker
<b>Processes, tasks, activities covered</b>	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities. Laboratory reagent and solvent involving transfer from larger to small containers and vice versa.
<b>Sector(s) of use</b>	SU24 - Scientific research and development
<b>Product category(ies)</b>	PC21 - Laboratory chemicals
<b>Process category(ies)</b>	PROC3 - Use in closed batch process (synthesis or formulation) PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC15 - Use as laboratory reagent
<b>Environmental release category(ies)</b>	ERC2 - Formulation of preparations (mixtures)

### Section 2 - Operational Conditions and Risk Management Measures

#### Product characteristics

#### Product characteristics

Physical form of product

Solid.

Level of dustiness

Low.

Volatility

Very low.

<b>pH</b>	5.0 -5.5
<b>Water Solubility</b>	Soluble in water 636 g/L @ 25 °C

## Section 2.1 - Control of environmental exposure

### Environmental release category(ies)

ERC2 - Formulation of preparations (mixtures)

### Control of environmental exposure

Not readily biodegradable

### Control of worker exposure

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	100%
Exposure duration	>4 hours (default)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	40C
Minimum room ventilation rate for handling/application (air changes per hour)	1-3
Covers skin contact area up to	240 cm <sup>2</sup>
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 90%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear gloves according to EN374 to protect against skin effects from powders Use eye protection according to EN 166, designed to protect against dusts

**Control of consumer exposure** Not intended for consumer use

## Section 3 - Exposure estimation

### Environment

#### Environmental release category(ies)

ERC2 - Formulation of preparations (mixtures)

<b>Fresh water</b>	0.000015mg/l	<b>Marine water</b>	0.0000015 mg/l
<b>Fresh water sediment</b>	0.000058 mg/kg dw	<b>Marine water sediment</b>	0.0000058 mg/kg dw
<b>Soil (Agriculture)</b>	0.00001 mg/kg dw		

### Health

**Derived No Effect Level (DNEL)** - No information available

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral				
Dermal				0.31 mg/kg bw/d
Inhalation				1.092 mg/m <sup>3</sup>

Process category(ies)	Exposure route	Predicted exposure level	Risk characterization ratio (RCR)
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	0.01 mg/m <sup>3</sup>	0.045
PROC8a - Transfer of substance or	Worker - inhalative, short-term -	0.04 mg/m <sup>4</sup>	0.015

preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	systemic		
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	0.00345 mg/kg bw/d	0.011

## Section 4 - Guidance to check compliance with the exposure scenario

**Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]****Exposure scenario****guanidine thiocyanate - laboratory use - ES2-L1 GUANIDINE SCN****Section 1 - Title**

<b>Main user group</b>	Research and development
<b>Type</b>	Worker
<b>Processes, tasks, activities covered</b>	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities. Laboratory reagent and solvent involving transfer from larger to small containers and vice versa.
<b>Sector(s) of use</b>	SU24 - Scientific research and development
<b>Product category(ies)</b>	PC21 - Laboratory chemicals
<b>Process category(ies)</b>	PROC15 - Use as laboratory reagent
<b>Environmental release category(ies)</b>	ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

**Section 2 - Operational Conditions and Risk Management Measures****Product characteristics****Product characteristics**

Physical form of product

Solid.

Level of dustiness

Low.

Volatility

Very low.

**pH**

5.0 -5.5

**Water Solubility**

Soluble in water 636 g/L @ 25 °C

**Section 2.1 - Control of environmental exposure****Environmental release category(ies)**

ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

**Control of environmental exposure**

Not readily biodegradable

**Control of worker exposure**

Process category(ies)

PROC15 - Use as laboratory reagent



Covers concentrations up to	100%
Exposure duration	>4 hours (default)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	40C
Minimum room ventilation rate for handling/application (air changes per hour)	1-3
Covers skin contact area up to	240 cm <sup>2</sup>
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 90%
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against dusts Wear gloves according to EN374 to protect against skin effects from powders

**Control of consumer exposure** Not intended for consumer use

### Section 3 - Exposure estimation

#### Environment

##### Environmental release category(ies)

ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

<b>Fresh water</b>	0.000015 mg/l	<b>Marine water</b>	0.0000014 mg/l
<b>Fresh water sediment</b>	0.000058 mg/kg dw	<b>Marine water sediment</b>	0.0000056 mg/kg dw
<b>Soil (Agriculture)</b>	0.000021mg/kg dw		

#### Health

**Derived No Effect Level (DNEL)** - No information available

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral				
Dermal				0.31 mg/kg bw/d
Inhalation				1.092 mg/m <sup>3</sup>

Process category(ies)	Exposure route	Predicted exposure level	Risk characterization ratio (RCR)
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - systemic	0.049 mg/m <sup>3</sup>	0.045
PROC15 - Use as laboratory reagent	Worker - inhalative, short-term - systemic	0.049 mg/m <sup>4</sup>	0.015
PROC15 - Use as laboratory reagent	Worker - dermal, long-term - systemic	0.0068 mg/kg bw/d	0.022

### Section 4 - Guidance to check compliance with the exposure scenario

**Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]****Exposure scenario****guanidine thiocyanate - ES3-M1 GUANIDINE SCN****Section 1 - Title**

<b>Main user group</b>	Research and development
<b>Type</b>	Worker
<b>Processes, tasks, activities covered</b>	Manufacture or use as an intermediate or process chemical or extraction agent
<b>Sector(s) of use</b>	SU24 - Scientific research and development
<b>Product category(ies)</b>	PC21 - Laboratory chemicals
<b>Process category(ies)</b>	PROC3 - Use in closed batch process (synthesis or formulation)
<b>Environmental release category(ies)</b>	ERC2 - Formulation of preparations (mixtures)

**Section 2 - Operational Conditions and Risk Management Measures****Product characteristics****Product characteristics**

Physical form of product

Solid.

Level of dustiness

Low.

Volatility

Very low.

**pH**

5.0 -5.5

**Water Solubility**

Soluble in water 636 g/L @ 25 °C

**Section 2.1 - Control of environmental exposure****Environmental release category(ies)**

ERC2 - Formulation of preparations (mixtures)

**Control of environmental exposure**

Not readily biodegradable

**Control of worker exposure**

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Exposure duration	>4 hours (default)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	40C
Minimum room ventilation rate for	1-3

handling/application (air changes per hour)

Covers skin contact area up to 240 cm<sup>2</sup>

Technical conditions and measures to control dispersion from source towards the worker Local exhaust ventilation - efficiency of at least 90%

Conditions and measures related to personal protection, hygiene and health evaluation Wear gloves according to EN374 to protect against skin effects from powders Use eye protection according to EN 166, designed to protect against dusts

**Control of consumer exposure** Not intended for consumer use

### Section 3 - Exposure estimation

#### Environment

##### Environmental release category(ies)

ERC2 - Formulation of preparations (mixtures)

<b>Fresh water</b>	0.042 mg/l	<b>Marine water</b>	0.00424 mg/l
<b>Fresh water sediment</b>	0.165 mg/kg dw	<b>Marine water sediment</b>	0.0165 mg/kg dw
<b>Water Intermittent</b>	0.424 mg/l	<b>Soil (Agriculture)</b>	0.008 mg/kg dw

#### Health

**Derived No Effect Level (DNEL)** - No information available

<u>Route of exposure</u>	<b>Acute effects (local)</b>	<b>Acute effects (systemic)</b>	<b>Chronic effects (local)</b>	<b>Chronic effects (systemic)</b>
<b>Oral</b>				
<b>Dermal</b>				0.31 mg/kg bw/d
<b>Inhalation</b>				1.092 mg/m <sup>3</sup>

<b>Process category(ies)</b>	<b>Exposure route</b>	<b>Predicted exposure level</b>	<b>Risk characterization ratio (RCR)</b>
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	0.01 mg/m <sup>3</sup>	0.045
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, short-term - systemic	0.04 mg/m <sup>4</sup>	0.015
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.00345 mg/kg bw/d	0.011

### Section 4 - Guidance to check compliance with the exposure scenario