

Safety Data Sheet

TETRAHYDROFURAN

Version 1.6

Revision Date: 11/11/2023

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : TETRAHYDROFURAN

Recommended use of the chemical and restrictions on use

Recommended use : Industrial chemical

Manufacturer or supplier's details

Company : Univar Solutions USA
Address : 3075 Highland Pkwy Suite 200
 Downers Grove, IL 60515
 United States of America (USA)

Emergency telephone number:

Transport North America: CHEMTREC (1-800-424-9300)

CHEMTREC INTERNATIONAL Tel # 703-527-3887

Additional Information: : Responsible Party: Product Compliance Department
 E-mail: SDSNA@univarsolutions.com
 SDS Requests: 1-855-429-2661
 Website: www.univarsolutions.com

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Flammable liquids : Category 2

Acute toxicity (Oral) : Category 4

Serious eye damage : Category 1

Specific target organ toxicity : Category 3 (Central nervous system)
 - single exposure

GHS label elements

Hazard pictograms : 

Signal word : Danger

Hazard statements : H225 Highly flammable liquid and vapour.
 H302 Harmful if swallowed.
 H318 Causes serious eye damage.
 H336 May cause drowsiness or dizziness.

Precautionary statements : **Prevention:**
 P210 Keep away from heat/ sparks/ open flames/ hot surfaces.
 No smoking.
 P233 Keep container tightly closed.
 P240 Ground/bond container and receiving equipment.
 P241 Use explosion-proof electrical/ ventilating/ lighting equip-
 ment.
 P242 Use only non-sparking tools.

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P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash 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.
P280 Wear protective gloves/ eye protection/ face protection.

Response:

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Hazardous components

CAS-No.	Chemical name	Weight percent
109-99-9	Tetrahydrofuran	90 - 100

Actual concentration is withheld as a trade secret

Any Concentration shown as a range is due to batch variation.

SECTION 4. FIRST AID MEASURES

General advice : Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

If inhaled : Consult a physician after significant exposure.
If unconscious, place in recovery position and seek medical advice.

In case of skin contact : If skin irritation persists, call a physician.
If on skin, rinse well with water.
If on clothes, remove clothes.

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In case of eye contact	: Immediately flush eye(s) with plenty of water. Keep eye wide open while rinsing. Take victim immediately to hospital.
If swallowed	: Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital. Do not induce vomiting without medical advice.
Most important symptoms and effects, both acute and delayed	: Dermatitis Dizziness Headache Nausea Lack of coordination Disturbance Fatigue Unconsciousness Respiratory disorders

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	: Alcohol-resistant foam Carbon dioxide (CO ₂) Dry chemical Water spray
Unsuitable extinguishing media	: High volume water jet
Specific extinguishing methods	: Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Use a water spray to cool fully closed containers.
Further information	: Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments.
Special protective equipment for firefighters	: In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	: Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
Environmental precautions	: Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	: Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local

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/ national regulations (see section 13).

SECTION 7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : Do not spray on a naked flame or any incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition. Vapours are heavier than air and may spread along floors. Vapours may form explosive mixtures with air.
- Advice on safe handling : Avoid formation of aerosol. Do not breathe vapours/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Container may be opened only under exhaust ventilation hood. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.
- Conditions for safe storage : No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

CAS-No.	Components	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
109-99-9	Tetrahydrofuran	TWA	50 ppm	ACGIH
		STEL	100 ppm	ACGIH
		TWA	200 ppm 590 mg/m3	NIOSH REL
		ST	250 ppm 735 mg/m3	NIOSH REL
		TWA	200 ppm 590 mg/m3	OSHA Z-1
		STEL	250 ppm 735 mg/m3	OSHA P0
		TWA	200 ppm	OSHA P0

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		590 mg/m3	
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Personal protective equipment

Respiratory protection : In the case of vapour formation use a respirator with an approved filter.
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Hand protection

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures : When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid
Colour : Clear, colorless
Odour : ether-like
Odour Threshold : 2.5 - 3.5 ppm

pH : 7 @ 20 - 25 °C (68 - 77 °F)

Freezing Point (Freezing Point) : -108.44 °C (-163.19 °F)
(1,013.25 hPa)

Boiling Point (Boiling point/boiling range) : 65 - 66 °C (149 - 151 °F)
(1,013.25 hPa)

Flash point : -17 - -14 °C (1 - 7 °F)
Method: Tag closed cup

Evaporation rate : 8
(Butyl Acetate = 1)

Flammability (solid, gas) : No data available
Upper explosion limit : 11.0 - 11.8 %(V)

Lower explosion limit : 1.8 - 2.0 %(V)

Vapour pressure : 128 - 132 mmHg @ 20 °C (68 °F)

Relative vapour density : 2.5 @ 25 °C (77 °F)
(Air = 1.0)

Relative density : 0.880 @ 25 °C (77 °F)

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Reference substance: (water = 1)

Density	: 0.883 - 0.886 g/cm ³ @ 25 °C (77 °F)
Solubility(ies)	
Water solubility	: 300 g/l completely miscible @ 25 °C (77 °F)
Solubility in other solvents	: soluble Solvent: organic solvents
Partition coefficient: n-octanol/water	: log Pow: 0.46
Auto-ignition temperature	: 215 - 321 °C
Thermal decomposition	: No data available
Viscosity	
Viscosity, dynamic	: 0.46 mPa.s @ 25 °C (77 °F) Method: Brookfield
Viscosity, kinematic	: 0.518 mm ² /s @ 25 °C (77 °F)

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: No dangerous reaction known under conditions of normal use.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: Stable, however, forms peroxides of unknown stability.
Conditions to avoid	: Keep away from heat, flame, sparks and other ignition sources. Exposure to air. Exposure to light.
Incompatible materials	: Strong oxidizing agents Oxidizing agents Acids Bromine strong alkalis Peroxides
Hazardous decomposition products	: Carbon monoxide Nitrogen oxides (NO _x)

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Components:

109-99-9:

Acute oral toxicity	: LD50 (Rat): 1,650 mg/kg Assessment: The component/mixture is moderately toxic after single ingestion.
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Serious eye damage/eye irritation**Components:****109-99-9:**

Species: Rabbit

Result: Risk of serious damage to eyes.

Carcinogenicity**IARC**

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

STOT - single exposure**Components:****109-99-9:**

Target Organs: Respiratory system

Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.

Further information**Product:**

Remarks: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Concentrations substantially above the TLV value may cause narcotic effects.

Solvents may degrease the skin.

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity**

No data available

Persistence and degradability**Product:**

Biodegradability

: Test Type: aerobic

Remarks: Expected to be biodegradable

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Bioaccumulative potential

Product:

Bioaccumulation : Remarks: This material is not expected to bioaccumulate.

Mobility in soil

No data available

Other adverse effects

Product:

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Dispose of in accordance with all applicable local, state and federal regulations.
For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Univar Solutions ChemCare: 1-800-637-7922

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

SECTION 14. TRANSPORT INFORMATION

DOT (Department of Transportation):

UN2056, TETRAHYDROFURAN, 3, II

IATA (International Air Transport Association):

UN2056, TETRAHYDROFURAN, 3, II

IMDG (International Maritime Dangerous Goods):

UN2056, TETRAHYDROFURAN, 3, II, Flash Point:-17 - -14 °C(1 - 7 °F)

SECTION 15. REGULATORY INFORMATION

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WHMIS Classification : B2: Flammable liquid
D2B: Toxic Material Causing Other Toxic Effects

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Tetrahydrofuran	109-99-9	1000	1000

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Flammable (gases, aerosols, liquids, or solids)
Acute toxicity (any route of exposure)
Serious eye damage or eye irritation
Specific target organ toxicity (single or repeated exposure)
Flammable (gases, aerosols, liquids, or solids)
Acute toxicity (any route of exposure)
Serious eye damage or eye irritation
Specific target organ toxicity (single or repeated exposure)

SARA 302 : This material does not contain any components with a section 302 EHS TPQ.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

Massachusetts Right To Know

109-99-9 Tetrahydrofuran

Pennsylvania Right To Know

109-99-9 Tetrahydrofuran

California Prop 65

 **WARNING:** This product can expose you to chemicals including Tetrahydrofuran, which is/are known to the State of California to cause cancer. For more information go to

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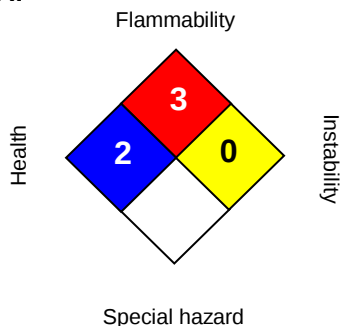
www.P65Warnings.ca.gov.

The components of this product are reported in the following inventories:

TSCA	: On TSCA Inventory
DSL	: All components of this product are on the Canadian DSL
AICS	: On the inventory, or in compliance with the inventory
NZIoC	: On the inventory, or in compliance with the inventory
ENCS	: On the inventory, or in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
PHIL	: On the inventory, or in compliance with the inventory

SECTION 16. OTHER INFORMATION

NFPA:



HMIS III:

HEALTH	2*
FLAMMABILITY	3
PHYSICAL HAZARD	0

0 = not significant, 1 = Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

The information accumulated is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made become available subsequently to the date hereof, we do not assume any responsibility for the results of its use. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This SDS has been prepared by Univar Solutions Product Compliance Department (1-855-429-2661) SDSNA@univarsolutions.com.

Revision Date : 11/11/2023

Legacy SDS: : R0001190

Material number:

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16210755, 16204003, 16179000, 16187860, 16178101, 16177936, 16174867, 16179561, 16148762, 16163909, 16136762, 16136579, 16146715, 16152860, 16144383, 16148670, 16148833, 16142330, 16133575, 16058169, 16058168, 16052615, 725324, 572829, 72675, 91117, 73315, 91852, 153501, 504548, 502336, 39840, 20267

Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		