



1 Identification

- **Product identifier**
- **Trade name:** Thiourea
- **Article number:** 151743
- **CAS Number:**
62-56-6
- **EC number:**
200-543-5
- **Index number:**
612-082-00-0
- **Application of the substance / the mixture** Laboratory chemical
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
AppliChem GmbH
Ottoweg 4
D-64291 Darmstadt
- **Information department:** Dept. Compliance
- **Emergency telephone number:** +49(0)6151 93570 (Inside normal business hours)

Tel.: +49 (0)6151 93570
Fax.: +49 (0)6151 935711
msds@applichem.com

2 Hazard(s) identification

- **Classification of the substance or mixture**
Acute Tox. 4 H302 Harmful if swallowed.
Carc. 2 H351 Suspected of causing cancer.
Repr. 2 H361 Suspected of damaging fertility or the unborn child.
- **Label elements**
- **GHS label elements**
The substance is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**

GHS07 GHS08
- **Signal word** Warning
- **Hazard statements**
H302 Harmful if swallowed.
H351 Suspected of causing cancer.
H361 Suspected of damaging fertility or the unborn child.
- **Precautionary statements**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312 If swallowed: Call a poison center/doctor if you feel unwell.
P330 Rinse mouth.
P308+P313 IF exposed or concerned: Get medical advice/attention.

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P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



Health = 1
Fire = 1
Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



Health = 1
Fire = 1
Reactivity = 0

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description**
62-56-6 Thiourea
- **Identification number(s)**
- **EC number:** 200-543-5
- **Index number:** 612-082-00-0

4 First-aid measures

- **Description of first aid measures**
- **General information:**
Immediately remove any clothing soiled by the product.
Take affected persons out of danger area and lay down.
Remove breathing apparatus only after contaminated clothing have been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.
Do not leave affected persons unattended.
Personal protection for the First Aider.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
Involve doctor immediately.
- **After inhalation:**
Supply fresh air and to be sure call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:**
Call a doctor immediately.
Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:**
Rinse out mouth.
Call a doctor immediately.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed**
No further relevant information available.

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- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture**
Nitrogen oxides (NO_x)
CO, CO₂
(SO₂, SO₃)
Danger of dust explosion.
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.
- **Additional information**
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Avoid formation of dust.
Do not inhale dust.
Avoid substance contact.
Ensure adequate ventilation
- **Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Pick up mechanically.
Avoid generation of dusts.
Dispose contaminated material as waste according to item 13.
Clean up affected area.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**
 - **PAC-1:** 0.38 mg/m³
 - **PAC-2:** 4.1 mg/m³
 - **PAC-3:** 25 mg/m³

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Any deposit of dust which cannot be avoided must be regularly removed.
- **Information about protection against explosions and fires:**
Dust can combine with air to form an explosive mixture.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Prevent any seepage into the ground.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Store receptacle in a well ventilated area.
Store under lock and key and with access restricted to technical experts or their assistants only.

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- Keep container sealed.
- **Recommended storage temperature:** +15 - +25°C
- **Storage class:** 11
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
 - Keep away from foodstuffs, beverages and feed.
 - Wash hands before breaks and at the end of work.
 - Vacuum clean contaminated clothing. Do not blow or brush off contamination.
 - Change contaminated clothing.
- **Breathing equipment:** Filter P2
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
- **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **For the permanent contact gloves made of the following materials are suitable:**
 - Nitrile rubber, NBR
 - Recommended thickness of the material: ≥ 0.11 mm
 - Value for the permeation: Level ≥ 480 min
- **As protection from splashes gloves made of the following materials are suitable:**
 - Nitrile rubber, NBR
 - Recommended thickness of the material: ≥ 0.11 mm
 - Value for the permeation: Level ≥ 480 min
- **Eye protection:** Safety glasses
- **Body protection:**
 - Use protective suit.
 - Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled.

9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **General Information**
- **Appearance:**

Form:	Crystalline powder
Color:	Whitish

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· Odor:	Odorless
· Odor threshold:	Not determined.
· pH-value:	Not applicable.
· Change in condition	
Melting point/Melting range:	174-177 °C (345.2-350.6 °F)
Boiling point/Boiling range:	Undetermined.
· Flash point:	93 °C (199.4 °F)
· Flammability (solid, gaseous):	Product is not flammable.
· Ignition temperature:	440 °C (824 °F)
· Decomposition temperature:	Not determined.
· Auto igniting:	Not determined.
· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
Lower:	Not determined.
Upper:	250 g/m ³
· Vapor pressure at 20 °C (68 °F):	<0.01 hPa (>0 mm Hg)
· Density at 20 °C (68 °F):	1.405 g/cm ³ (11.725 lbs/gal)
· Bulk density:	640 kg/m ³
· Relative density	Not determined.
· Vapor density	Not applicable.
· Evaporation rate	Not applicable.
· Solubility in / Miscibility with	
Water at 20 °C (68 °F):	137 g/l
· Partition coefficient (n-octanol/water):	-2.40012--0.91999
· Viscosity:	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity** No dangerous reactions known.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** Heating.
- **Possibility of hazardous reactions**
Violent reactions possible with:
oxidizing agent
Risk of explosion with:
chlorates
Risk of dust explosion.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:**
strong oxidants
strong acids
bases
- **Hazardous decomposition products:** In the event of fire: See chapter 5

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11 Toxicological information

- Information on toxicological effects
- Acute toxicity:
- LD/LC50 values that are relevant for classification:

· Components		Type	Value	Species
Oral	LD50		1,750 mg/kg	(rat)
Dermal	LD50		2,800 mg/kg	(rabbit)

- Additional toxicological information:
- Carcinogenic categories
- IARC (International Agency for Research on Cancer) 3
- NTP (National Toxicology Program) R
- OSHA-Ca (Occupational Safety & Health Administration) Substance is not listed.

12 Ecological information

- Toxicity
- Aquatic toxicity:

· Type of test	Effective concentration	Method	Assessment
EC50/96 h	6.8 mg/l	(Algae, Growth inhibition test)	
EC50/24 h	110 mg/l	(daphnia magna)	
LC50/48 h	>1,000 mg/l	(fish)	

- Persistence and degradability The product is not easily biodegradable.
- Behavior in environmental systems:
- Bioaccumulative potential
Due to the distribution coefficient n-octanol/water an accumulation in organisms is not expected.
-2.40 - -0.92
- Mobility in soil No further relevant information available.
- Ecotoxicological effects:
- Remark: Toxic for fish
- Additional ecological information:
- General notes:
Also poisonous for fish and plankton in water bodies.
Toxic for aquatic organisms
Water hazard class 3 (Assessment by list): extremely hazardous for water
Danger to drinking water if even extremely small quantities leak into the ground.
- Results of PBT and vPvB assessment
- PBT: Not applicable.
- vPvB: Not applicable.
- Other adverse effects No further relevant information available.

13 Disposal considerations

- Waste treatment methods
- Recommendation:
Chemicals must be disposed of in compliance with the respective national regulations.
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- Uncleaned packagings:
- Recommendation:
Disposal must be made according to official regulations.


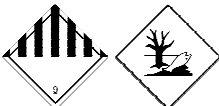

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Packagings that cannot be cleansed are to be disposed of in the same manner as the product.

14 Transport information

<ul style="list-style-type: none"> · UN-Number · DOT, ADR, IMDG, IATA 	UN3077
<ul style="list-style-type: none"> · UN proper shipping name · DOT, ADR · IMDG, IATA 	Environmentally hazardous substances, solid, n.o.s. (Thiourea) ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Thiourea)
<ul style="list-style-type: none"> · Transport hazard class(es) · DOT, IMDG 	
	
<ul style="list-style-type: none"> · Class · Label 	9 Miscellaneous dangerous substances and articles 9
<ul style="list-style-type: none"> · ADR 	
	
<ul style="list-style-type: none"> · Class · Label 	9 (M7) Miscellaneous dangerous substances and articles 9
<ul style="list-style-type: none"> · IATA 	
	
<ul style="list-style-type: none"> · Class · Label 	9 Miscellaneous dangerous substances and articles 9
<ul style="list-style-type: none"> · Packing group · DOT, ADR, IMDG, IATA 	III
<ul style="list-style-type: none"> · Environmental hazards: · Marine pollutant: · Special marking (ADR): · Special marking (IATA): 	Yes (P) Symbol (fish and tree) Symbol (fish and tree)
<ul style="list-style-type: none"> · Special precautions for user · Danger code (Kemler): · EMS Number: · Stowage Category · Stowage Code 	Warning: Miscellaneous dangerous substances and articles 90 F-A,S-F B SW2 Clear of living quarters.
<ul style="list-style-type: none"> · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code 	Not applicable.

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· **Transport/Additional information:**

· **ADR**

· **Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 g

Maximum net quantity per outer packaging: 1000 g

· **IMDG**

· **Limited quantities (LQ)**

5 kg

· **Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 g

Maximum net quantity per outer packaging: 1000 g

· **UN "Model Regulation":**

UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S. (THIOUREA), 9, III

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **Sara**

· **Section 355 (extremely hazardous substances):** Substance is not listed.

· **Section 313 (Specific toxic chemical listings):** Substance is listed.

· **TSCA (Toxic Substances Control Act):** Substance is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:** Substance is listed.

· **Chemicals known to cause reproductive toxicity for females:** Substance is not listed.

· **Chemicals known to cause reproductive toxicity for males:** Substance is not listed.

· **Chemicals known to cause developmental toxicity:** Substance is not listed.

· **Carcinogenicity categories**

· **EPA (Environmental Protection Agency)** Substance is not listed.

· **TLV (Threshold Limit Value established by ACGIH)** Substance is not listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)** Substance is not listed.

· **GHS label elements**

The substance is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS07 GHS08

· **Signal word** Warning

· **Hazard statements**

H302 Harmful if swallowed.

H351 Suspected of causing cancer.

H361 Suspected of damaging fertility or the unborn child.

· **Precautionary statements**

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P264 Wash thoroughly after handling.

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

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

P301+P312 If swallowed: Call a poison center/doctor if you feel unwell.

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P308+P313 IF exposed or concerned: Get medical advice/attention.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

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- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing SDS:** Dept. Compliance
- **Date of preparation / last revision** 07/13/2018 / 3

- **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

P: Marine Pollutant

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Acute Tox. 4: Acute toxicity – Category 4

Carc. 2: Carcinogenicity – Category 2

Repr. 2: Reproductive toxicity – Category 2

- * **Data compared to the previous version altered.**

US