

# SAFETY DATA SHEETS

According to Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Sixth revised edition

Version: 1.0

Creation Date: Feb. 6, 2018

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## 1. Identification

### 1.1 GHS Product identifier

**Product name** Thiourea dioxide

### 1.2 Other means of identification

**Product number** A603048

**Other names** amino(imino)methanesulfinic acid

### 1.3 Recommended use of the chemical and restrictions on use

**Identified uses** Used for research and development only. Bleaching agents, Finishing agents

**Uses advised against** no data available

### 1.4 Supplier's details

**Company** Sangon Biotech (Shanghai) Co., Ltd.

**Address** 698 Xiangmin Road, Songjiang, Shanghai 201611, China

**Telephone** +86-400-821-0268 / +86-800-820-1016

**Fax** +86-400-821-0268 to 9

### 1.5 Emergency phone number

**Emergency phone number** +86-21-57072055

**Service hours** Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

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## 2. Hazard identification

### 2.1 Classification of the substance or mixture

Self- heating substances and mixtures, Category 2

Acute toxicity - Oral, Category 4

Skin irritation, Category 2

Serious eye damage, Category 1

Acute toxicity - Inhalation, Category 4

Specific target organ toxicity – single exposure, Category 3

Specific target organ toxicity – repeated exposure, Category 2

Self- reactive substances and mixtures, Type G

## 2.2 GHS label elements, including precautionary statements

**Pictogram(s)**



**Signal word**

Danger

**Hazard statement(s)**

H252 Self-heating in large quantities; may catch fire

H302 Harmful if swallowed

H315 Causes skin irritation

H318 Causes serious eye damage

H332 Harmful if inhaled

H335 May cause respiratory irritation

H373 May cause damage to organs through prolonged or repeated exposure

**Precautionary statement(s)**

**Prevention**

P235 Keep cool.

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

P264 Wash ... thoroughly after handling.

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

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P271 Use only outdoors or in a well-ventilated area.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

**Response**

P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor/...if you feel unwell.

P330 Rinse mouth.

P302+P352 IF ON SKIN: Wash with plenty of water/...

P321 Specific treatment (see ... on this label).

P332+P313 If skin irritation 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.

P310 Immediately call a POISON CENTER/doctor/...

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312 Call a POISON CENTER/doctor/...if you feel unwell.

P314 Get medical advice/attention if you feel unwell.

**Storage**

P407 Maintain air gap between stacks or pallets.

P413 Store bulk masses greater than ... kg/...lbs at temperatures not exceeding ...°C/...°F.

P420 Store separately.

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

P405 Store locked up.

**Disposal**

P501 Dispose of contents/container to ...

**2.3 Other hazards which do not result in classification**

no data available

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**3. Composition/information on ingredients****3.1 Substances**

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Aminoiminomethanesulphinic acid	Thiourea dioxide	1758-73-2	217-157-8	≥98%

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**4. First-aid measures****4.1 Description of necessary first-aid measures**

## General advice

Medical attention is required. Consult a doctor. Show this safety data sheet (SDS) to the doctor in attendance.

### If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

### Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

### Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

### Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

## 4.2 Most important symptoms/effects, acute and delayed

Excerpt from ERG Guide 135 [Substances - Spontaneously Combustible]: Fire will produce irritating, corrosive and/or toxic gases. Inhalation of decomposition products may cause severe injury or death. Contact with substance may cause severe burns to skin and eyes. Runoff from fire control may cause pollution. (ERG, 2016)

## 4.3 Indication of immediate medical attention and special treatment needed, if necessary

no data available

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## 5. Fire-fighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Excerpt from ERG Guide 135 [Substances - Spontaneously Combustible]: DO NOT USE WATER, CO2 OR FOAM ON MATERIAL ITSELF. Some of these materials may react violently with water. EXCEPTION: For Xanthates, UN3342 and for Dithionite (Hydrosulfite/Hydrosulphite) UN1384, UN1923 and UN1929, USE FLOODING AMOUNTS OF WATER for SMALL AND LARGE fires to stop the reaction. Smothering will not work for these materials, they do not need air to burn. SMALL FIRE: Dry chemical, soda ash, lime or DRY sand, EXCEPT for UN1384, UN1923, UN1929 and UN3342. LARGE FIRE: DRY sand, dry chemical, soda ash or lime EXCEPT for UN1384, UN1923, UN1929 and UN3342, or withdraw from area and let fire burn. CAUTION: UN3342 when flooded with water will continue to evolve flammable Carbon disulfide/Carbon disulphide vapors. Move containers from fire area if you can do it without risk. FIRE INVOLVING TANKS OR CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Do not get water inside containers or in contact with substance. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. (ERG, 2016)

### 5.2 Specific hazards arising from the chemical

Excerpt from ERG Guide 135 [Substances - Spontaneously Combustible]:  
Flammable/combustible material. May ignite on contact with moist air or moisture. May burn rapidly with flare-burning effect. Some react vigorously or explosively on contact with water. Some may decompose explosively when heated or involved in a fire. May re-ignite after fire is extinguished. Runoff may create fire or explosion hazard. Containers may explode when heated. (ERG, 2016)

### **5.3 Special protective actions for fire-fighters**

Wear self-contained breathing apparatus for firefighting if necessary.

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## **6. Accidental release measures**

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

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

### **6.2 Environmental precautions**

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

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

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

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## **7. Handling and storage**

### **7.1 Precautions for safe handling**

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

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

Store the container tightly closed in a dry, cool and well-ventilated place. Store apart from foodstuff containers or incompatible materials.

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

### **8.1 Control parameters**

#### **Occupational Exposure limit values**

no data available

### **8.2 Appropriate engineering controls**

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

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

#### **Eye/face protection**

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

### Skin protection

Wear fire/flame resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

### Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

### Thermal hazards

no data available

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## 9. Physical and chemical properties

Physical state	Solid.
Colour	-
Odour	no data available
Melting point/ freezing point	129 - 133.
Boiling point or initial boiling point and boiling range	160°C
Flammability	no data available
Lower and upper explosion limit / flammability limit	no data available
Flash point	38°C(lit.)
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	In water: 30 g/L. Temperature:25 °C. Remarks:PH value not described.
Partition coefficient n-octanol/water	log Pow = -3.37. Temperature:25 °C.
Vapour pressure	0 Pa. Temperature:20 °C. Remarks:Caculated from equation.;0 Pa. Temperature:25 °C. Remarks:Caculated from equation.
Density and/or relative density	1 749 kg/m³. Temperature:20 °C.
Relative vapour density	no data available
Particle characteristics	no data available

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## 10. Stability and reactivity

### 10.1 Reactivity

Soluble in water. May decompose on exposure to moist air or water.

### 10.2 Chemical stability

no data available

### 10.3 Possibility of hazardous reactions

Thiourea dioxide is a reducing agent and a derivative of sulfinic acid (a weak inorganic acid). Decolorizes and bleaches materials by chemical reduction. Stable under normal temperatures and pressures. May decompose on exposure to moist air or water. Incompatible with strong oxidizing agents, strong bases. Aqueous solutions are acidic and corrosive.

## **10.4 Conditions to avoid**

no data available

## **10.5 Incompatible materials**

no data available

## **10.6 Hazardous decomposition products**

no data available

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# **11. Toxicological information**

### **Acute toxicity**

- Oral: LD50 - rat (female) - 1 496 mg/kg bw.
- Inhalation: LC50 - rat (male/female) - 0.164 mg/L air (analytical).
- Dermal: LD50 - rat (male/female) - > 2 000 mg/kg bw.

### **Skin corrosion/irritation**

no data available

### **Serious eye damage/irritation**

no data available

### **Respiratory or skin sensitization**

no data available

### **Germ cell mutagenicity**

no data available

### **Carcinogenicity**

no data available

### **Reproductive toxicity**

no data available

### **STOT-single exposure**

no data available

### **STOT-repeated exposure**

no data available

### **Aspiration hazard**

no data available

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# **12. Ecological information**

## 12.1 Toxicity

- Toxicity to fish: LC50 - *Oryzias latipes* - > 100 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - *Daphnia magna* - 80.7 mg/L - 48 h.
- Toxicity to algae: EC50 - *Pseudokirchneriella subcapitata* (previous names: *Raphidocelis subcapitata*, *Selenastrum capricornutum*) - 51.4 mg/L - 72 h.
- Toxicity to microorganisms: EC50 - *Pseudokirchneriella subcapitata* (previous names: *Raphidocelis subcapitata*, *Selenastrum capricornutum*) - 51.4 mg/L - 72 h.

## 12.2 Persistence and degradability

no data available

## 12.3 Bioaccumulative potential

no data available

## 12.4 Mobility in soil

no data available

## 12.5 Other adverse effects

no data available

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## 13. Disposal considerations

### 13.1 Disposal methods

#### Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

#### Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

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## 14. Transport information

### 14.1 UN Number

ADR/RID: UN3341

IMDG: UN3341

IATA: UN3341

### 14.2 UN Proper Shipping Name

ADR/RID: THIOUREA DIOXIDE

IMDG: THIOUREA DIOXIDE

IATA: THIOUREA DIOXIDE

### 14.3 Transport hazard class(es)

ADR/RID: 4.2

IMDG: 4.2

IATA: 4.2

### 14.4 Packing group, if applicable

ADR/RID: III

IMDG: III

IATA: III



## 14.5 Environmental hazards

ADR/RID: no

IMDG: no

IATA: no

## 14.6 Special precautions for user

no data available

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

no data available

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## 15. Regulatory information

### 15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Aminoiminomethanesulphinic acid	Thiourea dioxide	1758-73-2	217-157-8
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.

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## 16. Other information

### Information on revision

**Creation Date** Feb. 6, 2018

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### Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit

- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

## References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

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*Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.*