

Safety Data Sheet

Hazardous Substance, Dangerous Goods

1. MATERIAL AND SUPPLY COMPANY IDENTIFICATION

Product name: **Tetrahydrothiophene (THT)**

Synonyms:

Tetrahydrothiophene

Mancode

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Recommended use: Natural and pressurised liquefied gas odorant.

Supplier: International Chemicals Engineering Pty Ltd
ABN: 52 058 217 566
Street Address: 18-20 Kilkenny Court
Dandenong VIC 3175
Australia
Telephone: +61 3 9792-4844
Facsimile: +61 3 9792-4804
Email: info@iceng.net.au
Website: www.iceng.net.au

24/7 Emergency telephone number: +61 3 8769 3654

2. HAZARDS IDENTIFICATION

This material is hazardous according to health criteria of Safe Work Australia.



Signal Word

Danger

Hazard Classification

Flammable Liquids – Category 2
Acute Toxicity – Oral – Category 4
Acute Toxicity – Dermal – Category 4
Acute Toxicity – Inhalation – Category 4
Serious Eye Damage/Irritation – Category 2A
Skin Corrosion/Irritation – Category 2
Specific Target Organ Toxicity (Single Exposure) – Category 3
Acute Hazard to the Aquatic Environment – Category 3
Chronic Hazard to the Aquatic Environment – Category 3

Hazard Statement(s)

H225 Highly flammable liquid and vapour
H302 Harmful if swallowed
H312 Harmful in contact with skin
H315 Causes skin irritation
H319 Causes serious eye irritation
H332 Harmful if inhaled
H335 May cause respiratory irritation
H336 May cause drowsiness or dizziness

Product name: Tetrahydrothiophene (THT)

SDS No: ICEGHSEN000105

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H412 Harmful to aquatic life with long lasting effects

Prevention Precautionary Statement(s)

P102 Keep out of reach of children
P103 Read label before use
P210 Keep away from all sources of ignition - No smoking
P233 Keep container tightly closed
P240 Ground/bond container and receiving equipment
P241 Use explosion-proof electrical, ventilating, lighting and all other equipment
P242 Use only non-sparking tools
P243 Take precautionary measures against static discharge
P261 Avoid breathing gas, mist, vapours or spray
P264 Wash hands, face and all exposed skin thoroughly after handling
P270 Do not eat, drink or smoke when using this product
P271 Use only outdoors or in a well-ventilated area
P272 Contaminated work clothing should not be allowed out of the workplace
P273 Avoid release to the environment
P280 Wear protective clothing, gloves, eye/face protection and suitable respirator as required

Response Precautionary Statement(s)

P101 If medical advice is needed, have product container or label at hand
P301+310 IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician
P330 Rinse mouth
P304+340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P312 Call a POISON CENTRE or doctor/physician if you feel unwell
P302+352 IF ON SKIN: Wash with soap and water
P303+361+353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P363 Wash contaminated clothing before reuse
P333+313 If skin irritation or a rash occurs: Get medical advice/attention
P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
P337+313 If eye irritation persists get medical advice/attention
P370+378 In case of fire: Use water foam or dry agent for extinction

Storage Precautionary Statement(s)

P405 Store locked up
P403+235 Store in a well ventilated place. Keep cool

Disposal Precautionary Statement(s)

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

Poisons Schedule (Aust): Not applicable

DANGEROUS GOODS CLASSIFICATION

Classified as Dangerous Goods by the criteria of the "Australian Code for the Transport of Dangerous Goods by Road & Rail" and the "New Zealand NZS5433: Transport of Dangerous Goods on Land".

Class: 3 Flammable Liquid

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3. COMPOSITION INFORMATION

CHEMICAL ENTITY	CAS NO.	PROPORTION
Tetrahydrothiophene (THT)	110-01-0	100%
		<hr/> 100%

4. FIRST AID MEASURES

If poisoning occurs, contact a doctor or Poisons Information Centre (Phone Australia 131 126, New Zealand 0800 764 766).

Inhalation: Remove victim from exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. If breathing laboured and patient cyanotic (blue), ensure airways are clear and have a qualified person give oxygen through a facemask. If breathing has stopped apply artificial respiration at once. In the event of cardiac arrest, apply external cardiac massage. Seek immediate medical advice.

Skin contact: For gross contamination, immediately drench with water and remove clothing. Continue to flush skin and hair with plenty of soapy water. For skin burns, cover with a clean, dry dressing until medical help is available. If blistering occurs, do NOT break blisters. If swelling, redness, blistering, or irritation occurs seek medical assistance. A component of this material can be absorbed through the skin with resultant toxic effects. Seek medical advice.

Eye contact: If in eyes, hold eyelids apart and flush the eyes continuously with running water. Continue flushing until advised to stop by the Poisons Information Centre or a Doctor; or for at least 15 minutes and transport to Doctor or Hospital.

Ingestion: Immediately rinse mouth with water. If swallowed, do NOT induce vomiting. Give a glass of water to drink. Never give anything by the mouth to an unconscious patient. If vomiting occurs give further water. Get to a doctor or hospital quickly.

PPE for First Aiders: Wear overalls, chemical goggles and impervious gloves. Use with adequate ventilation. If inhalation risk exists wear organic vapour/particulate respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716. Available information suggests that gloves made from nitrile rubber should be suitable for intermittent contact. However, due to variations in glove construction and local conditions, the user should make a final assessment. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.

Notes to physician: Treat symptomatically.

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5. FIRE-FIGHTING MEASURES

Hazchem Code: 3WE

Suitable extinguishing media: If material is involved in a fire use foam, dry agent (carbon dioxide, dry chemical powder).

Specific hazards: Flammable liquid. May form flammable vapour mixtures with air. Flameproof equipment necessary in area where this chemical is being used. Nearby equipment must be earthed. Electrical requirements for work area should be assessed according to AS3000. Vapour may travel a considerable distance to source of ignition and flash back. Avoid all ignition sources. All potential sources of ignition (open flames, pilot lights, furnaces, spark producing switches and electrical equipment etc) must be eliminated both in and near the work area. Do NOT smoke.

Fire fighting further advice: Heating can cause expansion or decomposition leading to violent rupture of containers. If safe to do so, remove containers from path of fire. Keep containers cool with water spray. On burning may emit toxic fumes. Fire fighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to vapour or products of combustion.

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILLS

Wear protective equipment to prevent skin and eye contamination and the inhalation of vapour. Wipe up with absorbent (clean rag or paper towels). To neutralise contaminated area of odour, use ICE Mercaptan Odour Neutraliser. If unavailable, use a 10% aqueous solution of sodium hypochlorite**. Collect and seal in properly labelled containers for disposal. Dispose of spilt material in accordance with local, regional, national and international Regulations.

**Sodium hypochlorite can be found in White King and Pool Chlorine products. Do not use undiluted as a vigorous, exothermic reaction may result. As sodium hypochlorite is highly corrosive, ensure surfaces are rinsed with clean water after hypochlorite.

LARGE SPILLS

Shut off all possible sources of ignition. Clear area of all unprotected personnel. Prevent further leakage or spillage if safe to do so. Wear protective equipment to prevent skin and eye contamination and the inhalation of vapours. Work up wind or increase ventilation. Contain - prevent run off into drains and waterways. Use absorbent (soil, sand or other inert material). To neutralise contaminated area of odour, use ICE Mercaptan Odour Neutraliser. If unavailable, use a 10% aqueous solution of sodium hypochlorite**. Collect and seal in properly labelled containers or drums for disposal. Use a spark-free shovel. If contamination of sewers or waterways has occurred advise local emergency services.

Dangerous Goods – Initial Emergency Response Guide No: 16

7. HANDLING AND STORAGE

Handling: Avoid skin and eye contact and inhalation of vapour or mist.

Storage: Store in a cool, dry, well-ventilated place and out of direct sunlight. Store away from incompatible materials described in Section 10. Store away from sources of heat or ignition. Keep containers closed when not in use - check regularly for leaks.

This material is classified as a Dangerous Good Class 3 Flammable Liquid as per the criteria of the Australian Dangerous Goods Code and must be stored in accordance with the relevant regulations.

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8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

National occupational exposure limits: No value assigned for this specific material by Safe Work Australia or Department of Labour New Zealand.

Biological Limit Values: As per the "National Model Regulations for the Control of Workplace Hazardous Substances (Safe Work Australia)" the ingredients in this material do not have a Biological Limit Allocated.

Engineering measures: Use only in well ventilated areas. Use with local exhaust ventilation or while wearing appropriate respirator. Vapour heavier than air - prevent concentration in hollows or sumps. DO NOT enter confined spaces where vapour may have collected. Keep containers closed when not in use.

Personal protection equipment: OVERALLS, SAFETY SHOES, CHEMICAL GOGGLES, GLOVES, RESPIRATOR.

Wear overalls, chemical goggles and impervious gloves. Use with adequate ventilation. If inhalation risk exists wear organic vapour/particulate respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716. Available information suggests that gloves made from nitrile rubber be suitable for intermittent contact. However, due to variations in glove construction and local conditions, the user should make a final assessment. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.

Hygiene measures: Keep away from food, drink and animal feeding stuffs. When using do not eat, drink or smoke. Wash hands prior to eating, drinking or smoking. Avoid skin and eye contact and inhalation of vapour or mist. Ensure that eyewash stations and safety showers are close to the workstation location.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form / Colour / Odour: Colourless liquid with a stinging, unpleasant odour.

Solubility:	Insoluble in water. Soluble in organic solvents.
Specific Gravity (20 °C):	0.999
Relative Vapour Density (air=1):	>1
Vapour Pressure (20 °C):	19 hPa
Flash Point (°C):	19 (CC)
Odour Threshold:	Approx. 1 ppb
Flammability Limits (%):	LEL – 1.1; UEL – 12.1
Autoignition Temperature (°C):	202
% Volatile by Volume:	100
Solubility in water (g/L):	N Av
Melting Point/Range (°C):	-96
Boiling Point/Range (°C):	121
Decomposition Point (°C):	640
pH:	N Av
Viscosity (20 °C):	1.042 mPa.s
Total VOC (g/Litre):	N Av

(Typical values only - consult specification sheet)

N Av = Not available

N App = Not applicable

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10. STABILITY AND REACTIVITY

Reactivity: No reactivity hazards are known for the material.

Chemical stability: This material is thermally stable when stored and used as directed.

Hazardous reactions: Reacts violently with oxidising agents, releasing sulphur dioxide.

Conditions to avoid: Elevated temperatures and sources of ignition.

Incompatible materials: Oxidising agents, acids and alkalis, alkalis metals and reducing agents.

Hazardous decomposition products: Oxides of carbon and nitrogen, smoke and other toxic fumes.

11. TOXICOLOGICAL INFORMATION

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

Acute Effects

Inhalation: Material is an irritant to mucous membranes and respiratory tract. Inhalation of vapour can result in headaches, dizziness and possible nausea. Inhalation of high concentrations can produce central nervous system depression, which can lead to loss of co-ordination, impaired judgement and if exposure is prolonged, unconsciousness.

Skin contact: Contact with skin will result in irritation. A skin sensitizer. Repeated or prolonged skin contact may lead to allergic contact dermatitis. This material can be absorbed through the skin. Effects can include those described for 'INGESTION'.

Ingestion: Swallowing can result in nausea, vomiting and central nervous system depression. If the victim is uncoordinated there is greater likelihood of vomit entering the lungs and causing subsequent complications. Aspiration pneumonia (inflammation of the lung) may result.

Eye contact: An eye irritant.

Acute toxicity

Inhalation: This material has been classified as a Category 4 Hazard.
Acute toxicity estimate (based on ingredients): 10 - 20 mg/L

Skin contact: This material has been classified as a Category 4 Hazard.
Acute toxicity estimate (based on ingredients): 1,000 - 2,000 mg/Kg

Ingestion: This material has been classified as a Category 4 Hazard.
Acute toxicity estimate (based on ingredients): 300 - 2,000 mg/Kg

Corrosion/Irritancy: Eye: this material has been classified as a Category 2A Hazard (reversible effects to eyes).

Skin: this material has been classified as a Category 2 Hazard (irritant to skin).

Sensitisation: Inhalation: this material has been classified as not a respiratory sensitizer.
Skin: this material has been classified as not a skin sensitizer.

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Aspiration hazard: This material has been classified as non-hazardous.

Specific target organ toxicity (single exposure): This material has been classified as a Category 3 Hazard. Exposure via inhalation may result in respiratory irritation and depression of the central nervous system.

Chronic Toxicity

Mutagenicity: This material has been classified as non-hazardous.

Carcinogenicity: This material has been classified as non-hazardous.

Reproductive toxicity (including via lactation): This material has been classified as non-hazardous.

Specific target organ toxicity (repeat exposure): This material has been classified as non-hazardous.

12. ECOLOGICAL INFORMATION

Avoid contaminating waterways.

Acute aquatic hazard: This material has been classified as a Category Acute 3 Hazard.
Acute toxicity estimate (based on ingredients): 10 - 100 mg/L

Long-term aquatic hazard: This material has been classified as a Category Chronic 3 Hazard.
Acute toxicity estimate (based on ingredients): 10 - 100 mg/L

Ecotoxicity: Harmful to terrestrial species.

Persistence and degradability: Product is not rapidly biodegradable.

Bioaccumulative potential: No information available.

Mobility: No information available.

13. DISPOSAL CONSIDERATIONS

Persons conducting disposal, recycling or reclamation activities should ensure that appropriate personal protection equipment is used, see "Section 8. Exposure Controls and Personal Protection" of this SDS.

Due to the odorous nature of product, container should not be recycled. Dispose of empty container in accordance with local, regional, national and international Regulations.

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14. TRANSPORT INFORMATION

ROAD AND RAIL TRANSPORT

Classified as Dangerous Goods by the criteria of the "Australian Code for the Transport of Dangerous Goods by Road & Rail" and the "New Zealand NZS5433: Transport of Dangerous Goods on Land".

UN No: 2412
Dangerous Goods Class: 3 Flammable Liquid
Packing Group: II
Hazchem Code: 3WE
Emergency Response Guide No: 16

Proper Shipping Name: TETRAHYDROTHIOPHENE

Segregation Dangerous Goods: Not to be loaded with explosives (Class 1), flammable gases (Class 2.1), if both are in bulk, toxic gases (Class 2.3), spontaneously combustible substances (Class 4.2), oxidising agents (Class 5.1), organic peroxides (Class 5.2) or radioactive substances (Class 7), however exemptions may apply.

MARINE TRANSPORT

Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea.

UN No: 2412
Dangerous Goods Class: 3 Flammable Liquid
Packing Group: II

Proper Shipping Name: TETRAHYDROTHIOPHENE

AIR TRANSPORT

Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air.

UN No: 2412
Dangerous Goods Class: 3 Flammable Liquid
Packing Group: II

Proper Shipping Name: TETRAHYDROTHIOPHENE

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15. REGULATORY INFORMATION

This material is not subject to the following international agreements:

Montreal Protocol (Ozone depleting substances)
The Stockholm Convention (Persistent Organic Pollutants)
The Rotterdam Convention (Prior Informed Consent)

This material is subject to the following international agreements:

Basel Convention (Hazardous Waste)

- Organic solvents excluding halogenated solvents

International Convention for the Prevention of Pollution from Ships (MARPOL)

- Annex III - Harmful Substances carried in Packaged Form

This material/constituent(s) is covered by the following requirements:

- All the constituents of this material are listed on the *Australian Inventory of Chemical Substances (AICS)*.

16. OTHER INFORMATION

Literary reference

This Safety Data Sheet has been prepared by Chemical Data Services Pty Ltd (chemdata.com.au) on behalf of its client.

Reason(s) For Issue: First Issue.

Safety Data Sheets are updated frequently. Please ensure that you have a current copy.

This SDS summarises at the date of issue our best knowledge of the health and safety hazard information of the product, and in particular how to safely handle and use the product in the workplace. Since International Chemical Engineering Pty Ltd cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, review this SDS in the context of how the user intends to handle and use the product in the workplace.

If clarification or further information is needed to ensure that an appropriate assessment can be made, the user should contact this company.

Our responsibility for product as sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available upon request.