



SAFETY DATA SHEET

Tetrahydrofurane (THF) 99,8%

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Trade name:	Tetrahydrofurane (THF) 99,8%
Product no.:	THF0
Other means of identification:	Index No.: 603-025-00-0 EC No.: 203-726-8 CAS No.: 109-99-9

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses of the substance or mixture:	Industrial purposes, Laboratory use
Uses advised against:	None known.

1.3. Details of the supplier of the safety data sheet

Company and address:	Laboratoriumdiscounter Zandvoortstraat 75 1976BN IJmuiden Netherlands Tel: +31 255 700 210 www.laboratoriumdiscounter.nl/en/
E-mail:	info@laboratoriumdiscounter.nl
Revision:	22/02/2023
SDS Version:	1.0

1.4. Emergency telephone number

Contact The National Poisons Information Service (dial 111, 24 h service).
See section 4 "First aid measures".

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Flam. Liq. 2; H225, Highly flammable liquid and vapour.
Acute Tox. 4; H302, Harmful if swallowed.
Eye Irrit. 2; H319, Causes serious eye irritation.
STOT SE 3; H335, May cause respiratory irritation.
STOT SE 3; H336, May cause drowsiness or dizziness.
Carc. 2; H351, Suspected of causing cancer.

2.2. Label elements

Hazard pictogram(s):



Signal word:

Danger



Compiled in accordance with REACH Regulation (EC) No 1907/2006, as retained and amended in UK law

<i>Hazard statement(s):</i>	Highly flammable liquid and vapour. (H225) Harmful if swallowed. (H302) Causes serious eye irritation. (H319) May cause respiratory irritation. (H335) May cause drowsiness or dizziness. (H336) Suspected of causing cancer. (H351)
<i>Safety statement(s):</i>	
<i>General:</i>	If medical advice is needed, have product container or label at hand. (P101) Keep out of reach of children. (P102)
<i>Prevention:</i>	Obtain special instructions before use. (P201) Wear eye protection/protective gloves/protective clothing. (P280)
<i>Response:</i>	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. (P301+P312) IF exposed or concerned: Get medical advice/attention. (P308+P313)
<i>Storage:</i>	Store locked up. (P405)
<i>Disposal:</i>	Dispose of contents/container in accordance with local regulation. (P501)
<i>Hazardous substances:</i>	tetrahydrofuran
<i>Additional labelling:</i>	EUH019, May form explosive peroxides.
2.3. Other hazards	
<i>Additional warnings:</i>	The material contains peroxide forming substances, which can form hazardous levels of peroxides e.g. during distillation, evaporation or extraction. This mixture/product does not contain any substances considered to meet the criteria classifying them as PBT and/or vPvB. This product does not contain any substances considered to be endocrine disruptors in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Product/substance	Identifiers	% w/w	Classification	Note
tetrahydrofuran	CAS No.: 109-99-9 EC No.: 203-726-8 UK-REACH: Index No.: 603-025-00-0	95-100%	EUH019 Flam. Liq. 2, H225 Acute Tox. 4, H302 Eye Irrit. 2, H319 STOT SE 3, H335 STOT SE 3, H336	[1]



Compiled in accordance with REACH Regulation (EC) No 1907/2006, as retained and amended in UK law

			Carc. 2, H351	
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3.2. Mixtures

Not applicable. This product is a substance.

See full text of H-phrases in section 16. Occupational exposure limits are listed in section 8, if these are available.

Other information

[1] European occupational exposure limit.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General information:

In the case of accident: Contact a doctor or casualty department – take the label or this safety data sheet.

Contact a doctor if in doubt about the injured person's condition or if the symptoms persist. Never give an unconscious person water or other drink.

Inhalation:

Upon breathing difficulties or irritation of the respiratory tract: Bring the person into fresh air and stay with him/her.

Skin contact:

Remove contaminated clothing and shoes immediately. Ensure to wash exposed skin thoroughly with water and soap. Skin cleanser can be used. DO NOT use solvents or thinners.

If skin irritation occurs: Get medical advice/attention.

Eye contact:

Upon irritation of the eye: Remove contact lenses. Flush eyes immediately with plenty of water or isotonic water (20-30 °C) for at least 5 minutes and continue until irritation stops. Make sure to flush under upper and lower eyelids. If irritation continues, contact a doctor. Continue flushing during transport.

Ingestion:

In the case of ingestion, contact a doctor immediately. If the person is conscious, give them water. DO NOT try to induce vomiting unless this is recommended by a doctor. Hold head facing down to prevent vomit returning mouth and throat. Prevent shock by keeping the injured person warm and calm. Initiate immediate resuscitation if breathing stops. If unconscious, roll the injured person into recovery position. Call an ambulance.

Burns:

Rinse with water until pain stops then continue to rinse for 30 minutes.

**4.2. Most important symptoms and effects, both acute and delayed**

Irritation effects: This product contains substances, which may cause irritation upon exposure to skin, eyes or lungs. Exposure may result in an increased absorption potential of other hazardous substances at the area of exposure.

Neurotoxic effects: This product contains organic solvents, which may cause adverse effects to the nervous system. Symptoms of neurotoxicity include: loss of appetite, headache, dizziness, ringing in ears, tingling sensations of skin, sensitivity to the cold, cramps, difficulty in concentrating, tiredness, etc. Repeated exposure to solvents can result in the breaking down of the skin's natural fat layer and may result in an increased absorption potential of other hazardous substances at the area of exposure.

4.3. Indication of any immediate medical attention and special treatment needed

IF exposed or concerned:

Get immediate medical advice/attention.

Information to medics:

Bring this safety data sheet or the label from this product.

SECTION 5: FIREFIGHTING MEASURES**5.1. Extinguishing media**

Suitable extinguishing media: Alcohol-resistant foam, carbon dioxide, powder, water mist.

Unsuitable extinguishing media: Waterjets should not be used, since they can spread the fire.

5.2. Special hazards arising from the substance or mixture

Fire will result in dense smoke. Exposure to combustion products may harm your health. Closed containers, which are exposed to fire, should be cooled with water. Do not allow fire-extinguishing water to enter the sewage system and nearby surface waters.

If the product is exposed to high temperatures, e.g. in the event of fire, dangerous decomposition compounds are produced. These are:

Carbon oxides (CO / CO₂)

5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective clothing to prevent contact. Upon direct exposure contact The National Poisons Information Service (dial 111, 24 h service) in order to obtain further advice.

Hazchem Code: ●2YE

SECTION 6: ACCIDENTAL RELEASE MEASURES**6.1. Personal precautions, protective equipment and emergency procedures**

Storages not yet ignited must be cooled by water mist. Remove flammable materials if conditions allow it. Ensure sufficient ventilation.

Avoid direct contact with spilled substances.

Avoid inhalation of vapours from spilled material.

6.2. Environmental precautions

Avoid discharge to lakes, streams, sewers, etc. In the event of leakage to the surroundings, contact local environmental authorities.

6.3. Methods and material for containment and cleaning up

Limit spillage and collect using granular absorbent or similar materials, and dispose of it in accordance with the regulations on dangerous waste.

Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local



regulations.

Wherever possible cleaning should be performed with normal cleaning agents. Avoid use of solvents.

6.4. Reference to other sections

See section 13 "Disposal considerations" on handling of waste.

See section 8 "Exposure controls/personal protection" for protective measures.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Ground and bond container and receiving equipment.

Use explosion-proof [electrical/lighting/ventilating] equipment.

Use non-sparking tools.

Take action to prevent static discharges.

The product should be tested for peroxides before distillation or evaporation and tested for peroxide formation or discarded after 1 year.

Peroxide formation may be present anywhere in the container, including the sides, bottom, exterior and threaded cap. Peroxide formation in ppm concentrations may not be visually observable and must be identified through the use of appropriate testing procedures. If any of the following conditions exist, the material may be explosively unstable and will require stabilization prior to use:

1. Material appears to be degraded and or contaminated.
2. Material appears to be discolored.
3. Deterioration or distortion of storage container.
4. Thermal shock (sunlight).
5. Age of material exceeds recommended storage time.

Avoid direct contact with the product.

Smoking, drinking and consumption of food is not allowed in the work area.

See section 8 "Exposure controls/personal protection" for information on personal protection.

7.2. Conditions for safe storage, including any incompatibilities

Store in tightly closed containers and store protected from moisture and light. Containers should be dated when opened and tested periodically for the presence of peroxides. Do not exceed storage time limits.

Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

Take action to prevent static discharges.

Must be stored in a cool and well-ventilated area, away from possible sources of ignition.

Recommended storage material:

Keep only in original packaging.

Storage temperature:

Room temperature 15 to 25°C

Incompatible materials:

Strong acids, strong bases, strong oxidizing agents, and strong reducing agents.

7.3. Specific end use(s)

This product should only be used for applications quoted in section 1.2.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

tetrahydrofuran

Long term exposure limit (8 hours) (ppm): 50

Long term exposure limit (8 hours) (mg/m³): 150



Compiled in accordance with REACH Regulation (EC) No 1907/2006, as retained and amended in UK law

Short term exposure limit (15 minutes) (ppm): 100

Short term exposure limit (15 minutes) (mg/m³): 300

Annotations:

Sk = Can be absorbed through the skin and lead to systemic toxicity.

The Control of Substances Hazardous to Health Regulations 2002. SI 2002/2677 The Stationery Office 2002.

EH40/2005 Workplace exposure limits (Fourth Edition 2020).

DNEL

tetrahydrofuran

Duration:	Route of exposure:	DNEL:
Long term – Systemic effects - General population	Dermal	1.5 mg/kg bw/day
Long term – Systemic effects - Workers	Dermal	12.6 mg/kg bw/day
Long term – Local effects - General population	Inhalation	75 mg/m ³
Long term – Local effects - Workers	Inhalation	150 mg/m ³
Long term – Systemic effects - General population	Inhalation	13 mg/m ³
Long term – Systemic effects - Workers	Inhalation	72.4 mg/m ³
Short term – Local effects - General population	Inhalation	150 mg/m ³
Short term – Local effects - Workers	Inhalation	300 mg/m ³
Short term – Systemic effects - General population	Inhalation	52 mg/m ³
Short term – Systemic effects - Workers	Inhalation	96 mg/m ³
Long term – Systemic effects - General population	Oral	1.5 mg/kg bw/day

PNEC

tetrahydrofuran

Route of exposure:	Duration of Exposure:	PNEC:
Freshwater		4.32 mg/L
Freshwater sediment		23.3 mg/kg
Intermittent release (freshwater)		21.6 mg/L
Marine water		432 µg/L
Marine water sediment		2.33 mg/kg
Predators		67 mg/kg
Sewage treatment plant		4.6 mg/L
Soil		2.13 mg/kg

8.2. Exposure controls

Compliance with the given occupational exposure limits values should be controlled on a regular basis.

General recommendations:

Smoking, drinking and consumption of food is not allowed in the work area.

Exposure scenarios:

There are no exposure scenarios implemented for this product.

Exposure limits:

Professional users are subjected to the legally set maximum concentrations for



Appropriate technical measures:

occupational exposure. See occupational hygiene limit values above.

Hygiene measures:

Do not recirculate outlet air that contain the substances.

In between use of the product and at the end of the working day all exposed areas of the body must be washed thoroughly. Always wash hands, forearms and face.

Measures to avoid environmental exposure:


Keep damming materials near the workplace. If possible, collect spillage during work.

8.3. Individual protection measures, such as personal protective equipment


Generally:

Use only UKCA marked protective equipment.


Respiratory Equipment:

Type	Class	Colour	Standards	
A	Class 2 (medium capacity)	Brown	EN14387	


Skin protection:

Recommended	Type/Category	Standards	
Dedicated work clothing should be worn.	-	-	

Hand protection:

Material	Glove thickness (mm)	Breakthrough time (min.)	Standards	
Butyl	0,3	> 120	EN374-2, EN374-3, EN388, EN421	

Eye protection:

Type	Standards	
Safety glasses with side shields.	EN166	

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state:

Liquid

Colour:

Colourless

Odour / Odour threshold:

Solvent

pH:

Testing not relevant or not possible due to the nature of the product.

Density (g/cm³):

0.883 (25 °C)

Kinematic viscosity:

Testing not relevant or not possible due to



Dynamic viscosity:

the nature of the product.

Particle characteristics:

0,48 mPa.s (20 °C)

Does not apply to liquids.

Phase changes

Melting point/Freezing point (°C):

-108,5 °C

Softening point/range (waxes and pastes) (°C):

Does not apply to liquids.

Boiling point (°C):

65

Vapour pressure:

170 hPa (20 °C)

Relative vapour density:

Testing not relevant or not possible due to the nature of the product.

Decomposition temperature (°C):

Testing not relevant or not possible due to the nature of the product.

Data on fire and explosion hazards

Flash point (°C):

1.013 hPa (ECHA)

Flammability (°C):

The material is ignitable.

Auto-ignition temperature (°C):

215 °C

Lower and upper explosion limit (% v/v):

1.5 - 12.4

Solubility

Solubility in water:

Testing not relevant or not possible due to the nature of the product.

n-octanol/water coefficient:

Testing not relevant or not possible due to the nature of the product.

Solubility in fat (g/L):

Testing not relevant or not possible due to the nature of the product.

9.2. Other information

Other physical and chemical parameters:

No data available.

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

No data available.

10.2. Chemical stability

The product is stable under the conditions, noted in section 7 "Handling and storage".

10.3. Possibility of hazardous reactions

10.4. Conditions to avoid

Avoid static electricity.

Do not expose to any forms of heat (e.g. solar radiation). May lead to excess pressure.

Risk of formation of explosive peroxides when distilled, evaporated or otherwise concentrated.

10.5. Incompatible materials

Strong acids, strong bases, strong oxidizing agents, and strong reducing agents.

10.6. Hazardous decomposition products

The product is not degraded when used as specified in section 1.



SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008 as retained and amended in UK law

Acute toxicity

Harmful if swallowed.

Skin corrosion/irritation

Based on available data, the classification criteria are not met.

Serious eye damage/irritation

Causes serious eye irritation.

Respiratory sensitisation

Based on available data, the classification criteria are not met.

Skin sensitisation

Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Carcinogenicity

Suspected of causing cancer.

Reproductive toxicity

Based on available data, the classification criteria are not met.

STOT-single exposure

May cause respiratory irritation.

May cause drowsiness or dizziness.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2. Information on other hazards

Long term effects

Carcinogenic effects: This product contains substances considered or proven to be carcinogenic. The carcinogenic effects may be triggered subsequent to exposure through inhalation, skin contact or ingestion.

Irritation effects: This product contains substances, which may cause irritation upon exposure to skin, eyes or lungs. Exposure may result in an increased absorption potential of other hazardous substances at the area of exposure.

Neurotoxic effects: This product contains organic solvents, which may cause adverse effects to the nervous system. Symptoms of neurotoxicity include: loss of appetite, headache, dizziness, ringing in ears, tingling sensations of skin, sensitivity to the cold, cramps, difficulty in concentrating, tiredness, etc. Repeated exposure to solvents can result in the breaking down of the skin's natural fat layer and may result in an increased absorption potential of other hazardous substances at the area of exposure.

Endocrine disrupting properties

Not applicable.

Other information

tetrahydrofuran has been classified by IARC as a group 2B carcinogen.



SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

No data available.

12.2. Persistence and degradability

No data available.

12.3. Bioaccumulative potential

No data available.

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

This mixture/product does not contain any substances considered to meet the criteria classifying them as PBT and/or vPvB.

12.6. Endocrine disrupting properties

Not applicable.

12.7. Other adverse effects

None known.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product is covered by the regulations on hazardous waste.

To the extent the material has not been subject to regular tests of peroxide formation the waste shall be treated as explosive waste.

HP 3 - Flammable

HP 4 - Irritant (skin irritation and eye damage)

HP 5 - Specific Target Organ Toxicity (STOT)/Aspiration Toxicity

HP 6 - Acute toxicity

HP 7 - Carcinogenic

HP 15 - May form explosive peroxides

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

Regulation (EU) No 1357/2014 of 18 December 2014 on waste as retained and amended in UK law.

EWC code

Not applicable.

Specific labelling

Not applicable.

Contaminated packing




Packaging containing residues of the product must be disposed of similarly to the product.

SECTION 14: TRANSPORT INFORMATION

	14.1 UN / ID	14.2 UN proper shipping name	14.3 Hazard class(es)	14.4 PG*	14.5 Env**	Other information:
ADR	UN2056	TETRAHYDROFUR	Class: 3	II	No	Limited



Compiled in accordance with REACH Regulation (EC) No 1907/2006, as retained and amended in UK law

	14.1 UN / ID	14.2 UN proper shipping name	14.3 Hazard class(es)	14.4 PG*	14.5 Env**	Other information:
		AN	Labels: 3 Classification code: F1 			quantities: 1 L Tunnel restriction code: (D/E) See below for additional information.
IMDG	UN2056	TETRAHYDROFUR AN	Class: 3 Labels: 3 Classification code: F1 	II	No	Limited quantities: 1 L EmS: F-E S-D See below for additional information.
IATA	UN2056	TETRAHYDROFUR AN	Class: 3 Labels: 3 Classification code: F1 	II	No	See below for additional information.

* Packing group

** Environmental hazards

Additional information

ADR / See Table A, Section 3.2.1 for any information on special provisions, requirements, or warnings in connection with transport. See section 5.4.3, for instructions in writing regarding mitigation of damages in relation to incidents or accidents during transport.

IMDG / See section 3.2.1, for any information on special provisions, requirements, or warnings in connection with transport.

IATA / See Table 4.2 for any information on special provisions, requirements, or warnings in connection with transport.

This product is within scope of the regulations of transport of dangerous goods.

Hazchem Code: ●2YE

14.6. Special precautions for user

Not applicable.

14.7. Maritime transport in bulk according to IMO instruments

No data available.

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Restrictions for application:

People under the age of 18 shall not be exposed to this product.
Pregnant women and women breastfeeding must not be exposed to this product. The



Demands for specific education:

SEVESO - Categories / dangerous substances:

Additional information:

Sources:

risk, and possible technical precautions or design of the workplace needed to eliminate exposure, must be considered.

No specific requirements.

P5c - FLAMMABLE LIQUIDS, Qualifying quantity (lower-tier): 5.000 tonnes / (upper-tier): 50.000 tonnes

Tactile warning.

The Management of Health and Safety at Work Regulations 1999.

The Health and Safety at Work etc. Act 1974 Regulations 2013.

Control of Major Accident Hazards (COMAH) Regulations 2015.

Regulation (EU) No 1357/2014 of 18

December 2014 on waste as retained and amended in UK law.

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures (CLP) as retained and amended in UK law.

Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as retained and amended in UK law.

15.2. Chemical safety assessment

No

SECTION 16: OTHER INFORMATION

Full text of H-phrases as mentioned in section 3

EUH019, May form explosive peroxides.

H225, Highly flammable liquid and vapour.

H302, Harmful if swallowed.

H319, Causes serious eye irritation.

H335, May cause respiratory irritation.

H336, May cause drowsiness or dizziness.

H351, Suspected of causing cancer.

Abbreviations and acronyms

ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway

ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road

ATE = Acute Toxicity Estimate

BCF = Bioconcentration Factor

CAS = Chemical Abstracts Service

CE = Conformité Européenne

CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]

CSA = Chemical Safety Assessment

CSR = Chemical Safety Report

DMEL = Derived Minimal Effect Level



DNEL = Derived No Effect Level
EINECS = European Inventory of Existing Commercial chemical Substances
ES = Exposure Scenario
EUH statement = CLP-specific Hazard statement
EWC = European Waste Catalogue
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IARC = International Agency for Research on Cancer (IARC)
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
OECD = Organisation for Economic Co-operation and Development
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
RRN = REACH Registration Number
SCL = A specific concentration limit
SVHC = Substances of Very High Concern
STOT-RE = Specific Target Organ Toxicity - Repeated Exposure
STOT-SE = Specific Target Organ Toxicity - Single Exposure
TWA = Time weighted average
UN = United Nations
UVBC = Unknown or variable composition, complex reaction products or of biological materials
VOC = Volatile Organic Compound
vPvB = Very Persistent and Very Bioaccumulative

Additional information

The classification of the substance/mixture in regard of health hazards are in accordance with the calculation methods given by Regulation (EC) No. 1272/2008 (CLP) as retained and amended in UK law.

The classification of the mixture in regard to physical hazards has been based on experimental data.

The safety data sheet is validated by

Laboratoriumdiscounter

Other

A change (in proportion to the last essential change (first cipher in SDS version, see section 1)) is marked with a blue triangle.

The information in this safety data sheet applies only to this specific product (mentioned in section 1) and is not necessarily correct for use with other chemicals/products.

It is recommended to hand over this safety data sheet to the actual user of the product.

Information in this safety data sheet cannot be used as a product specification.

Country-language: GB-en