

1 Identification of the substance/mixture and of the company/undertaking**Product identifier****Trade name****Tetrahydrothiophene****Stock number:**

L13908

CAS Number:

110-01-0

EINECS Number:

203-728-9

Index number:

613-087-00-0

Relevant identified uses of the substance or mixture and uses advised against**Sector of Use**

SU24 Scientific research and development

Details of the supplier of the safety data sheet**Manufacturer/Supplier:**

Alfa Aesar GmbH & Co.KG
A Johnson Matthey Company
Benzstrasse 3
D-76185 Karlsruhe / Germany
Tel: +49 (0) 721 84007 280
Fax: +49 (0) 721 84007 300
Email: tech@alfa.com
www.alfa.com

Informing department:

Product safety department.

Emergency telephone number:

Product Safety Department +049 (0) 7275 988687-0 (business hours)
Carechem 24: +44 (0) 1235 239 670 (Multi-language 24 hour emergency)
Giftnotruf Universität Mainz / Poison Information Center Mainz
www.giftinfo.uni-mainz.de Telefon: +49(0)6131/19240

2 Hazards identification**Classification of the substance or mixture****Classification according to Regulation (EC) No 1272/2008**

GHS02 flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Acute Tox. 4 H312 Harmful in contact with skin.

Acute Tox. 4 H332 Harmful if inhaled.

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2 H319 Causes serious eye irritation.

Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

Xn; Harmful

R20/21/22: Harmful by inhalation, in contact with skin and if swallowed.

Xi; Irritant

R36/38: Irritating to eyes and skin.

F; Highly flammable

R11: Highly flammable.

R52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Information concerning particular hazards for human and environment:

Not applicable

Label elements**Labelling according to Regulation (EC) No 1272/2008****Hazard pictograms**

The substance is classified and labelled according to the CLP regulation.



GHS02 GHS07

Signal word

Danger

Hazard statements

H225 Highly flammable liquid and vapour.

H302 Harmful if swallowed.

H312 Harmful in contact with skin.

H332 Harmful if inhaled.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H412 Harmful to aquatic life with long lasting effects.

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

P241 Use explosion-proof electrical/ventilating/lighting/equipment.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin

with water/shower.

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

present and easy to do. Continue rinsing.

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

P501 Dispose of contents/container in accordance with local/regional/national/international

regulations.

Other hazards**Results of PBT and vPvB assessment****PBT:**

Not applicable.

vPvB:

Not applicable.

3 Composition/information on ingredients**Chemical characterization: Substances****(CAS#) Designation:**

110-01-0 Tetrahydrothiophene

Identification number(s):**EINECS Number:**

203-728-9

Index number:

613-087-00-0

4 First aid measures**Description of first aid measures****After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

After skin contact

Seek immediate medical advice.
Instantly wash with water and soap and rinse thoroughly.
Seek immediate medical advice.

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After eye contact
After swallowing
Information for doctor
Most important symptoms and effects, both acute and delayed
Indication of any immediate medical attention and special treatment needed

Rinse opened eye for several minutes under running water. Then consult doctor.
Seek immediate medical advice.

No further relevant information available.

No further relevant information available.

5 Firefighting measures

Extinguishing media
Suitable extinguishing agents
For safety reasons unsuitable extinguishing agents
Special hazards arising from the substance or mixture

CO₂, sand, extinguishing powder. Do not use water.
Water.
Can be released in case of fire:
Carbon monoxide and carbon dioxide
Sulphur oxides (SO_x)

Advice for firefighters
Protective equipment:

Wear self-contained breathing apparatus.
Wear full protective suit.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Keep away from ignition sources
Do not allow material to be released to the environment without proper governmental permits.

Environmental precautions:
Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose of contaminated material as waste according to item 13.
Ensure adequate ventilation.
Keep away from ignition sources.
See Section 7 for information on safe handling
See section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

Reference to other sections

7 Handling and storage

Handling
Precautions for safe handling

Keep containers tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.

Information about protection against explosions and fires:

Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Fumes can combine with air to form an explosive mixture.

Conditions for safe storage, including any incompatibilities

Storage
Requirements to be met by storerooms and containers:
Information about storage in one common storage facility:
Further information about storage conditions:

Store in cool location.
Store away from oxidizing agents.
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.
No further relevant information available.

Specific end use(s)

8 Exposure controls/personal protection

Additional information about design of technical systems:

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Control parameters
Components with critical values that require monitoring at the workplace:
Additional information:

Not required.
No data

Exposure controls
Personal protective equipment
General protective and hygienic measures

The usual precautionary measures should be adhered to in handling the chemicals.
Keep away from foodstuffs, beverages and food.
Instantly remove any soiled and impregnated garments.
Wash hands during breaks and at the end of the work.
Avoid contact with the eyes and skin.
Use breathing protection with high concentrations.
Check protective gloves prior to each use for their proper condition.
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
Impervious gloves
Not determined
Safety glasses
Face protection
Protective work clothing.

Breathing equipment:
Protection of hands:
Material of gloves

Penetration time of glove material
Eye protection:

Body protection:

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:

Form: Liquid
Colour: Not determined.
Smell: Not determined
Odour threshold: Not determined.

pH-value: Not determined.

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Change in condition
Melting point/Melting range: -96°C
Boiling point/Boiling range: 120-121°C
Sublimation temperature / start: Not determined

Flash point: 19°C

Inflammability (solid, gaseous) Not applicable.

Ignition temperature: Not determined

Decomposition temperature: Not determined

Self-inflammability: Not determined.

Critical values for explosion:
Lower: Not determined
Upper: Not determined

Steam pressure: Not determined

Density at 20°C 0.999 g/cm³
Relative density Not determined.
Vapour density Not determined.
Evaporation rate Not determined.

Segregation coefficient (n-octanol/water): Not determined.

Viscosity:
dynamic: Not determined.
kinematic: Not determined.
Other information No further relevant information available.

10 Stability and reactivity

Reactivity
Chemical stability
Thermal decomposition / conditions to be avoided: No decomposition if used and stored according to specifications.
Possibility of hazardous reactions No dangerous reactions known
Incompatible materials: Oxidizing agents
Hazardous decomposition products: Carbon monoxide and carbon dioxide
 Sulphur oxides (SO_x)

11 Toxicological information

Information on toxicological effects

Acute toxicity:

LD/LC50 values that are relevant for classification:

Oral LD50 1750 mg/kg (rat)

Primary irritant effect:
on the skin: Irritant for skin and mucous membranes.
on the eye: Irritant effect.
Sensitization: No sensitizing effect known.
Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
 Danger by skin resorption.
 The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute and/or other multiple dose toxicity data for components in this product.
 No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

12 Ecological information

Toxicity
Acquatic toxicity: No further relevant information available.
Persistence and degradability No further relevant information available.
Behaviour in environmental systems:
Bioaccumulative potential No further relevant information available.
Mobility in soil No further relevant information available.
Ecotoxic effects:
Remark: Harmful to aquatic organisms
Additional ecological information:
General notes: Do not allow product to reach ground water, water bodies or sewage system.
 Water hazard class 2 (Self-assessment): hazardous for water.
 Danger to drinking water if even small quantities leak into soil.
 Do not allow material to be released to the environment without proper governmental permits.
 Harmful to aquatic organisms

Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.
Other adverse effects No further relevant information available.

13 Disposal considerations

Waste treatment methods
Recommendation Hand over to disposers of hazardous waste.
 Must be specially treated under adherence to official regulations.
 Consult state, local or national regulations for proper disposal.

Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

14 Transport information

Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)



ADR/RID-GGVS/E Class: 3 (F1) Flammable liquids.
Kemler Number: 33
UN-Number: 2412

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GB

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Packaging group:	II
Label	3
UN proper shipping name:	2412 TETRAHYDROTHIOPHENE
Limited quantities (LQ)	LQ4
Transport category	2
Tunnel restriction code	D/E

Maritime transport IMDG/GGVSea:



IMDG/GGVSea Class:	3
UN Number:	2412
Label	3
Packaging group:	II
Marine pollutant:	No
Correct technical name:	TETRAHYDROTHIOPHENE

Air transport ICAO-TI and IATA-DGR:



ICAO/IATA Class:	3
UN/ID Number:	2412
Label	3
Packaging group:	II
Correct technical name:	TETRAHYDROTHIOPHENE

UN "Model Regulation":

Special precautions for user	UN2412, TETRAHYDROTHIOPHENE, 3, II
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Warning: Flammable liquids. Not applicable.

15 Regulatory information

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

Labelling according to Regulation (EC) No 1272/2008

Hazard pictograms

The substance is classified and labelled according to the CLP regulation.



GHS02 GHS07

Signal word

Hazard statements

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P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
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 P302+P352 IF ON SKIN: Wash with plenty of soap and water.
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

National regulations

Information about limitation of use:

Employment restrictions concerning young persons must be observed.
 For use only by technically qualified individuals.

Water hazard class:

Chemical safety assessment:

Water hazard class 2 (Self-assessment): hazardous for water.
 A Chemical Safety Assessment has not been carried out.

16 Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing data specification sheet: Health, Safety and Environmental Department.

Contact:

Zachariah C. Holt
 Global EHS Manager

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)
 RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
 IMDG: International Maritime Code for Dangerous Goods
 IATA: International Air Transport Association
 IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
 ICAO: International Civil Aviation Organization
 ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
 GHS: Globally Harmonized System of Classification and Labelling of Chemicals
 EINECS: European Inventory of Existing Commercial Chemical Substances
 CAS: Chemical Abstracts Service (division of the American Chemical Society)
 LC50: Lethal concentration, 50 percent
 LD50: Lethal dose, 50 percent