

SECTION 1: Identification of the substance/mixture

1.1. Product identifier

Product form	: Substance
Substance name	: Thiourea
Formula	: CH ₄ N ₂ S
Molecular weight	: 76.12 g/mol
CAS No.	: 62-56-6
Product code	: LW-CH4N2S
Synonyms	: Sulfoarea, Thiocarbamide

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

Use of the substance/mixture	: Laboratory chemicals, Manufacture of substances
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1.3. Emergency telephone number

Emergency number	: 1.800.424.9300 (USA) +1.703.527.3887 (INT)
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SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 4), H302

Carcinogenicity (Category 2), H351

Reproductive toxicity (Category 2), H361

Acute aquatic toxicity (Category 2), H401

Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2. GHS Label elements, including precautionary statements

Pictogram	: 
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Signal word : Warning

Hazard statement(s) : Harmful if swallowed.

H302 : Suspected of causing cancer.

H351 : Suspected of damaging fertility or the unborn child.

H361 : Toxic to aquatic life with long lasting effects.

H411 : Obtain special instructions before use.

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Precautionary statement(s)

- P201 : Obtain special instructions before use.
- P202 : Do not handle until all safety precautions have been read and understood.
- P264 : Wash skin thoroughly after handling.
- P270 : Do not eat, drink or smoke when using this product.
- P273 : Avoid release to the environment.
- P280 : Wear protective gloves/ protective clothing/ eye protection/ face protection.
- P301 + P312 + P330 : IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
- P308 + P313 : IF exposed or concerned: Get medical advice/ attention.
- P391 : Collect spillage.
- P405 : Store locked up.
- P501 : Dispose of contents/ container to an approved waste disposal plant.

2.3. Hazards not otherwise classified (HNOC) or not covered by GHS

none

SECTION 3: Composition/information on ingredients

3.1. Substances

- Synonyms : Sulfoarea, Thiocarbamide
- Formula : $\text{CH}_4\text{N}_2\text{S}$
- Molecular Weight : 76.12 g/mol
- CAS-No. : 62-56-6

Hazardous components

Component	Classification	Concentration
Thiourea	Acute Tox. 4; Carc. 2; Repr. 2; Aquatic Acute 2; Aquatic Chronic 2; H302, H351, H361, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: Description of first aid measures

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4.1. Description of first aid measures

- General advice : Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
- First-aid measures after inhalation : If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
- First-aid measures after skin contact : Wash off with soap and plenty of water. Consult a physician.
- First-aid measures after eye contact : Flush eyes with water as a precaution.
- First-aid measures after ingestion : Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

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

No data available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2. Special hazards arising from the substance or mixture

Carbon oxides, Nitrogen oxides (NO_x), Sulphur oxides

5.3. Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4. More Information

No data available.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8.

6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3. Methods and material for containment and cleaning up

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Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4. Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

Provide appropriate exhaust ventilation at places where dust is formed.

For precautions see section 2.2.

7.2. Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Handle and store under inert gas.

Storage class (TRGS 510): Non Combustible Solids

7.3. Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

8.2. Exposure controls

Appropriate engineering controls : Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3. Personal protective equipment

Eye protection : Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

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Full contact

Material: Nitrile rubber

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Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Skin Protection

- : Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

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	<p>If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.</p>
Body protection	: Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory protection	: Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Environmental exposure controls	: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	: Form: crystalline Color: white
Odor	: odorless
Odor Threshold	: No data available
pH	: 5.0 - 7 at 50 g/l at 20 °C (68 °F)
Melting point/freezing point	: Melting point/range: 170 - 176 °C (338 - 349 °F)
Initial boiling point and boiling range	: No data available
Flash point	: No data available
Evaporation rate	: No data available
Flammability (solid, gas)	: No data available
Upper/lower flammability or explosive limits	: No data available
Vapor pressure	: No data available

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Vapor density	: No data available
Relative density	: 1.405 g/cm ³ at 20 °C (68 °F)
Water solubility	: 137 g/l at 20 °C (68 °F)
Partition coefficient: n-octanol/water	: log Pow: -0.92 at 20 °C (68 °F)
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
9.2. Other information	
Bulk density	: 640 kg/m ³

SECTION 10: Stability and reactivity

10.1. Reactivity

No data available

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

No data available

10.4. Conditions to avoid

Heat

10.5. Incompatible materials

Strong oxidizing agents, Strong acids, Strong bases, Hydrogen peroxide, Sulphur oxides.

10.6. Hazardous decomposition products

Other decomposition products - No data available

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	: LD50 Oral - Rat - 1,750 mg/kg
	LC50 Inhalation - Rat - 4 h - > 170 mg/m ³
	LD50 Dermal - Rabbit - > 2,800 mg/kg
	No data available
Skin corrosion/irritation	: Skin - Rabbit

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	Result: No skin irritation (OECD Test Guideline 404)
Serious eye damage/irritation	: Eyes - Rabbit Result: Mild eye irritation (OECD Test Guideline 405)
Respiratory or skin sensitization	: Maximization Test (GPMT) - Guinea pig Does not cause skin sensitization.
Germ cell mutagenicity	: No data available in vitro assay Result: Not mutagenic in Ames Test
Carcinogenicity	
IARC:	: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Thiourea)
ACGIH:	: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	: Reasonably anticipated to be a human carcinogen (Thiourea)
OSHA:	: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity	: Suspected human reproductive toxicant No data available
Specific target organ toxicity (single exposure)	: No data available
Specific target organ toxicity (repeated exposure)	: No data available
Aspiration hazard	: No data available
Additional Information	: RTECS: YU2800000 To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Liver - Irregularities - Based on Human Evidence Liver - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1. Toxicity

Toxicity to fish : LC50 - Danio rerio (zebra fish) - 10.000 mg/l - 96.0 h

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- Toxicity to daphnia and other aquatic invertebrates : EC50 - Daphnia magna (Water flea) - 5.6 - 18.0 mg/l - 48 h
- Toxicity to algae : EC50 - Desmodesmus subspicatus (green algae) - 6.8 mg/l - 96 h
- 12.2. Persistence and degradability**
- Biodegradability : Biotic/Aerobic - Exposure time 31 d
Result: < 1 % - Not readily biodegradable.
- 12.3. Bioaccumulative potential** : No data available
- 12.3. Mobility in soil** : No data available
- 12.4. Results of PBT and vPvB assessment** : PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.
- 12.6. Other adverse effects** : Toxic to aquatic life with long lasting effects. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

- Product : Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
- Contaminated Packaging : Dispose of as unused product.

SECTION 14: Transport information

DOT (US)

- UN number : 3077
- Class : 9
- Packing group : III
- Proper shipping name : Environmentally hazardous substances, solid, n.o.s. (Thiourea)
- Reportable Quantity (RQ) : 10 lbs
- Poison Inhalation Hazard : No

IMDG

- UN number : 3077
- Class : 9
- Packing group : III

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EMS-No F-A, S-F
Proper shipping name : Environmentally hazardous substances, solid, n.o.s. (Thiourea)
Marine pollutant : Yes

IATA

UN number : 3077
Class : 9
Packing group : III
Proper shipping name : Environmentally hazardous substances, solid, n.o.s. (Thiourea)

Further information

EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

SECTION 15: Regulatory information

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

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	62-56-6	2007-07-01

Massachusetts Right To Know Components

Thiourea	CAS-No.	Revision Date
	62-56-6	2007-07-01

Pennsylvania Right To Know Components

Thiourea	CAS-No.	Revision Date
	62-56-6	2007-07-01

New Jersey Right To Know Components

Thiourea	CAS-No.	Revision Date
	62-56-6	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
	62-56-6	2007-07-01

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SECTION 16: Other information

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

Acute Tox.	: Acute toxicity
Aquatic Acute	: Acute aquatic toxicity
Aquatic Chronic	: Chronic aquatic toxicity
Carc.	: Carcinogenicity
H302	: Harmful if swallowed.
H351	: Suspected of causing cancer.
H361	: Suspected of damaging fertility or the unborn child.
H401	: Toxic to aquatic life.
H411	: Toxic to aquatic life with long lasting effects.

HMIS Rating

Health Hazard	: 3
Chronic Health Hazard	: *
Flammability	: 0
Physical Hazard	: 0

NFPA Rating

Health hazard	: 0
Fire Hazard	: 0
Reactivity Hazard	: 0

Further Information

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