

1 Identification of the substance/preparation and of the company/undertaking

- **Product details**
- **Trade name:** tetrahydrofuran
- **Manufacturer/Supplier:**
 Petrochem Middle East FZE
 PO Box 17028,
 Jebel Ali Free Zone
 Dubai, UAE
 Ph +971 4 8839222; Fax +971 4 8834133
- **Further information obtainable from:** Product safety department.
- **Information in case of Emergency** Product safety department.

2 Composition/information on ingredients

- **Chemical characterization:**
- **CAS No. Description**
 109-99-9 tetrahydrofuran
- **Identification number(s)**
- **EINECS Number:** 203-726-8
- **Index number:** 603-025-00-0

3 Hazards identification

- **Hazard description:**



Xi Irritant
F Highly flammable

- **Information concerning particular hazards for human and environment:**
R 11 Highly flammable.
R 19 May form explosive peroxides.
R 36/37 Irritating to eyes and respiratory system.

4 First aid measures

- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Generally the product does not irritate the skin.
- **After eye contact:**
 Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** If symptoms persist consult doctor.

5 Fire-fighting measures

- **Suitable extinguishing agents:**
 CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Person-related safety precautions:** Wear protective equipment. Keep unprotected persons away.

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- **Measures for environmental protection:**
 - Do not allow product to reach sewage system or any water course.
 - Inform respective authorities in case of seepage into water course or sewage system.
 - Dilute with plenty of water.
 - Do not allow to enter sewers/ surface or ground water.
- **Measures for cleaning/collecting:**
 - Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
 - Ensure adequate ventilation.

7 Handling and storage

- **Handling:**
- **Information for safe handling:** Open and handle receptacle with care.
- **Information about fire - and explosion protection:**
 - Keep ignition sources away - Do not smoke.
 - Protect against electrostatic charges.
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
 - Keep container tightly sealed.
 - Store in cool, dry conditions in well sealed receptacles.

8 Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.
- **Ingredients with limit values that require monitoring at the workplace:**

109-99-9 tetrahydrofuran

PEL (USA)	590 mg/m ³ , 200 ppm
REL (USA)	Short-term value: 735 mg/m ³ , 250 ppm Long-term value: 590 mg/m ³ , 200 ppm
TLV (USA)	Short-term value: 295 mg/m ³ , 100 ppm Long-term value: 147 mg/m ³ , 50 ppm Skin
IOELV (EU)	Short-term value: 300 mg/m ³ , 100 ppm Long-term value: 150 mg/m ³ , 50 ppm Skin
WEL (Great Britain)	Short-term value: 300 mg/m ³ , 100 ppm Long-term value: 150 mg/m ³ , 50 ppm Sk

- **Additional information:** The lists valid during the making were used as basis.
- **Personal protective equipment:**
- **General protective and hygienic measures:**
 - Keep away from foodstuffs, beverages and feed.
 - Immediately remove all soiled and contaminated clothing
 - Wash hands before breaks and at the end of work.
 - Avoid contact with the eyes.
 - Avoid contact with the eyes and skin.

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· **Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

· **Protection of hands:**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

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.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

· **General Information**

Form:	Fluid
Colour:	Colourless
Odour:	Ether-like

· **Change in condition**

Melting point/Melting range: -108.5°C

Boiling point/Boiling range: 65.5°C

· **Flash point:** -21 - ca°C

· **Ignition temperature:** 230°C

· **Danger of explosion:** May form explosive peroxides.

· **Explosion limits:**

Lower: 1.5 Vol %

Upper: 12 Vol %

· **Vapour pressure at 20°C:** 200 hPa

· **Density at 20°C:** 0.8892 g/cm³

· **Solubility in / Miscibility with water:** Fully miscible.

10 Stability and reactivity

· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

· **Dangerous reactions** No dangerous reactions known.

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· **Dangerous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Acute toxicity:**

· **LD/LC50 values relevant for classification:**

Oral	LD50	2500 mg/kg (rat)
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· **Primary irritant effect:**

· **on the skin:** No irritant effect.

· **on the eye:** Irritating effect.

· **Sensitization:** No sensitizing effects known.

12 Ecological information

· **General notes:**

Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

13 Disposal considerations

· **Product:**

· **Recommendation**

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packaging:**

· **Recommendation:** Disposal must be made according to official regulations.

· **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

14 Transport information

· **Land transport ADR/RID (cross-border)**



· **ADR/RID class:** 3 Flammable liquids.

· **Danger code (Kemler):** 33

· **UN-Number:** 2056

· **Packaging group:** II

· **Hazard label:** 3

· **Description of goods:** 2056 TETRAHYDROFURAN

· **Maritime transport IMDG:**



· **IMDG Class:** 3

· **UN Number:** 2056

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- **Label** 3
- **Packaging group:** II
- **EMS Number:** F-E,S-D
- **Marine pollutant:** No
- **Proper shipping name:** TETRAHYDROFURAN

· **Air transport ICAO-TI and IATA-DGR:**



- **ICAO/IATA Class:** 3
- **UN/ID Number:** 2056
- **Label** 3
- **Packaging group:** II
- **Proper shipping name:** TETRAHYDROFURAN

15 Regulatory information

· **Labelling according to EU guidelines:**

The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials.

· **Code letter and hazard designation of product:**



*Xi Irritant
F Highly flammable*

· **Risk phrases:**

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

· **Safety phrases:**

- 2 Keep out of the reach of children.*
- 16 Keep away from sources of ignition - No smoking.*
- 29 Do not empty into drains.*
- 33 Take precautionary measures against static discharges.*

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing MSDS:** Product safety department
- **Contact:** Mr. Menon