

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

## Thiourea for synthesis

Revision date: 04.07.2023

Product code: 24311

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**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Thiourea for synthesis

REACH Registration Number: 01-2119977062-37-XXXX  
CAS No: 62-56-6  
Index No: 612-082-00-0  
EC No: 200-543-5

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

Laboratory chemical

Industrial uses: Uses of substances as such or in preparations at industrial sites

Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

**Uses advised against**

Do not use for private purposes (household).

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

Company name: AnalytiChem GmbH  
Street: Stempelstraße 6  
Place: D-47167 Duisburg  
Telephone: 0203/5194-0  
E-mail: info@analytichem.de  
Contact person: Abteilung Produktsicherheit  
E-mail: produktsicherheit@analytichem.de  
Internet: www.analytichem.de  
Responsible Department: Abteilung Produktsicherheit

Telefax: 0203/5194-290  
Telephone: 0203/5194-107/117

**1.4. Emergency telephone number:**

For Hazardous Materials [or Dangerous Goods] Incidents Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

**Further Information**

No data available

**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture****Regulation (EC) No 1272/2008**

Carc. 2; H351  
Repr. 2; H361d  
Acute Tox. 4; H302  
Aquatic Chronic 2; H411

Full text of hazard statements: see SECTION 16.

**2.2. Label elements****Regulation (EC) No 1272/2008****Signal word:** Warning**Pictograms:**

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**Hazard statements**

H302 Harmful if swallowed.  
H351 Suspected of causing cancer.  
H361d Suspected of damaging the unborn child.  
H411 Toxic to aquatic life with long lasting effects.

**Precautionary statements**

P201 Obtain special instructions before use.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.  
P308+P313 IF exposed or concerned: Get medical advice/attention.  
P391 Collect spillage.

**Special labelling of certain mixtures**

Restricted to professional users.

**2.3. Other hazards**

No data available

**SECTION 3: Composition/information on ingredients**

**3.1. Substances**

Sum formula: CH4N2S  
Molecular weight: 76,12 g/mol

**Hazardous components**

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
62-56-6	thiourea			100 %
	200-543-5	612-082-00-0	01-2119977062-37-XXXX	
	Carc. 2, Repr. 2, Acute Tox. 4, Aquatic Chronic 2; H351 H361d H302 H411			

Full text of H and EUH statements: see section 16.

**Specific Conc. Limits, M-factors and ATE**

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
62-56-6	200-543-5	thiourea	100 %
	dermal: LD50 = > 2800 mg/kg; oral: LD50 = > 2000 - < 2500 mg/kg		

**Further Information**

This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of = 0.1 % (w/w).

**SECTION 4: First aid measures**

**4.1. Description of first aid measures**

**General information**

No data available

**After inhalation**

Provide fresh air.  
Call a physician immediately.

**After contact with skin**

Wash immediately with: Water

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Take off immediately all contaminated clothing and wash it before reuse.  
Call a physician immediately.

#### **After contact with eyes**

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.  
Remove contact lenses, if present and easy to do. Continue rinsing.

#### **After ingestion**

Rinse mouth immediately and drink plenty of water.  
Call a physician immediately.

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

Irritant  
Gastrointestinal complaints  
Vomiting

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

No data available

### **SECTION 5: Firefighting measures**

#### **5.1. Extinguishing media**

##### **Suitable extinguishing media**

Co-ordinate fire-fighting measures to the fire surroundings.

##### **Unsuitable extinguishing media**

no restriction

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

Combustible solids  
Hazardous combustion products  
In case of fire may be liberated:  
Nitrogen oxides (NO<sub>x</sub>)  
Sulphur oxides  
Danger of dust explosion.

#### **5.3. Advice for firefighters**

In case of fire: Wear self-contained breathing apparatus.  
Avoid contact with skin, eyes and clothes.

#### **Additional information**

Suppress gases/vapours/mists with water spray jet.  
Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

### **SECTION 6: Accidental release measures**

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

##### **For non-emergency personnel**

Provide adequate ventilation.  
Use personal protection equipment.  
Avoid contact with skin, eyes and clothes.  
Remove persons to safety.  
Emergency procedures  
Do not breathe dust/fume/gas/mist/vapours/spray.

##### **For emergency responders**

Precautionary statements For emergency responders : Personal protection equipment: see section 8

#### **6.2. Environmental precautions**

Do not allow to enter into surface water or drains.

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

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#### For containment

- Cover drains.
- Prevent spread over a wide area (e.g. by containment or oil barriers).
- Collect in closed and suitable containers for disposal.
- Take up carefully when dry. Take up dust-free and set down dust-free.

#### For cleaning up

- Clean contaminated articles and floor according to the environmental legislation.

#### Other information

- Provide adequate ventilation.
- Do not breathe dust/fume/gas/mist/vapours/spray.
- Wear breathing apparatus if exposed to vapours/dusts/aerosols.

#### 6.4. Reference to other sections

- Safe handling: see section 7
- Personal protection equipment: see section 8
- Disposal: see section 13

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

#### Advice on safe handling

- Avoid exposure - obtain special instructions before use.
- Avoid dust formation.
- Do not breathe dust.
- Read label before use.
- Use extractor hood (laboratory).

#### Advice on protection against fire and explosion

- Danger of dust explosion.

#### Advice on general occupational hygiene

- Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme.
- Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink.

#### Further information on handling

- Wash hands and face before breaks and after work and take a shower if necessary.
- Take off immediately all contaminated clothing and wash it before reuse.
- Draw up and observe skin protection programme.

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

#### Requirements for storage rooms and vessels

- Keep container tightly closed. Store in a dry place.

#### Further information on storage conditions

- Store in a well-ventilated place. Keep cool.
- storage temperature: +15°C - +25°C.

### 7.3. Specific end use(s)

- Laboratory chemicals

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

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#### DNEL/DMEL values

CAS No	Substance		
DNEL type	Exposure route	Effect	Value
62-56-6	thiourea		
Worker DNEL, long-term	inhalation	systemic	1 mg/m <sup>3</sup>
Worker DNEL, long-term	dermal	systemic	3,4 mg/kg bw/day
Consumer DNEL, long-term	inhalation	systemic	0,2 mg/m <sup>3</sup>
Consumer DNEL, long-term	dermal	systemic	1,7 mg/kg bw/day
Consumer DNEL, long-term	oral	systemic	0,1 mg/kg bw/day

#### PNEC values

CAS No	Substance	
Environmental compartment	Value	
62-56-6	thiourea	
Freshwater	0,01 mg/l	
Freshwater (intermittent releases)	0,038 mg/l	
Marine water	0,001 mg/l	
Freshwater sediment	0,072 mg/kg	
Marine sediment	0,007 mg/kg	
Micro-organisms in sewage treatment plants (STP)	0,38 mg/l	
Soil	2,725 mg/kg	

#### 8.2. Exposure controls

##### Appropriate engineering controls

Technical measures and the application of suitable work processes have priority over personal protection equipment.

If handled uncovered, arrangements with local exhaust ventilation have to be used.

##### Individual protection measures, such as personal protective equipment

##### Eye/face protection

Suitable eye protection:

goggles

Face protection umbrella

##### Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Protective gloves are recommended Company KCL GmbH, D-36124 Eichenzell, email: [vertrieb@kcl.de](mailto:vertrieb@kcl.de) With specification (test according to EN374):

By long-term hand contact

Trade name/designation: KCL 741 Dermatril® L

Recommended material: NBR (Nitrile rubber) 0,11 mm

Wearing time with permanent contact: > 480 min

By short-term hand contact

Trade name/designation: KCL 741 Dermatril® L

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Recommended material: NBR (Nitrile rubber) 0,11 mm  
Wearing time with occasional contact (splashes): > 480 min

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types. This recommendation applies only to the product stated in the safety data sheet (>, <) supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

#### Skin protection

Wear suitable protective clothing.

#### Respiratory protection

Respiratory protection necessary at: dust formation  
Filtering device with filter or ventilator filtering device of type: B-(P3)

#### Environmental exposure controls

Do not allow to enter into surface water or drains.

## SECTION 9: Physical and chemical properties

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

Physical state:	solid
Colour:	colourless
Odour:	odourless
Melting point/freezing point:	169-173 °C
Boiling point or initial boiling point and boiling range:	No data available
Flammability:	No data available
Lower explosion limits:	No data available
Upper explosion limits:	No data available
Flash point:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	440 °C
pH-Value (at 20 °C):	6-8 (50 g/l)
Viscosity / kinematic:	No data available
Water solubility: (at 20 °C)	137 g/L
Solubility in other solvents	No data available
Partition coefficient n-octanol/water:	log Pow: -0,92
Vapour pressure:	No data available
Vapour pressure:	No data available
Density (at 20 °C):	1,405 g/cm <sup>3</sup>
Bulk density:	640 kg/m <sup>3</sup>
Relative vapour density:	No data available

### 9.2. Other information

#### Information with regard to physical hazard classes

Explosive properties	
Danger of dust explosion.	
Sustaining combustion:	No data available
Self-ignition temperature	
Solid:	No data available
Gas:	No data available
Oxidizing properties	
Not oxidising.	

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#### Other safety characteristics

Evaporation rate:	No data available
Solvent separation test:	No data available
Solvent content:	No data available
Solid content:	No data available
Sublimation point:	No data available
Softening point:	No data available
Pour point:	No data available
No data available:	
Viscosity / dynamic:	No data available
Flow time:	No data available

#### Further Information

No data available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Danger of dust explosion.

### 10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

### 10.3. Possibility of hazardous reactions

Danger of explosion: Chlorate  
Violent reaction with: Acrylaldehyde  
Exothermic reaction with:  
Nitric acid, Hydrogen peroxide  
Acrolein; Oxidising agent, strong  
Strong acid  
Strong alkali

### 10.4. Conditions to avoid

No data available

### 10.5. Incompatible materials

No data available

### 10.6. Hazardous decomposition products

In case of fire may be liberated:  
Sulphur oxides  
Nitrogen oxides (NO<sub>x</sub>)

#### Further information

No data available

## SECTION 11: Toxicological information

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

#### Toxicokinetics, metabolism and distribution

Avoid exposure - obtain special instructions before use.

#### Acute toxicity

Harmful if swallowed.  
May cause respiratory irritation.

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CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
62-56-6	thiourea				
	oral	LD50 > 2000 - < 2500 mg/kg	Rat	Study report (2010)	OECD Guideline 423
	dermal	LD50 > 2800 mg/kg	Rabbit	Study report (1978)	OECD Guideline 402

**Irritation and corrosivity**

Based on available data, the classification criteria are not met.  
slightly irritant but not relevant for classification.

**Sensitising effects**

Based on available data, the classification criteria are not met.  
May cause sensitisation especially in sensitive humans.

**Carcinogenic/mutagenic/toxic effects for reproduction**

Suspected of causing cancer. (thiourea)  
Suspected of damaging the unborn child. (thiourea)  
Germ cell mutagenicity: Based on available data, the classification criteria are not met.

**STOT-single exposure**

Based on available data, the classification criteria are not met.

**STOT-repeated exposure**

Based on available data, the classification criteria are not met.

**Aspiration hazard**

Based on available data, the classification criteria are not met.

**Specific effects in experiment on an animal**

No data available

**Additional information on tests**

No data available

**Practical experience**

No data available

**11.2. Information on other hazards****Other information**

Irritant  
Gastrointestinal complaints  
Vomiting

**Further information**

May cause damage to organs.  
(thyroid gland, blood)

**SECTION 12: Ecological information****12.1. Toxicity**

No data available

**12.2. Persistence and degradability**

0 %; 34 d  
OECD- Prüfrichtlinie 301C  
Not readily biodegradable (according to OECD criteria)

**12.3. Bioaccumulative potential**

No indication of bioaccumulation potential.



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**Partition coefficient n-octanol/water**

CAS No	Chemical name	Log Pow
62-56-6	thiourea	-0,92

**12.4. Mobility in soil**

No data available

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

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

**12.6. Endocrine disrupting properties**

This substance does not have endocrine disrupting properties with respect to non-target organisms.

**12.7. Other adverse effects**

Discharge into the environment must be avoided.

**Further information**

Do not allow to enter into surface water or drains.

**SECTION 13: Disposal considerations****13.1. Waste treatment methods****Disposal recommendations**

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.

Send to a physico-chemical treatment facility under observation of official regulations.

Do not mix with other wastes.

Do not empty into drains.

**Contaminated packaging**

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

Handle contaminated packages in the same way as the substance itself.

**SECTION 14: Transport information****Land transport (ADR/RID)**

<b>14.1. UN number or ID number:</b>	UN 3077
<b>14.2. UN proper shipping name:</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (thiourea)
<b>14.3. Transport hazard class(es):</b>	9
<b>14.4. Packing group:</b>	III
Hazard label:	9
Classification code:	M7
Special Provisions:	274 335 375 601
Limited quantity:	5 kg
Excepted quantity:	E1
Transport category:	3
Hazard No:	90
Tunnel restriction code:	-

**Inland waterways transport (ADN)**

<b>14.1. UN number or ID number:</b>	UN 3077
<b>14.2. UN proper shipping name:</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (thiourea)
<b>14.3. Transport hazard class(es):</b>	9
<b>14.4. Packing group:</b>	III
Hazard label:	9
Classification code:	M7
Special Provisions:	274 335 375 601

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Limited quantity: 5 kg  
Excepted quantity: E1

#### Marine transport (IMDG)

**14.1. UN number or ID number:** UN 3077  
**14.2. UN proper shipping name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (thiourea)  
**14.3. Transport hazard class(es):** 9  
**14.4. Packing group:** III  
Hazard label: 9  
Special Provisions: 274, 335, 966, 967, 969  
Limited quantity: 5 kg  
Excepted quantity: E1  
EmS: F-A, S-F

#### Air transport (ICAO-TI/IATA-DGR)

**14.1. UN number or ID number:** UN 3077  
**14.2. UN proper shipping name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (thiourea)  
**14.3. Transport hazard class(es):** 9  
**14.4. Packing group:** III  
Hazard label: 9  
Special Provisions: A97 A158 A179 A197  
Limited quantity Passenger: 30 kg G  
Passenger LQ: Y956  
Excepted quantity: E1  
IATA-packing instructions - Passenger: 956  
IATA-max. quantity - Passenger: 400 kg  
IATA-packing instructions - Cargo: 956  
IATA-max. quantity - Cargo: 400 kg

#### 14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: Yes  
Danger releasing substance: thiourea

#### 14.6. Special precautions for user

No dangerous good in sense of this transport regulation.

#### 14.7. Maritime transport in bulk according to IMO instruments

not applicable

### SECTION 15: Regulatory information

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

##### EU regulatory information

Restrictions on use (REACH, annex XVII):  
Entry 75

Information according to 2012/18/EU (SEVESO III): E2 Hazardous to the Aquatic Environment

##### National regulatory information

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Water hazard class (D): 3 - highly hazardous to water

### SECTION 16: Other information

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**Changes**

This data sheet contains changes from the previous version in section(s): 12.

**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  
IATA: International Air Transport Association  
GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
EINECS: European Inventory of Existing Commercial Chemical Substances  
ELINCS: European List of Notified Chemical Substances  
CAS: Chemical Abstracts Service  
LC50: Lethal concentration, 50%  
LD50: Lethal dose, 50%  
Acute Tox: Acute toxicity  
Carc: Carcinogenicity  
Repr: Reproductive toxicity  
Aquatic Chronic: Chronic aquatic hazard

**Relevant H and EUH statements (number and full text)**

H302	Harmful if swallowed.
H351	Suspected of causing cancer.
H361d	Suspected of damaging the unborn child.
H411	Toxic to aquatic life with long lasting effects.

**Further Information**

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material. The receiver of our product is singularly responsible for adhering to existing laws and regulations.