



Preparing for the New Era of Laboratories

## SAFETY DATA SHEET (SDS)

According to regulation (EU) no.1907/2006

### **TETRAHYDROFURAN 99.5% AR**

PRODUCT CODE : B-3071

CAS No : 109-99-9

FORMULA :  $C_4H_8O$

UN No : 2056

website : [www.labotiq.net](http://www.labotiq.net)

# SAFETY DATA SHEET (SDS)

## TETRAHYDROFURAN 99.5% AR



MSDS Number : 0389

Date : Sept 1<sup>st</sup>, 2025

Version : 1.0

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

- 1.1 Product Name** : TETRAHYDROFURAN 99.5% AR
- Synonyms** : THF; Butylene Oxide; Cyclotetramethylene oxide; 1,4-Epoxybutane
- CAS No.** : 109-99-9
- HS Code** : 2932.1100
- Chemical Formula** : C<sub>4</sub>H<sub>8</sub>O
- Molecular Weight** : 72.11 g/mol
- Product Code** : B-3071
- Brand** : Labotiq
- 1.2 Manufacturer** : Labotiq
- Address** : Jl.Terapi Raya AD2-Bumi Menteng Asri Bogor, Jawa Barat Indonesia – 16111
- Website** : [www.labotiq.net](http://www.labotiq.net)
- Email** : [labotiq.id@gmail.com](mailto:labotiq.id@gmail.com)
- For information** : Phone : (+62-251) 839110, 8311662, Fax : (+62-251) 83135710
- Emergency number** : +6281316894650
- 1.3 Application** : Laboratory chemicals, Manufacture of substances, General Chemical reagent

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Flammable liquids (Category 2), H225

Acute toxicity, Oral (Category 4), H302

Eye irritation (Category 2), H319

Carcinogenicity (Category 2), H351

Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336

Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16

#### 2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram



Signal word

Danger

Hazard statement(s)

H225

Highly flammable liquid and vapor.

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.

Precautionary statement(s)

P202

Do not handle until all safety precautions have been read and understood.

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P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P301 + P312	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.

Supplemental Hazard information (EU)  
EUH019

May form explosive peroxides

### Reduced Labeling (<= 125 ml)

Pictogram



Signal Word  
Hazard statement(s)  
H351

Danger

Suspected of causing cancer.

Precautionary statement(s)  
P202

Do not handle until all safety precautions have been read and understood.

P308 + P313

IF exposed or concerned: Get medical advice/ attention.

Supplemental Hazard information (EU)

EUH019 May form explosive peroxides

### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Synonyms	: THF; Butylene Oxide; Cyclotetramethylene oxide; 1,4-Epoxybutane
Formula	: C <sub>4</sub> H <sub>8</sub> O
Molecular weight	: 72.11 g/mol
CAS-No.	: 109-99-9
EC-No.	: 203-726-8

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Index-No. : 603-025-00-0

### 3.2 Mixture

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Classification	Concentration
Tetrahydrofuran CAS-No. 109-99-9 EC-No. 203-726-8 Index-No. 603-025-00-0	Flam. Liq. 2; Acute Tox. 4; Eye Irrit. 2; Carc. 2; STOT SE 3; H225, H302, H319, H351, H336, H335 Concentration limits: >= 25 %: Eye Irrit. 2, H319; >= 25 %: STOT SE 3, H335;	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16..

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

#### General advice

Show this material safety data sheet to the doctor in attendance.

#### If inhaled

After inhalation: fresh air. Call in physician.

#### In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Consult a physician.

#### In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

#### If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

### 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

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

No data available

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Carbon dioxide (CO2) Foam Dry powder

#### Dry powder Unsuitable

For this substance/mixture no limitations of extinguishing agents are given.

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**5.2 Special hazards arising from the substance or mixture**

Carbon oxides Combustible. Pay attention to flashback. Vapors are heavier than air and may spread along floors. Development of hazardous combustion gases or vapours possible in the event of fire. Forms explosive mixtures with air at ambient temperatures.

**5.3 Advice for firefighters**

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

**5.4 Further information**

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

**6.2 Environmental precautions**

Do not let product enter drains. Risk of explosion.

**6.3 Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemisorb®). Dispose of properly. Clean up affected area.

**6.4 Reference to other sections**

For disposal see section 13

**SECTION 7: Handling and storage****7.1 Precautions for safe handling****Advice on safe handling**

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

**Advice on protection against fire and explosion**

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

**Hygiene measures**

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance. For precautions see section 2.2.

**7.2 Conditions for safe storage, including any incompatibilities****Storage conditions**

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Test for peroxide formation periodically and before distillation.

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### Storage class

Storage class (TRGS 510): 3: Flammable liquids

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Derived No Effect Level (DNEL)

Application Area	Exposure routes	Health effect	Value
Workers	Skin contact	Long-term systemic effects	25mg/kg BW/d
Consumers	Skin contact	Long-term systemic effects	15mg/kg BW/d
Workers	Inhalation	Long-term local effects	150 mg/m3
Workers	Inhalation	Long-term systemic effects	150 mg/m3
Consumers	Inhalation	Long-term systemic effects	62 mg/m3
Consumers	Inhalation	Acute local effects	150 mg/m3
Consumers	Inhalation	Acute systemic effects	150 mg/m3

#### Predicted No Effect Concentration (PNEC)

Compartment	Value
Soil	2,13 mg/kg
Sea water	0,432 mg/l
Fresh water	4,32 mg/l
Sea sediment	2,33 mg/kg
Fresh water sediment	23,3 mg/kg
Onsite sewage treatment plant	4,6 mg/l

### 8.2 Exposure controls

#### Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

#### Personal protective equipment

##### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

##### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

##### Full contact

Material: Chloroprene

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Minimum layer thickness: 0,65 mm  
 Break through time: 480 min  
 Material tested: Dermatril® (KCL 740, Size M)

### Splash contact

Material: butyl-rubber  
 Minimum layer thickness: 0,3 mm  
 Break through time: 18 min  
 Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M)

### Body Protection

Flame retardant antistatic protective clothing.

### Respiratory protection

Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented..

### Control of environmental exposure

Do not let product enter drains. Risk of explosion

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Appearance	Form: liquid
Odour	Colour: No data available
Odour Threshold	No data available
pH	No data available
Melting point/freezingpoint	ca.7 - 8
Initial boiling point and boiling range	Melting point: -108,44 °C - (ECHA)
Flash point	65 °C at 1.013,25 hPa - (ECHA)
Evaporation rate	-21,2 °C - closed cup - DIN 51755 Part 1
Flammability (solid, gas)	No data available
Upper/lower flammability or	No data available
explosive limits	Upper explosion limit: 12,4 %(V) - (THF)
Vapour pressure	Lower explosion limit: 1,5 %(V)
Vapour density	170 hPa at 20 °C - (THF)
Density	No data available
Relative density	0,89 g/cm <sup>3</sup> at 20 °C
Water solubility	No data available
Partition coefficient: noctanol/water	miscible
Auto-ignition temperature	log Pow: 0,45 at 25 °C - Bioaccumulation is not expected.
Decomposition temperature	215 °C at 1.013 hPa - DIN 51794
Viscosity	No data available
Explosive properties	Viscosity, kinematic: No data available
Oxidizing properties	Viscosity, dynamic: 0,359 mPa.s at 50 °C 0,456 mPa.s at 25 °C
	No data available
	none

### 9.2 Other safety information

No data available

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**SECTION 10: Stability and reactivity****10.1 Reactivity**

Formation of peroxides possible.  
Vapors may form explosive mixture with air.

**10.2 Chemical stability**

Sensitivity to light Sensitive to air.  
The product is chemically stable under standard ambient conditions (room temperature) .  
Contains the following stabilizer(s):  
butyl hydroxytoluene (BHT) (250 ppm)

**10.3 Possibility of hazardous reactions**

A risk of explosion and/or of toxic gas formation exists with the following substances:  
alkali hydroxides, Bromine, hydrides, Potassium, lithium aluminium hydride, thionyl chloride,  
Oxidizing agents, Oxygen, aminophenol with Peroxides  
Exothermic reaction with: Acids, halides, peroxi compounds

**10.4 Conditions to avoid**

Distillation (Risk of explosion). Warming. Moisture.

**10.5 Incompatible materials**

No data available

**10.6 Hazardous decomposition products**

Peroxides  
In the event of fire: see section 5

**SECTION 11: Toxicological information****11.1 Information on toxicological effects****Acute toxicity**

Acute toxicity estimate Oral - 1.650 mg/kg (Calculation method)  
LD50 Oral - Rat - male and female - 1.650 mg/kg  
Remarks: (ECHA)  
Symptoms: Irritation of mucous membranes  
Acute toxicity estimate Oral - 1.650 mg/kg (ATE value derived from LD50/LC50 value)  
LC50 Inhalation - Rat - male and female - 6 h - > 14,7 mg/l – vapor  
(US-EPA)  
LD50 Dermal - Rat - male and female - > 2.000 mg/kg (OECD Test Guideline 402)

**Skin corrosion/irritation**

Skin - Rabbit  
Result: No skin irritation - 72 h (Draize Test)  
Remarks: Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.

**Serious eye damage/eye irritation**

Eyes - Rabbit  
Result: Causes serious eye irritation.  
Remarks: (IUCLID)  
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)



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### Respiratory or skin sensitisation

Local lymph node assay (LLNA) - Mouse

Result: negative (OECD Test Guideline 429)

### Germ cell mutagenicity

Test Type: Ames test

Test system: S. typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: negative

Test Type: Chromosome aberration test in vitro

Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 473

Result: negative

Test Type: Micronucleus test

Species: Mouse

Cell type: Red blood cells (erythrocytes)

Application Route: inhalation (vapor)

Method: OECD Test Guideline 474

Result: negative

### Carcinogenicity

Suspected of causing cancer.

### Reproductive toxicity

No data available

### Specific target organ toxicity - single exposure

Inhalation - May cause respiratory irritation. - Central nervous system

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

May cause drowsiness or dizziness

### Specific target organ toxicity - repeated exposure

No data available

### Aspiration hazard

No data available

### Additional Information

Endocrine disrupting properties

Product:

Assessment :

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Repeated dose toxicity - Rat - male and female - Oral - 4 Weeks

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RTECS: LU5950000

irritant effects, Cough, Shortness of breath, narcosis, somnolence

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. In high doses: somnolence narcosis

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

### SECTION 12: Ecological information

#### 12.1 Toxicity

##### Toxicity to fish

flow-through test LC50 - Pimephales promelas (fathead minnow) - 2.160 mg/l - 96 h  
(OECD Test Guideline 203)

##### Toxicity to daphnia and other aquatic invertebrates

static test EC50 - Daphnia magna (Water flea) - 3.485 mg/l - 48 h (OECD Test Guideline 202)

##### Toxicity to fish

flow-through test NOEC - Pimephales promelas (fathead minnow) - 216 mg/l - 33 d

Remarks: (ECHA)

#### 12.2 Persistence and degradability

Biodegradability

aerobic Biochemical oxygen demand - Exposure time 28 d

Result: 39 % - Not readily biodegradable. (OECD Test Guideline 301D)

#### 12.3 Bioaccumulative potential

No data available

#### 12.4 Mobility in soil

No data available

#### 12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

#### 12.6 Other adverse effects

No data available

Endocrine disrupting properties

Product:

Assessment :

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

### SECTION 13: Disposal considerations

#### 13.1 Waste treatment methods

##### Product

Burn in a chemical incinerator equipped with an afterburner and scrubber b highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

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**Contaminated packaging**  
Dispose of as unused product.

### SECTION 14: Transport information

#### 14.1 UN number

ADR/RID: 2056

IMDG: 2056

IATA: 2056

#### 14.2 UN proper shipping name

ADR/RID: TETRAHYDROFURAN

IMDG: TETRAHYDROFURAN

IATA: Tetrahydrofuran

#### 14.3 Transport hazard class(es)

ADR/RID: 3

IMDG: 3

IATA: 3

#### 14.4 Packaging group

ADR/RID: II

IMDG: II

IATA: II

#### 14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

#### 14.6 Special precautions for user

No data available

### SECTION 15: Regulatory information

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

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

##### Authorisations and/or restrictions on use

##### National legislation

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

P5c FLAMMABLE LIQUIDS

##### Other regulations

Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Take note of Dir 94/33/EC on the protection of young people at work.

#### 15.2 Chemical safety assessment

A Chemical Safety Assessment has been carried out for this substance.

### SECTION 16: Other information

#### Full text of H-Statements referred to under sections 2 and 3.

EUH019 May form explosive peroxides.  
H225 Highly flammable liquid and vapor.  
H302 Harmful if swallowed.  
H319 Causes serious eye irritation.  
H335 Highly flammable liquid and vapor.  
H336 Harmful if swallowed.  
H351 Causes serious eye irritation.

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**National Fire Protection Association (U.S.A.):**

Health: 2

Flammability: 3

Reactivity: 1

**Further information**

*The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Labotiq shall not be held liable for any damage resulting from handling or from contact with the above product.*

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