



## Safety Data Sheet

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### Section 1. Identification of the substance/mixture and of the company/undertaking

Product identifier:

Product name: Thiourea

SDS No. : 7791E-4

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

Research and Development

Details of the supplier of the safety data sheet

Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.

Address: 3-1, Honmachibashi, Chuo-ku, Osaka, JAPAN

Division: Chemical Safety Management Department

Telephone number: +81-6-6946-8061

FAX: +81-6-6946-1607

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### Section 2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

#### HEALTH HAZARDS

Acute toxicity (Oral): Category 4

Serious eye damage/eye irritation: Category 2B

Skin sensitization: Category 1

Carcinogenicity: Category 2

Reproductive toxicity: Category 2

Specific target organ toxicity – single exposure: Category 3 (Respiratory tract irritation)

Specific target organ toxicity – repeated exposure: Category 1 (thyroid)

Specific target organ toxicity – repeated exposure: Category 2 (liver)

#### ENVIRONMENT HAZARDS

Hazardous to the aquatic environment, short-term (acute): Category 2

Hazardous to the aquatic environment, long-term (chronic): Category 2

(Note) GHS classification without description: Not classified/Classification not possible

Label elements



Signal word: Danger

#### HAZARD STATEMENT

H302 Harmful if swallowed

H320 Causes eye irritation

H317 May cause an allergic skin reaction

H351 Suspected of causing cancer

H361 Suspected of damaging fertility or the unborn child

H335 May cause respiratory irritation

H372 Causes damage to organs through prolonged or repeated exposure (thyroid)

H373 May cause damage to organs through prolonged or repeated exposure (liver)

H411 Toxic to aquatic life with long lasting effects

**PRECAUTIONARY STATEMENT****Prevention**

- P202 Do not handle until all safety precautions have been read and understood.  
P273 Avoid release to the environment.  
P260 Do not breathe dust/fume/gas/mist/vapors/spray.  
P271 Use only outdoors or in a well-ventilated area.  
P264 Wash contaminated parts thoroughly after handling.  
P280 Wear protective gloves.  
P272 Contaminated work clothing should not be allowed out of the workplace.  
P280 Use personal protective equipment as required.  
P270 Do not eat, drink or smoke when using this product.

**Response**

- P391 Collect spillage.  
P314 Get medical advice/attention if you feel unwell.  
P308 + P313 IF exposed or concerned: Get medical advice/attention.  
P312 Call a POISON CENTER/doctor/physician if you feel unwell.  
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.  
P362 + P364 Take off contaminated clothing and wash it before reuse.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P337 + P313 If eye irritation persists: Get medical advice/attention.  
P330 IF SWALLOWED: Rinse mouth.  
P301 + P312 IF SWALLOWED: Call a POISON CENTER/doctor/physician if you feel unwell.

**Storage**

- P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.

**Disposal**

- P501 Dispose of contents/container in accordance with local/national regulation.

**Specific adverse human health effects**

See "11. Toxicological Information".

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**Section 3. Composition/information on ingredients**

Mixture/Substance selection:

Substance

Ingredient name	Content (%)	CAS No.	Chemicals No, Japan	Chemical formula
Thiourea	97(min)	62-56-6	2-1733	NH <sub>2</sub> CSNH <sub>2</sub>

Note : The figures shown above are not the specifications of the product.

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**Section 4. First-aid measures**

Descriptions of first-aid measures

General measures

Get medical advice/attention if you feel unwell.

IF INHALED



Remove person to fresh air and keep comfortable for breathing.

Call a POISON CENTER/doctor/physician if you feel unwell.

**IF ON SKIN**

Take off immediately all contaminated clothing. Rinse skin with water or shower.

Wash with plenty of soap and water.

If skin irritation or rash occurs: Get medical advice/attention.

**IF IN EYES**

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

**IF SWALLOWED**

Rinse mouth.

Call a POISON CENTER/doctor/physician if you feel unwell.

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**Section 5. Fire-fighting measures****Extinguishing media****Suitable extinguishing media**

Use appropriate extinguishing media suitable for surrounding facilities.

**Unsuitable extinguishing media**

Unsuitable extinguishing media data is not available.

**Specific hazards arising from the substance or mixture**

Fire may produce irritating, corrosive and/or toxic gases.

Runoff from fire control or dilution water may cause pollution.

See "10.Stability and Reactivity".

**Advice for firefighters****Specific fire-fighting measures**

Evacuate non-essential personnel to safe area.

**Special protective equipment and precautions for fire-fighters**

Wear fire resistant or flame retardant clothing.

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

Firefighters should wear self-contained breathing apparatus with a full facepiece operated in the positive pressure mode.

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**Section 6. Accidental release measures****Personnel precautions, protective equipment and emergency procedures**

Keep unauthorized personnel away.

Ventilate area until material pick up is complete.

Wear proper protective equipment.

**Environmental precautions**

Prevent spills from entering sewers, watercourses, low areas or rivers. To be careful not discharged to the environment without being properly handled waste water contaminated.

**Methods and materials for containment and cleaning up**

Sweep up, place in a bag and hold for waste disposal.

**Preventive measures for secondary accident**

Collect spillage.



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**Section 7. Handling and storage**

## Precautions for safe handling

## Preventive measures

(Exposure Control for handling personnel)

Do not breathe dust/fume/gas/mist/vapors/spray.

(Protective measures against fire and explosion)

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with skin.

Avoid contact with eyes.

## Safety Measures

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

Use only outdoors or in a well-ventilated area.

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

Wash hands et al thoroughly after handling.

When using do not eat, drink or smoke.

## Any incompatibilities

See "10.Stability and Reactivity".

## Advice on general occupational hygiene

Wash contaminated parts thoroughly after handling.

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

Contaminated work clothing should not be allowed out of the workplace.

Take off contaminated clothing and wash it before reuse.

## Storage

## Conditions for safe storage

Keep container tightly closed.

Store locked up. (P405)

Store in a cool, dry place. Do not store in direct sunlight.

Storage in accordance with local/national regulation.

## Container and packaging materials for safe handling

Use closed unbreakable containers.

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**Section 8. Exposure controls/personal protection**

## Control parameters

Control value and concentration standard value are not available in ISHA.

## Adopted value

(Other inorganic and organic dust (third class dust ))

JSOH Respirable dust 2mg/m<sup>3</sup>, Total dust 8mg/m<sup>3</sup>

## Exposure controls

## Appropriate engineering controls

Do not use in areas without adequate ventilation.

Eye wash station should be available.

Washing facilities should be available.

## Individual protection measures

Recommend to use protective equipment in conformity with the standards.



Use appropriate protective equipment in accordance with local/national regulation.

Respiratory protection

Wear respiratory protection (dust-proof mask/gas mask). Select chemical cartridge corresponding to type of gases when using a gas mask.

Hand protection

Wear impervious protective glove.

Eye protection

Wear eye/face protection. Wear safety goggles in cases gas is generated.

Skin and body protection

Wear protective clothing.

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## Section 9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Crystals or powder

Color: White

Odor data is not available.

Melting point/Freezing point: 182°C

Boiling point or initial boiling point data is not available.

Boiling range data is not available.

Flammability (gases, liquids and solids) data is not available.

Lower and upper explosion limit/flammability limit data is not available.

Flash point data is not available.

Auto-ignition temperature data is not available.

Decomposition temperature data is not available.

pH data is not available.

Kinematic viscosity data is not available.

Solubility:

Solubility in water: Soluble

Solubility in solvent data is not available.

n-Octanol/water partition coefficient: log Pow -2.38 through -0.95

Vapor pressure data is not available.

Density and/or relative density: 1.4g/cm<sup>3</sup>

Relative vapor density (Air=1) data is not available.

Particle characteristics data is not available.

Other information

Other information is not available.

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## Section 10. Stability and Reactivity

Reactivity

Not available.

Chemical stability

Stable under normal storage/handling conditions.

Possibility of hazardous reactions

Decomposes on heating. This produces toxic fumes of nitrogen oxides and sulfur oxides.

Reacts violently with acrolein, strong acids and strong oxidants. (ICSC 0680)

Conditions to avoid

Contact with incompatible materials.

Contact with fire source.

**Incompatible materials**

Strong acids, Strong oxidizing agents, Acrolein

**Hazardous decomposition products**

Carbon oxides, Nitrogen oxides, Sulfur oxides

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**Section 11. Toxicological Information****Information on toxicological effects****Acute toxicity****Acute toxicity (Oral)****[Product]**

Category 4, Harmful if swallowed

**[Data for components of the product]**

[GHS Cat. Japan, base data]

rat LD50=1750mg/kg (BUA 179, 1995)

**Acute toxicity (Dermal)****[Data for components of the product]**

[GHS Cat. Japan, base data]

rabbit LD50>2800mg/kg (CICAD 49, 2003)

**Irritant properties****Skin corrosion/irritation****[Data for components of the product]**

[GHS Cat. Japan, base data]

rabbit no irritation (CICAD 49, 2003; NITE Initial Risk Assessment Report, 2005)

**Serious eye damage/irritation****[Product]**

Category 2B, Causes eye irritation

**[Data for components of the product]**

[GHS Cat. Japan, base data]

rabbit mild redness and edema (CICAD 49, 2003; NITE Initial Risk Assessment Report, 2005)

**Sensitization****Skin sensitization****[Product]**

Category 1, May cause an allergic skin reaction

**[Data for components of the product]**

[GHS Cat. Japan, base data]

cat. 1; NITE Initial Risk Assessment Report, 2005; MOE risk assessment, vol.13, 2015; CICAD 49, 2003

Mutagenic effects data is not available.

**Carcinogenicity****[Product]**

Category 2, Suspected of causing cancer

**[Data for components of the product]**

[GHS Cat. Japan, base data]

cat.2; NTP R (NTP RoC 14th, 2016); EU Carc. 2 (ECHA CL Invt., Access on Jun. 2017); JSOH 2B (JSOH, 2016)

**[IARC]**

Group 3 : Not classifiable as to its carcinogenicity to humans

**[NTP]**

RAHC : Reasonably Anticipated to be Human Carcinogens

[EU]

Category 2; Substances suspected human carcinogens

Reproductive toxicity

[Product]

Category 2, Suspected of damaging fertility or the unborn child

[Data for components of the product]

[GHS Cat. Japan, base data]

cat. 2; NITE Initial Risk Assessment Report, 2005; MOE risk assessment, vol.13, 2015; EU

CLP Repr. 2 (ECHA CL Invt., Access on Jun. 2017)

Specific target organ toxicity (STOT)

STOT-single exposure

[Product]

Category 3, May cause respiratory irritation

[Data for components of the product]

[cat.3 (respiratory tract irritation)]

[GHS Cat. Japan, base data]

respiratory tract irritation (NITE Initial Risk Assessment Report, 2005; BUA 179, 1995)

STOT-repeated exposure

[Product]

Category 1, Causes damage to organs through prolonged or repeated exposure

Category 2, May cause damage to organs through prolonged or repeated exposure

[Data for components of the product]

[cat.1]

[GHS Cat. Japan, base data]

thyroid (NITE Initial Risk Assessment Report, 2005)

[cat.2]

[GHS Cat. Japan, base data]

liver (NITE Initial Risk Assessment Report, 2005)

Aspiration hazard data is not available.

Information on other hazards

May cause lung disorders by massive inhalation of powdered substance.

-e.g. fibrosis of lung tissue, cough, sputum, breath shortness, dyspnea, decline of lung function, interstitial lung disease, pneumothorax

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## Section 12. Ecological Information

Toxicity

Aquatic toxicity

[Product]

Category 2, Toxic to aquatic life

Category 2, Toxic to aquatic life with long lasting effects

[Data for components of the product]

Hazardous to the aquatic environment, short-term (acute)

[GHS Cat. Japan, base data]

Crustacea (Daphnia magna) EC50=9mg/L/96hr (WHO/IPCS CICAD, 2003)

Hazardous to the aquatic environment, long-term (chronic)

[GHS Cat. Japan, base data]

Crustacea (Daphnia magna) NOEC (Reproductive inhibition)=0.75mg/L/21days (NITE Initial Risk Assessment Report, 2005)

Water solubility



moderate (ICSC, 2001)

Persistence and degradability  
[Data for components of the product]  
Not rapidly degradable (BOD\_Degradation: 2.6% (CSCL DB, 1979))

Bioaccumulative potential  
[Data for components of the product]  
log Pow = -2.38 through -0.95 (ICSC, 2001); BCF < 2 (Check & Review, Japan)

Mobility in soil  
Mobility in soil data is not available.

Other adverse effects  
Ozone depleting chemical data is not available.

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**Section 13. Disposal considerations**

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods  
Avoid release to the environment.  
Dispose of contents/container as industrial waste. Accordance with local/national regulation.

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**Section 14. Transport Information**

UN Number or ID Number : 3077  
UN Proper Shipping Name :  
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
Class or division (Transport hazard class) : 9  
Packing group : III  
ERG GUIDE No.: 171

IMDG Code (International Maritime Dangerous Goods Regulations)  
UN Number or ID Number : 3077  
UN Proper Shipping Name :  
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
Class or division (Transport hazard class) : 9  
Packing group : III

IATA (Dangerous Goods Regulations)  
UN Number or ID Number : 3077  
UN Proper Shipping Name :  
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
Class or division (Transport hazard class) : 9  
Hazard labels : Miscellaneous & Environmentally hazardous  
Packing group : III

Environmental hazards  
Marine pollutants (yes/no) : yes

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**Section 15. Regulatory Information**

Safety, health and environmental regulations/legislation specific for the substance or mixture  
U.S. Toxic Substances Control Act (TSCA) Inventory  
Chemicals listed in TSCA Inventory





Applicable

Other regulatory information

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

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## Section 16. Other information

### References and sources for data

Globally Harmonized System of classification and labelling of chemicals, UN  
Recommendations on the TRANSPORT OF DANGEROUS GOODS 22nd edit., 2021 UN  
IMDG Code, 2022 Edition (Incorporating Amendment 41-22)  
IATA Dangerous Goods Regulations (65th Edition) 2024  
2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)  
2024 TLVs and BEIs. (ACGIH)  
JIS Z 7252 : 2019  
JIS Z 7253 : 2019  
2023 Recommendation on TLVs (JSOH)  
Supplier's data/information

### General Disclaimer

Please provide SDS to customers for selling or transferring.  
All chemicals have unknown hazard. Handle the product with care.  
This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.  
The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.  
The GHS classification data given here is based on current Japan official data (NITE published in 2022).