

## Chemical Safety Data Sheet MSDS / SDS

## Thiophene

Revision Date:2026-03-21 Revision Number:1

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

## Product identifier

Product name : Thiophene  
CBnumber : CB5852798  
CAS : 110-02-1  
EINECS Number : 203-729-4  
Synonyms : Thiophene, extra pure;Thiophen

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

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

## Company Identification

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 010-86108875

## SECTION 2: Hazards identification

## GHS Label elements, including precautionary statements

Symbol(GHS)



Signal word

Danger

## Precautionary statements

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

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

P273 Avoid release to the environment.

P301+P312 IF SWALLOWED: call a POISON CENTER or doctor/physician IF you feel unwell.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continuerinsing.

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

## Hazard statements

H225 Highly Flammable liquid and vapour

H302 Harmful if swallowed

H319 Causes serious eye irritation

H340 May cause genetic defects

H350 May cause cancer

H412 Harmful to aquatic life with long lasting effects

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## SECTION 3: Composition/information on ingredients

### Substance

Product name	: Thiophene
Synonyms	: Thiophene, extra pure;Thiophen
CAS	: 110-02-1
EC number	: 203-729-4
MF	: C4H4S
MW	: 84.14

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## SECTION 4: First aid measures

### General advice

Show this safety data sheet to the doctor in attendance.

### If inhaled

After inhalation: fresh air. Call in physician.

### In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

### In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

### If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

### Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11

### Protection of first-aiders

For personal protection see section 8.

### Notes to physician

No data available

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## SECTION 5: Firefighting measures

## Suitable extinguishing media

Water Foam Carbon dioxide (CO<sub>2</sub>) Dry powder

## Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

## Specific hazards during fire fighting

Combustible. Pay attention to flashback. Vapours are heavier than air and may spread along floors. Development of hazardous combustion gases or vapours possible in the event of fire. Forms explosive mixtures with air at ambient temperatures.

## Hazardous combustion products

Carbon oxides Sulphur oxides

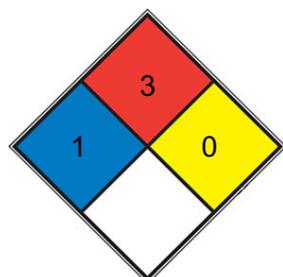
## Specific extinguishing methods

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

## Special protective equipment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

## NFPA 704



■ HEALTH 1 Exposure would cause irritation with only minor residual injury (e.g. [acetone](#), sodium bromate, potassium chloride)

■ FIRE 3 Liquids and solids (including finely divided suspended solids) that can be ignited under almost all ambient temperature conditions . Liquids having a flash point below 22.8 °C (73 °F) and having a boiling point at or above 37.8 °C (100 °F) or having a flash point between 22.8 and 37.8 °C (73 and 100 °F). (e.g. gasoline, [acetone](#))

■ REACT 0 Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium, [N<sub>2</sub>](#))

□ SPEC.

□ HAZ.

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## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. Advice for emergency

responders: For personal protection see section 8.

### **Environmental precautions**

Do not let product enter drains. Risk of explosion.

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

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material. Dispose of properly. Clean up affected area.

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## **SECTION 7: Handling and storage**

### **Handling**

#### **Advice on protection against fire and explosion**

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

#### **Advice on safe handling**

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

#### **Avoidance of contact**

Copper Copper alloys

### **Storage**

#### **Further information on storage conditions**

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorised persons.

#### **Storage class**

3, Flammable liquids

#### **Recommended storage temperature**

Recommended storage temperature see product label.

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## **SECTION 8: Exposure controls/personal protection**

### **Ingredients with workplace control parameters**

Biological occupational exposure limits

### **Engineering measures**

No data available

### **Personal protective equipment**

#### **Respiratory protection**

required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

#### **Recommended Filter type**

Filter type B

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

**Eye/face protection**

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Safety glasses

**Skin and body protection**

Flame retardant antistatic protective clothing.

**Hand protection****Material**

Fluorinated rubber

**Break through time**

10 min

**Glove thickness**

0.7 mm

**Protective index**

Splash contact

**Manufacturer**

Vitoject® (KCL 890 / Aldrich Z677698, Size M)

**Manufacturer**

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

**Remarks**

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.

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it. 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.

**Hygiene measures**

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

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## SECTION 9: Physical and chemical properties

**Information on basic physicochemical properties**

liquid

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**Color**

Clear

**Odor**

at 0.10 % in propylene glycol. alliaceous garlic

**Odor Threshold**

No data available

### **pH**

No data available

### **Melting point/ range**

-38 °C

### **Boiling point/boiling range**

84 °C

### **Flash point**

-9 °C

### **Evaporation rate**

No data available

### **Flammability (solid, gas)**

No data available

### **Flammability (liquids)**

No data available

### **Burning rate**

No data available

### **Upper explosion limit / Upper flammability limit**

12.5 %(V)

### **Lower explosion limit / Lower flammability limit**

1.5 %(V)

### **Vapor pressure**

40 mm Hg ( 12.5 °C)

### **Relative vapor density**

2.9 (vs air)

### **Relative density**

1.051 g/mL at 25 °C (lit.)

### **Density**

1.051 g/mL (25 °C)

### **Water solubility**

INSOLUBLE

**Partition coefficient: n-octanol/water**

No data available

**Autoignition temperature**

No data available

**Decomposition temperature**

No data available

**Viscosity, dynamic**

No data available

**Viscosity, kinematic**

No data available

**Flow time**

No data available

**Explosive properties**

No data available

**Oxidizing properties**

No data available

**Molecular weight**

84.14 g/mol

**Particle characteristics Particle size**

No data available

**Solubility**

Miscible with carbon tetrachloride, heptane, pyrimidine, dioxane, toluene, and many organic solvents (quoted, Keith and Walters, 1992)

**Physical state**

powder

**Henry's Law Constant**

2.33 and 2.70 in distilled water and seawater, respectively (Przyjazny et al., 1983)

**Dielectric constant**

9.3 (20°C)

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**SECTION 10: Stability and reactivity****Reactivity**

Vapours may form explosive mixture with air.

### **Chemical stability**

The product is chemically stable under standard ambient conditions (room temperature) .

### **Possibility of hazardous reactions**

Violent reactions possible with: Strong oxidizing agents Nitric acid

### **Conditions to avoid**

Warming.

### **Incompatible materials**

Copper Copper alloys

### **Hazardous decomposition products**

In the event of fire: see section 5

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## **SECTION 11: Toxicological information**

### **11.1 Information on toxicological effects**

#### **Acute toxicity**

Acute toxicity estimate Oral - 1,400 mg/kg (Calculation method)

LD50 Oral - Rat - 1,400 mg/kg

Remarks: (RTECS)

Symptoms: Nausea, Vomiting, Risk of aspiration upon vomiting., Aspiration may cause pulmonary oedema and pneumonitis.

LCLo Inhalation - Rat - 4 h - 10.5 mg/l

Remarks: (RTECS)

Symptoms: Possible damages:, Irritation symptoms in the respiratory tract.

Dermal: No data available

#### **Skin corrosion/irritation**

Remarks: Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.

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

Classified based on available data. For more details, see section 2

#### **Respiratory or skin sensitization**

Classified based on available data. For more details, see section 2

#### **Germ cell mutagenicity**

Classified based on available data. For more details, see section 2

#### **Carcinogenicity**

This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

#### **Reproductive toxicity**

Classified based on available data. For more details, see section 2

#### **Specific target organ toxicity - single exposure**

Classified based on available data. For more details, see section 2

#### **Specific target organ toxicity - repeated exposure**

Classified based on available data. For more details, see section 2

#### **Aspiration hazard**

Classified based on available data. For more details, see section 2

### **11.2 Additional Information**

RTECS: XM7350000

Nausea, Headache, Vomiting, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Nausea, Headache, Vomiting, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption:

Headache

Dizziness

Cardiac irregularities

Shortness of breath agitation, spasms narcosis

Circulatory collapse respiratory paralysis

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

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## **SECTION 12: Ecological information**

### **Ecotoxicity**

#### **Components:**

##### **thiophene:**

#### **Toxicity to fish**

LC50 (*Oryzias latipes* (Orange-red killifish)): 15.6 mg/l Exposure time: 48 h Remarks: (External MSDS)

#### **Toxicity to daphnia and other aquatic invertebrates**

EC50 (*Daphnia* (water flea)): 13 mg/l Exposure time: 48 h Remarks: (External MSDS)

### **Ecotoxicology Assessment**

#### **Chronic aquatic toxicity**

Harmful to aquatic life with long lasting effects.

##### **benzene:**

#### **Toxicity to fish**

LC50 (*Oryzias latipes* (Orange-red killifish)): > 100 mg/l End point: mortality Exposure time: 96 h Test Type: semi-static test Analytical monitoring: yes Method: OECD Test Guideline 203 GLP: yes

#### **Toxicity to daphnia and other aquatic invertebrates**

EC50 (*Daphnia magna* (Water flea)): > 1,000 mg/l End point: Immobilization Exposure time: 48 h Test Type: semi-static test Analytical monitoring: yes Method: OECD Test Guideline 202 GLP: yes NOEC (*Daphnia magna* (Water flea)): > 1,000 mg/l End point: Immobilization Exposure time: 48 h Test Type: semi-static test Analytical monitoring: yes Method: OECD Test Guideline 202 GLP: yes

### **Toxicity to algae/aquatic plants**

ErC50 (Pseudokirchneriella subcapitata (green algae)): > 1,000 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes  
Method: OECD Test Guideline 201 GLP: yes NOEC (Pseudokirchneriella subcapitata (green algae)): >= 1,000 mg/l Exposure time: 72 h Test  
Type: static test Analytical monitoring: yes Method: OECD Test Guideline 201 GLP: yes

### **Toxicity to fish (Chronic toxicity)**

NOEC (Pimephales promelas (fathead minnow)): 0.8 mg/l Exposure time: 32 d Test Type: flow-through test Analytical monitoring: yes  
Remarks: (ECHA)

### **Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)**

LC50 (Daphnia magna (Water flea)): > 100 mg/l End point: mortality Exposure time: 21 d Test Type: semi-static test Analytical monitoring: yes  
Method: OECD Test Guideline 211 GLP: yes

### **Toxicity to microorganisms**

EC50 (activated sludge): > 1,000 mg/l Exposure time: 3 h Test Type: static test Method: OECD Test Guideline 209 GLP: yes

## **Ecotoxicology Assessment**

### **Chronic aquatic toxicity**

Harmful to aquatic life with long lasting effects.

### **Persistence and degradability**

#### **Components:**

#### **thiophene:**

#### **Biodegradability**

Result: Not readily biodegradable.

#### **benzene:**

#### **Biodegradability**

aerobic Inoculum: activated sludge, non-adapted Concentration: 17 mg/l Result: Readily biodegradable. Biodegradation: 96 % Exposure time:  
28 d Method: OECD Test Guideline 301F GLP: yes

### **Bioaccumulative potential**

#### **Components:**

#### **benzene:**

#### **Bioaccumulation**

Species: Leuciscus idus (Golden orfe) Bioconcentration factor (BCF): 10 Exposure time: 3 d Concentration: 0.05 mg/l

#### **Partition coefficient: noctanol/water**

log Pow: 2.13 (25 °C) pH: 7 Remarks: Bioaccumulation is not expected. (ECHA)

### **Mobility in soil**

No data available

### **Other adverse effects**

#### **Components:**

## **benzene:**

### **Additional ecological information**

Endangers drinking-water supplies if allowed to enter soil or water. Discharge into the environment must be avoided.

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## **SECTION 13: Disposal considerations**

### **Disposal methods**

#### **Waste from residues**

Offer surplus and non-recyclable solutions to a licensed disposal company.

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## **SECTION 14: Transport information**

### **International Regulations**

#### **IATA-DGR**

UN/ID No. : UN 2414

Proper shipping name : Thiophene

Class : 3

Packing group : II

Labels : Class 3 - Flammable liquids

Packing instruction (cargo aircraft) : 364

Packing instruction (passenger aircraft) : 353

#### **IMDG-Code**

UN number : UN 2414

Proper shipping name : THIOPHENE

Class : 3

Packing group : II

Labels : 3

EmS Code : F-E, S-D

Marine pollutant : no

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

Not applicable for product as supplied.

### **National Regulations**

#### **JT/T 617**

UN number : UN 2414

Proper shipping name : THIOPHENE

Class : 3

Packing group : II

Labels : 3

Environmentally hazardous : no

### **Special precautions for user**

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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## **SECTION 15: Regulatory information**

### **National regulatory information**

#### **Law on the Prevention and Control of Occupational Diseases**

#### **Regulations on Safety Management of Hazardous Chemicals**

#### **Catalogue of Hazardous Chemicals**

Identification of Major Hazard Installations for Hazardous Chemicals (GB 18218)

#### **No. / Code Chemical name / Category Threshold quantity**

#### **W5.3 Flammable liquids 1,000 t**

#### **Hazardous Chemicals for Priority Management**

Not applicable under SAWS

#### **Catalogue of Specially Controlled Hazardous**

Not listed Chemicals

#### **List of Explosive Precursors**

Not listed

#### **Regulation of Environmental Management on the First Import of Chemicals and the Import and Export of Toxic Chemicals**

#### **China Severely Restricted Toxic Chemicals for Import and Export**

Not applicable

#### **Regulation on the Administration of Precursor Chemicals**

#### **Catalogue and Classification of Precursor Chemicals**

Not listed

#### **Regulations on the Administration of Controlled Chemicals**

#### **List of Controlled Chemicals**

Not listed

## **Regulations of Ozone Depleting Substances Management**

### **List of Controlled Ozone Depleting Substances**

Not listed

### **List of Controlled Ozone Depleting Substances Import and Export**

Not listed

## **Environmental Protection Law**

### **List of Priority Controlled Chemicals**

Not listed

### **List of Key Controlled New Pollutants**

Not listed

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## SECTION 16: Other information

### **Full text of other abbreviations**

#### **ACGIH**

USA. ACGIH Threshold Limit Values (TLV)

#### **CN BEI**

China. Biological Occupational Exposure Indices

#### **GBZ 2.1-2007**

Occupational exposure limits for hazardous agents in the workplace - Chemical hazardous agents.

#### **ACGIH / TWA**

8-hour, time-weighted average

#### **ACGIH / STEL**

Short-term exposure limit

#### **GBZ 2.1-2007 / PC-TWA**

Permissible concentration - time weighted average

**GBZ 2.1-2007 / PC-STEL AIC - Australian Invent Transport by Land of Bra bw - Body weight; CMR Standard of the German List (Canada); ECx - Conc associated with x% respo Chemical Substances (Jap response; ERG - Emerge GLP - Good Laboratory P cer; IATA - International Construction and Equipm Half maximal inhibitory c tion; IECSC - Inventory o tional Maritime Dangerou Industrial Safety and H Standardisation; KECl - K tration to 50 % of a test (Median Lethal Dose); MA lution from Ships; MERC of Dangerous Goods; n.o. - No Observed (Adverse) fect Level; NOELR - No Norm; NTP - National Toxi cals; OECD - Organisatio fice of Chemical Safety a and Toxic substance; PIC stances; (Q)SAR - (Quant (EC) No 1907/2006 of th Registration, Evaluation, Accelerating Decompositi Chemical Substance Inve Thailand Existing Chemical States); UN - United Nat Transport of Dangerous WHMIS - Workplace Hazar**

Permissible concentration - short term exposure limit ry of Industrial Chemicals

ANTT - National Agency for il

ASTM - American Society for the Testing of Materials

- Carcinogen, Mutagen or Reproductive Toxicant

DINstitute for Standardisation

DSL - Domestic Substances ntration associated with x% response

ELx - Loading rate se

EmS - Emergency Schedule

ENCS - Existing and New n)

ErCx - Concentration associated with x% growth rate cy Response Guide

GHS - Globally Harmonised System

actice

IARC - International Agency for Research on Canir Transport Association

IBC - International Code for the nt of Ships carrying Dangerous Chemicals in Bulk

IC50 ncentration

ICAO - International Civil Aviation Organiza- Existing Chemical Substances in China

IMDG - Interna- Goods

IMO - International Maritime Organisation

ISHL alth Law (Japan)

ISO - International Organisation for rea Existing Chemicals Inventory

LC50 - Lethal Concenopulation

LD50 - Lethal Dose to 50% of a test population POL - International Convention for the Prevention of Pol- SUR - The Agreement for the

Facilitation of the Transport . - Not Otherwise Specified

Nch - Chilean Norm

NO(A)EC ffect Concentration

NO(A)EL - No Observed (Adverse) Efbserveable Effect Loading Rate

NOM - Official Mexican ology Program

NZIoC - New Zealand Inventory of Chemfor Economic Co-operation and Development

OPPTS - Ofd Pollution Prevention

PBT - Persistent, Bioaccumulative S - Philippines Inventory of Chemicals and Chemical Subtative) Structure Activity Relationship

REACH - Regulation European Parliament and of the Council concerning the uthorisation and Restriction of Chemicals

SADT - Selfn Temperature

SDS - Safety Data Sheet

TCSI - Taiwan tory

TDG - Transportation of Dangerous Goods

TECI s Inventory

TSCA - Toxic Substances Control Act (United ons)

UNRTDG - United Nations Recommendations on the oods

vPvB - Very Persistent and Very Bioaccumulative

ous Materials Information System

**Disclaimer:**

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.