

SECTION 1: Identification

1.1. Identification

Product form	: Substance
Trade name	: Tetrahydrofurfuryl Alcohol
CAS-No.	: 97-99-4
Formula	: C ₅ H ₁₀ O ₂
Synonyms	: 2-Furanmethanol, tetrahydro- / Furfuryl alcohol, tetrahydro- / Tetrahydro-2-furanmethanol / Tetrahydro-2-furylmethanol / Tetrahydrofuran, 2-hydroxymethyl- / Furanmethanol, tetrahydro- / TETRAHYDROFURFURYL ALCOHOL / Tetrahydrofurfuryl / Oxolan-2-ylmethanol

1.2. Recommended use and restrictions on use

Use of the substance/mixture	: Solvent Chemical intermediate
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1.3. Supplier

Monument Chemical
10200 Bay Area Blvd.
Pasadena, TX 77507 - USA
T (281)474-5550
sds@monumentchemical.com - www.monumentchemical.com

1.4. Emergency telephone number

Emergency number	: 24 HR CHEMTREC: 1-800-424-9300 (International +1 703-741-5970)
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SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Flammable liquids Category 4	H227	Combustible liquid
Acute toxicity (oral) Category 4	H302	Harmful if swallowed
Serious eye damage/eye irritation Category 2A	H319	Causes serious eye irritation
Specific target organ toxicity (single exposure) Category 3	H335	May cause respiratory irritation

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US)



Signal word (GHS US)

: Warning

Hazard statements (GHS US)

: H227 - Combustible liquid
H302 - Harmful if swallowed
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation

Precautionary statements (GHS US)

: P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.
P264 - Wash hands, forearms and face 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/protective clothing/eye protection/face protection.
P301+P312 - If swallowed: Call a doctor, a POISON CENTER if you feel unwell
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

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P312 - Call a POISON CENTER, a doctor if you feel unwell
P330 - Rinse mouth.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P370+P378 - In case of fire: Use alcohol resistant foam, Water spray, carbon dioxide (CO2), dry extinguishing powder to extinguish.
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.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Name : Tetrahydrofurfuryl Alcohol
CAS-No. : 97-99-4

Name	Product identifier	%
Tetrahydrofurfuryl alcohol	(CAS-No.) 97-99-4	>= 98
Pentane-1,2-diol	(CAS-No.) 5343-92-0	<= 2

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.
First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Consult an eye specialist. Get medical advice/attention.
First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a POISON CENTER or doctor/physician if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met. Harmful if swallowed.
Symptoms/effects after inhalation : May cause respiratory irritation.
Symptoms/effects after eye contact : Causes serious eye irritation.
Symptoms/effects after ingestion : Swallowing a small quantity of this material will result in serious health hazard.

4.3. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.
Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Fire hazard : Combustible liquid.
Explosion hazard : May form flammable/explosive vapor-air mixture.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

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Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Remove ignition sources. Use special care to avoid static electric charges. No open flames. No smoking.

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Handle empty containers with care because residual vapors are flammable. Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. No open flames. No smoking. Avoid breathing dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area.

Hygiene measures : Do not eat, drink or smoke when using this product. Wash hands, forearms and face thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Proper grounding procedures to avoid static electricity should be followed.

Storage conditions : Keep only in the original container in a cool, well ventilated place away from : Heat sources, Ignition sources, Incompatible materials. Keep in fireproof place. Keep container tightly closed.

Incompatible products : Strong bases. Strong acids.

Incompatible materials : Sources of ignition. Direct sunlight. Heat sources.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Tetrahydrofurfuryl Alcohol (97-99-4)

AIHA	WEEL TWA (ppm)	0.5 ppm
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Pentane-1,2-diol (5343-92-0)

Not applicable

8.2. Appropriate engineering controls

No additional information available

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Avoid all unnecessary exposure.

Hand protection:

Wear protective gloves.

Eye protection:

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Chemical goggles or safety glasses

Respiratory protection:

Wear appropriate mask

Other information:

Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Clear, colorless to pale yellow liquid.
Color	: Light yellow to colourless
Odor	: Mild odour characteristic
Odor threshold	: No data available
pH	: No data available
Melting point	: No data available
Freezing point	: -80 °C ; -112°F
Boiling point	: 178 °C ; 352°F
Flash point	: 75 °C (open cup)
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: 0.8 mm Hg (at 25 °C)
Relative vapor density at 20 °C	: 3.5
Relative density	: 1.05
Molecular mass	: 102.13 g/mol
Solubility	: Soluble in water.
Log Pow	: No data available
Auto-ignition temperature	: 282 °C ; 540°F
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: 1.5 - 9.7 vol %
Explosive properties	: No data available
Oxidizing properties	: No data available

9.2. Other information

VOC content : 100 %

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Combustible liquid. May form flammable/explosive vapor-air mixture.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Open flame. Overheating. Heat. Sparks.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

fume. Carbon monoxide. Carbon dioxide. May release flammable gases.

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SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Oral: Harmful if swallowed.
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

Tetrahydrofurfuryl Alcohol (97-99-4)	
LD50 oral rat	1600 mg/kg
LD50 dermal rabbit	5 g/kg (Guinea Pig)
ATE US (oral)	1600 mg/kg body weight
ATE US (dermal)	5000 mg/kg body weight

Pentane-1,2-diol (5343-92-0)	
LD50 oral rat	12700 mg/kg
ATE US (oral)	12700 mg/kg body weight

Skin corrosion/irritation : Not classified
Serious eye damage/irritation : Causes serious eye irritation.
Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

Reproductive toxicity : Not classified
Specific target organ toxicity – single exposure : May cause respiratory irritation.

Specific target organ toxicity – repeated exposure : Not classified

Aspiration hazard : Not classified
Viscosity, kinematic : No data available

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met. Harmful if swallowed.
Symptoms/effects after inhalation : May cause respiratory irritation.
Symptoms/effects after eye contact : Causes serious eye irritation.
Symptoms/effects after ingestion : Swallowing a small quantity of this material will result in serious health hazard.

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

Tetrahydrofurfuryl Alcohol (97-99-4)	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

Tetrahydrofurfuryl Alcohol (97-99-4)	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Other information : Avoid release to the environment.

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SECTION 13: Disposal considerations

13.1. Disposal methods

- Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.
- Additional information : Handle empty containers with care because residual vapors are flammable.
- Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

- Transport document description : NA1993 Combustible liquid, n.o.s. (Tetrahydrofurfuryl alcohol), 3, III
- UN-No.(DOT) : NA1993
- Proper Shipping Name (DOT) : Combustible liquid, n.o.s.
Tetrahydrofurfuryl alcohol
- Class (DOT) : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
- Packing group (DOT) : III - Minor Danger
- DOT Packaging Non Bulk (49 CFR 173.xxx) : 203
- DOT Packaging Bulk (49 CFR 173.xxx) : 241
- DOT Symbols : D - Proper shipping name for domestic use only, or to and from Canada,G - Identifies PSN requiring a technical name
- DOT Special Provisions (49 CFR 172.102) : IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672).
T1 - 1.5 178.274(d)(2) Normal..... 178.275(d)(2)
T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3)
TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = $97 / 1 + a (tr - tf)$ Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.
- DOT Packaging Exceptions (49 CFR 173.xxx) : 150
- DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 60 L
- DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 220 L
- DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.
- Emergency Response Guide (ERG) Number : 128
- Other information : Transportation Notes: Material is not regulated by the U.S. DOT for ground transportation within the U.S. if shipped in non-bulk packaging (<119 gallons).

Transport by sea

Not regulated

Air transport

Not regulated

SECTION 15: Regulatory information

15.1. US Federal regulations

Tetrahydrofurfuryl Alcohol (97-99-4)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

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This product or mixture is not known to contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

15.2. International regulations

CANADA

Tetrahydrofurfuryl Alcohol (97-99-4)

Listed on the Canadian DSL (Domestic Substances List)

Pentane-1,2-diol (5343-92-0)

Listed on the Canadian NDSL (Non-Domestic Substances List)

EU-Regulations

Tetrahydrofurfuryl Alcohol (97-99-4)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Pentane-1,2-diol (5343-92-0)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

Tetrahydrofurfuryl Alcohol (97-99-4)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

Pentane-1,2-diol (5343-92-0)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

15.3. US State regulations

Tetrahydrofurfuryl Alcohol (97-99-4)

State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - Pennsylvania - RTK (Right to Know) List
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California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 01/31/2019

Other information : None.

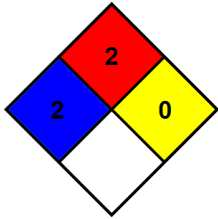
Full text of H-phrases:

H227	Combustible liquid
H302	Harmful if swallowed
H319	Causes serious eye irritation
H335	May cause respiratory irritation

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NFPA health hazard	: 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.	
NFPA fire hazard	: 2 - Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur.	
NFPA reactivity	: 0 - Material that in themselves are normally stable, even under fire conditions.	
Hazard Rating		
Health	: 2 Moderate Hazard - Temporary or minor injury may occur	
Flammability	: 2 Moderate Hazard - Materials which must be moderately heated or exposed to high ambient temperatures before ignition will occur. Includes liquids having a flash point at or above 100 F but below 200 F. (Classes II & IIIA)	
Physical	: 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.	
Personal protection	: C C - Safety glasses, Gloves, Synthetic apron	

SDS US (GHS HazCom 2012)

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