THIOUREA
Safety Data Sheet
According to SANS 10234:2019 and SANS 11014:2010
Issue date:03/07/2020 Revision date: 03/07/2025 : Version: 1.0

SECTION 1: Identification

1.1. Product identifier

Trade name	:	THIOUREA
EC-No.	:	200-543-5
EC Index-No.	:	612-082-00-0
CAS-No.	:	62-56-6
UN-No. (ADR)	:	3077
Product code	:	120050xxx
Formula	:	CH4N2S

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

Recommended uses and restrictions : For laboratory use only

1.3. Supplier's details

Labchem (Pty)Ltd
6 Wakefield Road
Founders Hill
1609 Johannesburg - South Africa
T +27 11 452 1116 - F +27 86 588 0293
techlab@labchem.co.za - www.labchem.co.za

1.4. Emergency telephone number

Emergency number : +27 11 452 1116

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to the United Nations GHS

Acute toxicity (oral), Category 5	H303
Carcinogenicity, Category 2	H351
Reproductive toxicity, Category 2	H361
Hazardous to the aquatic environment — Acute Hazard, Category 3	H402
Hazardous to the aquatic environment — Chronic Hazard, Category 2	H411

Full text of H statements : see section 16

2.2. Label elements

Labelling according to the United Nations GHS

Hazard pictograms (GHS-ZA) :

GHS08

GHS09

Signal word (GHS-ZA) : Warning

Hazard statements (GHS-ZA) :
H303 - May be harmful if swallowed
H351 - Suspected of causing cancer.
H361 - Suspected of damaging fertility or the unborn child.
H402 - Harmful to aquatic life
H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements (GHS-ZA) :
P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P273 - Avoid release to the environment.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P308+P313 - IF exposed or concerned: Get medical advice/attention.
P312 - Call a POISON CENTER or doctor if you feel unwell.
P391 - Collect spillage.
P405 - Store locked up.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards

Adverse physicochemical, human health and environmental effects : Suspected of causing cancer,Suspected of damaging fertility or the unborn child,Harmful if swallowed,Harmful to aquatic life,Toxic to aquatic life with long lasting effects.

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance identification codes: See section 1.1

Name	Product identifier	%	Classification according to the United Nations GHS
thiourea (Main constituent)	(CAS-No.) 62-56-6	≥ 99	Acute Tox. 5 (Oral), H303 Carc. 2, H351 Repr. 2, H361 Aquatic Acute 3, H402 Aquatic Chronic 2, H411

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital. Never give alcohol to drink. IF exposed or concerned: Get medical advice/attention. Call a poison center or a doctor if you feel unwell.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

First-aid measures after skin contact : Rinse with water. Soap may be used. Do not apply (chemical) neutralizing agents. Take victim to a doctor if irritation persists. Wash skin with plenty of water.

First-aid measures after eye contact : Rinse with water. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists. Rinse eyes with water as a precaution.

First-aid measures after ingestion : Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Victim is fully conscious: immediately induce vomiting. Induce vomiting by giving a 0.9 % saline solution. Call Poison Information Centre (www.big.be/antigif.html). Consult a doctor/medical service if you feel unwell. Take the container/vomit to the doctor/hospital. Doctor: gastric lavage. Ingestion of large quantities: immediately to hospital. Rinse mouth. Call a poison center or a doctor if you feel unwell.

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

Symptoms/effects after inhalation : AFTER INHALATION OF DUST: Dry/sore throat. Coughing.

Symptoms/effects after skin contact : Red skin. Itching.

Symptoms/effects after eye contact : Redness of the eye tissue.

Symptoms/effects after ingestion : Gastrointestinal complaints. AFTER INGESTION OF HIGH QUANTITIES: Body temperature rise. Red skin.

Chronic symptoms : Skin rash/inflammation. Photoallergy. Affection of the bone marrow. Change in the haemogramme/blood composition. Thyroid enlargement/affection.

Potential adverse human health effects and symptoms : Photosensitizing. Harmful if swallowed. Practically non-toxic in contact with skin (LD50 skin > 2000 mg/kg). Not irritant to skin. Not irritant to eyes. Caution! Substance is absorbed through the skin.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Quick-acting ABC powder extinguisher. Class A foam extinguisher. Water (quick-acting extinguisher, reel). Water. Class A foam. Water spray. Dry powder. Foam.

Unsuitable extinguishing media : Quick-acting BC powder extinguisher. Quick-acting CO2 extinguisher.

5.2. Special hazards arising from the substance or mixture

Fire hazard : DIRECT FIRE HAZARD: Not easily combustible. In finely divided state: increased fire hazard. INDIRECT FIRE HAZARD: Heating increases the fire hazard.

Explosion hazard : DIRECT EXPLOSION HAZARD: Fine dust is explosive with air. INDIRECT EXPLOSION HAZARD: Dust cloud can be ignited by a spark.

Hazardous decomposition products in case of fire : On heating/burning: release of toxic and corrosive gases/vapours (nitrous vapours, sulphur oxides, carbon monoxide - carbon dioxide).

5.3. Advice for firefighters

Precautionary measures fire	:	Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.
Firefighting instructions	:	Cool tanks/drums with water spray/remove them into safety. Dilute toxic gases with water spray. Take account of toxic/corrosive precipitation water. Take account of environmentally hazardous firefighting water. Use water moderately and if possible collect or contain it.
Protection during firefighting	:	Heat/fire exposure: compressed air apparatus (EN 136 + EN 137). Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

No additional information available

6.1.1. For non-emergency personnel

Protective equipment	:	Gloves (EN 374). Protective clothing (EN 14605 or EN 13034). Dust cloud production: compressed air apparatus (EN 136 + EN 137). Reactivity hazard: compressed air apparatus (EN 136 + EN 137). Reactivity hazard: gas-tight suit (EN 943).
Emergency procedures	:	Ventilate spillage area. Mark the danger area. Prevent dust cloud formation. No naked flames. Wash contaminated clothes. In case of hazardous reactions: keep upwind. In case of reactivity hazard: consider evacuation.

6.1.2. For emergency responders

Protective equipment	:	Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment. Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

For containment	:	Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Dam up the solid spill. Knock down/dilute dust cloud with water spray. Powdered form: no compressed air for pumping over spills. If reacting: dilute toxic gas/vapour with water spray. Take account of toxic/corrosive precipitation water. Collect spillage.
Methods for cleaning up	:	Mechanically recover the product. Stop dust cloud by covering with sand/earth. Scoop solid spill into closing containers. Carefully collect the spill/leftovers. Powdered: do not use compressed air for pumping over spills. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling. Notify authorities if product enters sewers or public waters.
Other information	:	Dispose of materials or solid residues at an authorized site.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	:	Ensure good ventilation of the work station. Avoid raising dust. Keep away from naked flames/heat. In finely divided state: use spark-/explosionproof appliances. Finely divided: keep away from ignition sources/sparks. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Do not discharge the waste into the drain. Thoroughly clean/dry the installation before use. Powdered form: no compressed air for pumping over. Keep container tightly closed. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear personal protective equipment.
Hygiene measures	:	Observe very strict hygiene - avoid contact. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	:	Store locked up. Store in a well-ventilated place. Keep cool.
Storage area	:	Store in a dry area. Keep container in a well-ventilated place. Provide the tank with earthing. Meet the legal requirements.
Heat and ignition sources	:	KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.
Information on mixed storage	:	KEEP SUBSTANCE AWAY FROM: oxidizing agents. (strong) acids. (strong) bases.
Special rules on packaging	:	SPECIAL REQUIREMENTS: closing. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
Packaging materials	:	SUITABLE MATERIAL: cardboard. plastics.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls	:	Ensure good ventilation of the work station.
Environmental exposure controls	:	Avoid release to the environment.

8.3. Individual protection measures, such as personal protective equipment (PPE)

Materials for protective clothing	:	GIVE GOOD RESISTANCE: chloroprene rubber. nitrile rubber
Hand protection	:	Protective gloves against chemicals (EN 374)
Eye protection	:	Safety glasses (EN166). In case of dust production: protective goggles (EN 166). Safety glasses
Skin and body protection	:	Protective clothing (EN 14605 or EN 13034). In case of dust production: dustproof clothing (EN 13982)
Respiratory protection	:	Dust production: dust mask with filter type P2. High dust production: compressed air apparatus (EN 136 + EN 137). [In case of inadequate ventilation] wear respiratory protection.

Personal protective equipment symbol(s):

8.4. Exposure limit values for the other components

No additional information available

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Solid
Appearance	:	Crystalline solid. Powder.
Molecular mass	:	76.12 g/mol
Colour	:	White.
Odour	:	Almost odourless.
Odour threshold	:	No data available
pH	:	No data available
pH solution	:	No data available
Relative evaporation rate (butylacetate=1)	:	No data available
Relative evaporation rate (ether=1)	:	No data available
Melting point	:	178 °C (EU Method A.1: Melting/freezing point)
Freezing point	:	Not applicable
Boiling point	:	Not applicable
Flash point	:	Not applicable
Auto-ignition temperature	:	> 240 °C
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	Non flammable.
Vapour pressure	:	< 0.01 hPa (20 °C)
Vapour pressure at 50 °C	:	No data available
Relative vapour density at 20 °C	:	Not applicable
Relative density	:	1.4 (25 °C)
Relative density of saturated gas/air mixture	:	No data available
Density	:	1405 kg/m³
Relative gas density	:	No data available
Solubility	:	Moderately soluble in water. Substance sinks in water. Soluble in ethanol. Soluble in acetone. Water: 9 g/100ml (20 °C, OECD 105: Water Solubility)
Partition coefficient n-octanol/water (Log Pow)	:	-0.92 (Experimental value, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method, 20 °C)
Partition coefficient n-octanol/water (Log Kow)	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	No data available
Oxidising properties	:	No data available

Explosive limits	:	Not applicable
Lower explosive limit (LEL)	:	No data available
Upper explosive limit (UEL)	:	No data available

9.2. Other information

VOC content	:	0 %
Other properties	:	Neutral reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Reacts on exposure to temperature rise with (strong) oxidizers: release of (highly) toxic gases/vapours e.g.: sulphur dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	:	May be harmful if swallowed.
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified

THIOUREA (62-56-6)	
LD50 oral rat	2000 – 2500 mg/kg bodyweight (OECD 423: Acute Oral Toxicity – Acute Toxic Class Method, Rat, Female, Experimental value, Oral, 14 day(s))
LD50 dermal rabbit	> 2800 mg/kg (Equivalent or similar to OECD 402, 24 h, Rabbit, Male / female, Experimental value, Dermal)
LC50 inhalation rat (mg/l)	> 0.195 mg/l air. (Equivalent or similar to OECD 403, 4 h, Rat, Male / female, Experimental value, Inhalation (aerosol))

Skin corrosion/irritation	:	Not classified
Serious eye damage/irritation	:	Not classified
Respiratory or skin sensitisation	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Suspected of causing cancer.
Reproductive toxicity	:	Suspected of damaging fertility or the unborn child.
STOT-single exposure	:	Not classified
STOT-repeated exposure	:	Not classified
Aspiration hazard	:	Not classified
Potential adverse human health effects and symptoms	:	Photosensitizing. Harmful if swallowed. Practically non-toxic in contact with skin (LD50 skin > 2000 mg/kg). Not irritant to skin. Not irritant to eyes. Caution! Substance is absorbed through the skin.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	:	Dangerous for the environment. Harmful to aquatic life. Toxic to aquatic life with long lasting effects.
Ecology - air	:	Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014). Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).
Ecology - water	:	Harmful to crustacea. Not harmful to fishes. Toxic to algae.
Hazardous to the aquatic environment, short-term (acute)	:	Harmful to aquatic life.
Hazardous to the aquatic environment, long-term (chronic)	:	Toxic to aquatic life with long lasting effects.

THIOUREA (62-56-6)	
LC50 fish 1	> 10000 mg/l (DIN 38412: German standard methods for the examination of water, waste water and sludge, 48 h, Leuciscus idus, Static system, Fresh water, Experimental value, GLP)
EC50 Daphnia 1	35 mg/l (48 h, Daphnia magna)
EC50 72h algae (1)	3.8 – 10 mg/l (Scenedesmus subspicatus)
BCF fish 1	< 2 (Equivalent or similar to OECD 305, 6 week(s), Cyprinus carpio, Flow-through system, Fresh water, Experimental value)
BCF other aquatic organisms 1	0.2 (24 h, Chlorella sp., Calculated value)
Partition coefficient n-octanol/water (Log Pow)	-0.92 (Experimental value, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method, 20 °C)

12.2. Persistence and degradability

THIOUREA (62-56-6)	
Persistence and degradability	Non degradable in the soil. Not readily biodegradable in water.
Biochemical oxygen demand (BOD)	0.013 g O_2/g substance
Chemical oxygen demand (COD)	0.84 g O_2/g substance
ThOD	2.42 g O_2/g substance
BOD (% of ThOD)	0.005

12.3. Bioaccumulative potential

THIOUREA (62-56-6)	
BCF fish 1	< 2 (Equivalent or similar to OECD 305, 6 week(s), Cyprinus carpio, Flow-through system, Fresh water, Experimental value)
BCF other aquatic organisms 1	0.2 (24 h, Chlorella sp., Calculated value)
Partition coefficient n-octanol/water (Log Pow)	-0.92 (Experimental value, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method, 20 °C)
Bioaccumulative potential	Not bioaccumulative.

12.4. Mobility in soil

THIOUREA (62-56-6)	
Mobility in soil	No additional information available
Surface tension	65.4 mN/m (20 °C, 1 g/l, OECD 115: Surface Tension of Aqueous Solutions)
Partition coefficient n-octanol/water (Log Pow)	-0.92 (Experimental value, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method, 20 °C)
Ecology - soil	Highly mobile in soil.

12.5. Other adverse effects

Ozone : Not classified

Other adverse effects : No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

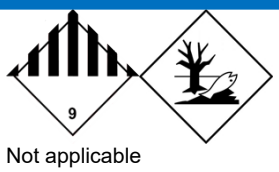
Product/Packaging disposal recommendations : Do not discharge into surface water. Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber with energy recovery. Dissolve or mix with a combustible solvent. Obtain the consent of pollution control authorities before discharging to wastewater treatment plants.

Additional information : Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.

SECTION 14: Transport information

In accordance with SANS / IMDG / IATA

SANS	IMDG	IATA
14.1. UN number		
3077	3077	3077
14.2. Proper Shipping Name		
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.	Environmentally hazardous substance, solid, n.o.s.
14.3. Transport hazard class(es)		
9	9	9

SANS	IMDG	IATA
		 Not applicable
14.4. Packing group		
III	III	III
14.5. Environmental hazards		
Dangerous for the environment : Yes	Dangerous for the environment : No :	Dangerous for the environment : No
No supplementary information available		

14.6. Special precautions for user

- SANS

Transport regulations (UN)	:	Subject to the provisions
Special provisions (SANS)	:	179, 274, 331, 335
Limited quantities (SANS)	:	5 kg
Limited quantities (SANS)	:	5 kg
Packagings, large packagings and IBCs Packing instructions (SANS)	:	P002, IBC08, LP02
Packagings, large packagings and IBCs Special packing instructions (SANS)	:	PP12, B3
Portable tank and bulk containers instructions (SANS)	:	T1, BK2
Portable tank and bulk container special provisions (SANS)	:	TP33

- IMDG

Transport regulations (IMDG)	:	Subject to the provisions
Special provisions (IMDG)	:	274, 335, 966, 967, 969
Limited quantities (IMDG)	:	5 kg
Excepted quantities (IMDG)	:	E1
Packing instructions (IMDG)	:	LP02, P002
Special packing provisions (IMDG)	:	PP12
IBC packing instructions (IMDG)	:	IBC08
IBC special provisions (IMDG)	:	B3
Tank instructions (IMDG)	:	BK1, BK2, BK3, T1
Tank special provisions (IMDG)	:	TP33
EmS-No. (Fire)	:	F-A - FIRE SCHEDULE Alfa - GENERAL FIRE SCHEDULE
EmS-No. (Spillage)	:	S-F - SPILLAGE SCHEDULE Foxtrot - WATER-SOLUBLE MARINE POLLUTANTS
Stowage category (IMDG)	:	A

- IATA

Transport regulations (IATA)	:	Subject to the provisions
PCA Excepted quantities (IATA)	:	E1
PCA Limited quantities (IATA)	:	Y956
PCA limited quantity max net quantity (IATA)	:	30kgG
PCA packing instructions (IATA)	:	956
PCA max net quantity (IATA)	:	400kg
CAO packing instructions (IATA)	:	956
CAO max net quantity (IATA)	:	400kg
Special provisions (IATA)	:	A97, A158, A179, A197
ERG code (IATA)	:	9L

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health, and environmental national regulations specific for the product

Regulatory reference : SANS 10234:2008; SANS 11014:2010; SANS 10228:2012;SANS 10229:2010; SANS 10232(1,2,4), SANS 10231:2018; Occupational Health and Safety Act 85 of 1993; National Road Traffic Act 93 of 1996.

SECTION 16: Other information

Issue date : 03/07/2020

Revision date : 03/07/2025

Full text of H-statements:

H303	May be harmful if swallowed
H351	Suspected of causing cancer.
H361	Suspected of damaging fertility or the unborn child.
H402	Harmful to aquatic life
H411	Toxic to aquatic life with long lasting effects.

SDS South Africa

The data provided in this Safety Data Sheet (SDS) is correct to the best of our knowledge. The data relates to the specific product as named and is ntended as a guide to the safe handling of the product in all its facets. The data may no longer be valid if the product is used in any process or in combination with other products.This SDS is not a quality specification nor any form of guarantee.