



# MATERIAL SAFETY DATA SHEET



## Tetrahydrofuran

### Section 1 - Chemical Product and Company Identification

MSDS Name:	Tetrahydrofuran
Synonyms:	Diethylene oxide, 1,4-Epoxybutane, THF, Cyclotetramethylene oxide
Company Identification:	Hazel Mercantile Ltd
Company Identification: (INDIA)	701/712A, Embassy Centre, Nariman Point, Mumbai -400 021,
For information in the INDIA, call:	+91-22-2282 4444 (50 Lines)

### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name:	%	EINECS#
109-99-9	Tetrahydrofuran	99	203-726-8

Hazard Symbols:	XI F
	
Risk Phrases:	11 19 36/37

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Highly flammable. May form explosive peroxides. Irritating to eyes and respiratory system.

#### Potential Health Effects

<b>Eye:</b>	Contact with eyes may cause severe irritation, and possible eye burns. Vapors may cause eye irritation. Contact may cause ulceration of the conjunctiva and cornea.
<b>Skin:</b>	May cause skin irritation. Prolonged and/or repeated contact may cause defatting of the skin and dermatitis. No sensitizing effects known.
<b>Ingestion:</b>	Harmful if swallowed. May cause gastrointestinal irritation with nausea, vomiting and diarrhea.
<b>Inhalation:</b>	Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. Causes respiratory tract irritation.
<b>Chronic:</b>	Prolonged or repeated eye contact may cause conjunctivitis. Prolonged or repeated skin contact may cause defatting and dermatitis. May cause liver and kidney damage.

### Section 4 - First Aid Measures

<b>Eyes:</b>	Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.
<b>Skin:</b>	Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists. Discard contaminated clothing in a manner which limits further exposure.
<b>Ingestion:</b>	If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately. Wash mouth out with water.
<b>Inhalation:</b>	Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
<b>Notes to Physician:</b>	



### Section 5 - Fire Fighting Measures

<b>General Information:</b>	Vapors can travel to a source of ignition and flash back. Will burn if involved in a fire. Wear appropriate protective clothing to prevent contact with skin and eyes. Wear a self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products. Forms peroxides of unknown stability. Flammable liquid and vapor.
<b>Extinguishing Media:</b>	For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. Use water spray to cool fire-exposed containers. Water may be ineffective.

### Section 6 - Accidental Release Measures

<b>General Information:</b>	Use proper personal protective equipment as indicated in Section 8.
<b>Spills/Leaks:</b>	Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Use water spray to dilute spill to a non-flammable mixture. Remove all sources of ignition.

### Section 7 - Handling and Storage

<b>Handling:</b>	Use only in a well-ventilated area. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks and flame. Avoid ingestion and inhalation. Prevent build up of vapors to explosive concentration.
<b>Storage:</b>	Keep away from heat, sparks, and flame. Store in a cool place in the original container and protect from sunlight. Keep from contact with oxidizing materials. Flammables-area. Regularly check inhibitor levels to maintain peroxide levels below 1%.

### Section 8 - Exposure Controls, Personal Protection

<b>Engineering Controls:</b>	
	Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.
<b>Exposure Limits</b>	
	CAS# 109-99-9:
	United Kingdom, WEL - TWA: 50 ppm TWA; 150 mg/m3 TWA United Kingdom, WEL - STEL: 100 ppm STEL; 300 mg/m3 STEL
	United States OSHA: 200 ppm TWA; 590 mg/m3 TWA
	Belgium - TWA: 200 ppm VLE; 599 mg/m3 VLE Belgium - STEL: 100 ppm VLE; 300 mg/m3 VLE
	France - VME: 50 ppm VME; 150 mg/m3 VME France - VLE: 100 ppm VLE; 300 mg/m3 VLE
	Germany: 50 ppm TWA; 150 mg/m3 TWA Germany: skin notation
	Japan: 200 ppm OEL; 590 mg/m3 OEL
	Malaysia: 200 ppm TWA; 590 mg/m3 TWA
	Netherlands: 100 ppm MAC; 300 mg/m3 MAC
	Spain: 50 ppm VLA-ED; 150 mg/m3 VLA-ED Spain: 100 ppm VLA-EC; 300 mg/m3 VLA-EC
<b>Personal Protective Equipment</b>	
<b>Eyes:</b>	Wear chemical splash goggles.
<b>Skin:</b>	Wear appropriate protective gloves to prevent skin exposure.
<b>Clothing:</b>	Wear appropriate protective clothing to minimize contact with skin.
<b>Respirators:</b>	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.



## Section 9 - Physical and Chemical Properties

<b>Physical State:</b>	Clear liquid
<b>Color:</b>	APHA: 10 max
<b>Odor:</b>	fruity odor
<b>pH:</b>	Not available
<b>Vapor Pressure:</b>	200 mbar @20 deg C
<b>Viscosity:</b>	0.55 cP 20 deg C
<b>Boiling Point:</b>	66 deg C @ 760.00mm Hg ( 150.80°F)
<b>Freezing/Melting Point:</b>	-108.4 deg C ( -163.12°F)
<b>Autoignition Temperature:</b>	215 deg C ( 419.00 deg F)
<b>Flash Point:</b>	-21 deg C ( -5.80 deg F)
<b>Explosion Limits: Lower:</b>	1.50 vol %
<b>Explosion Limits: Upper:</b>	12.00 vol %
<b>Decomposition Temperature:</b>	Not available
<b>Solubility in water:</b>	soluble in water
<b>Specific Gravity/Density:</b>	.8880g/cm3
<b>Molecular Formula:</b>	C4H8O
<b>Molecular Weight:</b>	72.11

## Section 10 - Stability and Reactivity

<b>Chemical Stability:</b>	Prolonged exposure to air and sunlight may form unstable peroxides. Hygroscopic: absorbs moisture or water from the air.
<b>Conditions to Avoid:</b>	Hygroscopic: absorbs moisture or water from the air., incompatible materials, light, excess heat, exposure to moist air or water.
<b>Incompatibilities with Other Materials</b>	Sodium hydroxide, caustics (e.g. ammonia, ammonium hydroxide, calcium hydroxide, potassium hydroxide, sodium hydroxide), oxidizing agents (strong, e.g. bromine, hydrogen peroxide, nitrogen dioxide, potassium nitrate), potassium hydroxide, bromine, metal halides.
<b>Hazardous Decomposition Products</b>	Carbon monoxide, carbon dioxide.
<b>Hazardous Polymerization</b>	May occur.

## Section 11 - Toxicological Information

<b>RTECS#:</b>	CAS# 109-99-9: LU5950000
<b>LD50/LC50:</b>	RTECS: <b>CAS# 109-99-9:</b> Inhalation, rat: LC50 = 21000 ppm/3H; Oral, rat: LD50 = 1650 mg/kg;
<b>Carcinogenicity:</b>	Tetrahydrofuran - ACGIH: A3 - Confirmed animal carcinogen with unknown relevance to humans
<b>Other:</b>	See actual entry in RTECS for complete information. The toxicological properties have not been fully investigated.

## Section 12 - Ecological Information

<b>Ecotoxicity:</b>	Fish: Cyprinus carpio: 4400 mg/L; 48H; LC50 Fish: Leuciscus idus: 2820 mg/L; 48H; LC50 Fish: Leuciscus idus: 2930 mg/L; 48H; LC50 Daphnia: Daphnia: >10000 mg/L; 24H; EC50
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### Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

### Section 14 - Transport Information

	IATA	IMO	RID/ADR
<b>Shipping Name:</b>	TETRAHYDROFURAN	TETRAHYDROFURAN	TETRAHYDROFURAN
<b>Hazard Class:</b>	3	3	3
<b>UN Number:</b>	2056	2056	2056
<b>Packing Group:</b>	II	II	II

### Section 15 - Regulatory Information

#### European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: XI F

#### Risk Phrases:

- R 11 Highly flammable.
- R 19 May form explosive peroxides.
- R 36/37 Irritating to eyes and respiratory system.

#### Safety Phrases:

- S 16 Keep away from sources of ignition - No smoking.
- S 29 Do not empty into drains.
- S 33 Take precautionary measures against static discharges.

#### WGK (Water Danger/Protection)

- CAS# 109-99-9: 1

#### Canada

- CAS# 109-99-9 is listed on Canada's DSL List

#### US Federal

- TSCA
- CAS# 109-99-9 is listed on the TSCA Inventory.

### Section 16 - Other Information

**MSDS Creation Date:** 08/16/2007

**Revision #1 Date**

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