

Creation Date 10-Jun-2020

Revision Date 18-Oct-2023

Revision Number 10

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

1.1. Product identifier

Product Description:	<u>Guanidine thiocyanate</u>
Cat No. :	BP221-1; BP221-250
Synonyms	Guanidinium isothiocyanate; Thiocyanic acid, compound with Guanidine (1:1)
CAS No	593-84-0
EC No	209-812-1
Molecular Formula	C ₂ H ₆ N ₄ S
REACH registration number	01-2120735072-65-0015

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

Recommended Use	Laboratory chemicals.
Sector of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU24 - Scientific research and development
Product category	PC21 - Laboratory chemicals
Process categories	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
Environmental release category	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
Uses advised against	SU21 - Consumer uses: Private households (= general public = consumers)

1.3. Details of the supplier of the safety data sheet

Company

UK entity/business name
Fisher Scientific UK
Bishop Meadow Road,
Loughborough, Leicestershire LE11 5RG,
United Kingdom

EU entity/business name
Thermo Fisher Scientific
Janssen Pharmaceuticaaan 3a, 2440 Geel,
Belgium

E-mail address 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

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2.1. Classification of the substance or mixture

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)

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Toxic to terrestrial vertebrates

This product does not contain any known or suspected endocrine disruptors

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

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.
Skin Contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Call a physician immediately.
Ingestion	Immediate medical attention is required. Do NOT induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person.
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.
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.

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.

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SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media

CO₂, 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 (CO₂), Nitrogen oxides (NO_x), 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

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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

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 ³		DNEL = 1.092mg/m ³

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		

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8.2. 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				

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 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.

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

Physical State

Powder Solid

Appearance

Off-white

Odor

Odorless

Odor Threshold

No data available

Melting Point/Range

118 - 122 °C / 244.4 - 251.6 °F

Softening Point

No data available

Boiling Point/Range

No information available

Flammability (liquid)

Not applicable

Solid

Flammability (solid,gas)

No information available

Explosion Limits

No data available

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Flash Point	No information available	Method - No information available
Autoignition Temperature	Not applicable	
Decomposition Temperature	No data available	
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 (CO₂). Nitrogen oxides (NO_x). 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

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Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Thiocyanic acid, compound with guanidine (1:1)	282 mg/kg (rat) 593 mg/kg (rat)	-	-

(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.

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	

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12.2. Persistence and degradability

Persistence May persist.

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

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

Technical Shipping Name

Guanidine thiocyanate

14.3. Transport hazard class(es)

8

14.4. Packing group

III

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ADR

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

IATA

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

14.5. Environmental hazards	No hazards identified
14.6. Special precautions for user	No special precautions required.
14.7. Maritime transport in bulk according to IMO instruments	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	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report
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		Notification	Requirements
Thiocyanic acid, compound with guanidine (1:1)	593-84-0	Not applicable	Not applicable

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

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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

Predicted No Effect Concentration (PNEC)

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

18-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

CAS No 593-84-0	REACH registration number 01-2120735072-65-0015	EC No 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

Main user group	Research and development
Type	Worker
Processes, tasks, activities covered	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.
Sector(s) of use	SU24 - Scientific research and development
Product category(ies)	PC21 - Laboratory chemicals
Process category(ies)	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
Environmental release category(ies)	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)	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 ²
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)

Fresh water	0.000015mg/l	Marine water	0.0000015 mg/l
Fresh water sediment	0.000058 mg/kg dw	Marine water sediment	0.0000058 mg/kg dw
Soil (Agriculture)	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 ³

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 ³	0.045
PROC8a - Transfer of substance or	Worker - inhalative, short-term -	0.04 mg/m ⁴	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**

Main user group	Research and development
Type	Worker
Processes, tasks, activities covered	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.
Sector(s) of use	SU24 - Scientific research and development
Product category(ies)	PC21 - Laboratory chemicals
Process category(ies)	PROC15 - Use as laboratory reagent
Environmental release category(ies)	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 ²
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

Fresh water	0.000015 mg/l	Marine water	0.0000014 mg/l
Fresh water sediment	0.000058 mg/kg dw	Marine water sediment	0.0000056 mg/kg dw
Soil (Agriculture)	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 ³

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 ³	0.045
PROC15 - Use as laboratory reagent	Worker - inhalative, short-term - systemic	0.049 mg/m ⁴	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**

Main user group	Research and development
Type	Worker
Processes, tasks, activities covered	Manufacture or use as an intermediate or process chemical or extraction agent
Sector(s) of use	SU24 - Scientific research and development
Product category(ies)	PC21 - Laboratory chemicals
Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Environmental release category(ies)	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 cm²

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)

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

Health

Derived No Effect Level (DNEL) - No information available

<u>Route of exposure</u>	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 ³

Process category(ies)	Exposure route	Predicted exposure level	Risk characterization ratio (RCR)
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	0.01 mg/m ³	0.045
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, short-term - systemic	0.04 mg/m ⁴	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