

# Safety data sheet

Safe Work Australia - Code of Practice



## Tetrahydrofuran D8 99,5 Atom%D

article number: **AE58**  
Version: **GHS 1.1 en**  
Replaces version of: 2019-06-27  
Version: (GHS 1)

date of compilation: 2019-06-27  
Revision: 2019-06-28

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

### 1.1 Product identifier

Identification of the substance	<b>Tetrahydrofuran D8</b>
Article number	AE58
Registration number (REACH)	It is not required to list the identified uses because the substance is not subject to registration according to REACH (< 1 t/a)
EC number	216-898-4
CAS number	1693-74-9

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

**Identified uses:** laboratory chemical  
laboratory and analytical use

### 1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG  
Schoemperlenstr. 3-5  
D-76185 Karlsruhe  
Germany

**Telephone:** +49 (0) 721 - 56 06 0  
**Telefax:** +49 (0) 721 - 56 06 149  
**e-mail:** [sicherheit@carlroth.de](mailto:sicherheit@carlroth.de)  
**Website:** [www.carlroth.de](http://www.carlroth.de)

Competent person responsible for the safety data sheet : Department Health, Safety and Environment

**e-mail (competent person)** : [sicherheit@carlroth.de](mailto:sicherheit@carlroth.de)

### 1.4 Emergency telephone number

Name	Street	Postal code/city	Telephone	Website
NSW Poisons Information Centre Childrens Hospital	Hawkesbury Road	2145 Westmead, NSW	131126	

Emergency information service

**Poison Centre Munich: +49/(0)89 19240**

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Classification acc. to GHS**

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Classification acc. to GHS			
Section	Hazard class	Hazard class and category	Hazard statement
2.6	flammable liquid	(Flam. Liq. 2)	H225
3.10	acute toxicity (oral)	(Acute Tox. 4)	H302
3.6	carcinogenicity	(Carc. 2)	H351

### Supplemental hazard information

Code	Supplemental hazard information
EUH019	may form explosive peroxides

## 2.2 Label elements

### Labelling GHS

#### Signal word

**Danger**

#### Pictograms

GHS02, GHS07,  
GHS08



#### Hazard statements

H225 Highly flammable liquid and vapour  
H302 Harmful if swallowed  
H351 Suspected of causing cancer (if exposed)

#### Precautionary statements

##### Precautionary statements - prevention

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
P233 Keep container tightly closed.

##### Precautionary statements - response

P308+P313 IF exposed or concerned: Get medical advice/attention.  
P370+P378 In case of fire: Use sand, carbon dioxide or powder extinguisher for extinction.

##### Precautionary statements - storage

P403+P235 Store in a well-ventilated place. Keep cool.

##### Precautionary statements - disposal

P501 Dispose of contents/container to industrial combustion plant.

For professional users only

### Supplemental hazard information

EUH019 May form explosive peroxides.

#### Labelling of packages where the contents do not exceed 125 ml

Signal word: **Danger**

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Symbol(s)



H351 Suspected of causing cancer (if exposed).  
P308+P313 IF exposed or concerned: Get medical advice/attention.  
P501 Dispose of contents/container to industrial combustion plant.  
EUH019 May form explosive peroxides.

### 2.3 Other hazards

There is no additional information.

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Name of substance	Tetrahydrofuran D8
EC number	216-898-4
CAS number	1693-74-9
Molecular formula	C <sub>4</sub> D <sub>8</sub> O
Molar mass	80.16 g/mol

## SECTION 4: First aid measures

### 4.1 Description of first aid measures



#### General notes

Take off contaminated clothing.

#### Following inhalation

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

#### Following skin contact

Rinse skin with water/shower.

#### Following eye contact

Rinse cautiously with water for several minutes. In all cases of doubt, or when symptoms persist, seek medical advice.

#### Following ingestion

Rinse mouth with water (only if the person is conscious). In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Call a doctor.

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

Vomiting, Drowsiness, Nausea

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

none

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### SECTION 5: Firefighting measures

#### 5.1 Extinguishing media



##### Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings  
water spray, foam, dry extinguishing powder, carbon dioxide (CO<sub>2</sub>)

##### Unsuitable extinguishing media

water jet

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

Combustible. Vapours can form explosive mixtures with air.

##### Hazardous combustion products

In case of fire may be liberated: carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>)

#### 5.3 Advice for firefighters

Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

### SECTION 6: Accidental release measures

#### 6.1 Personal precautions, protective equipment and emergency procedures



##### For non-emergency personnel

Wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. Avoid contact with skin, eyes and clothes. Do not breathe vapour/spray. Avoidance of ignition sources.

#### 6.2 Environmental precautions

Keep away from drains, surface and ground water. Explosive properties.

#### 6.3 Methods and material for containment and cleaning up

##### Advices on how to contain a spill

Covering of drains.

##### Advices on how to clean up a spill

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).

##### Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

#### 6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

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### SECTION 7: Handling and storage

#### 7.1 Precautions for safe handling

Provision of sufficient ventilation.

- **Measures to prevent fire as well as aerosol and dust generation**



Keep away from sources of ignition - No smoking.

Take precautionary measures against static discharge. Due to danger of explosion, prevent leakage

of vapours into cellars, flues and ditches.

#### **Advice on general occupational hygiene**

Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs. When using do not smoke.

#### 7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed.

#### **Incompatible substances or mixtures**

Observe hints for combined storage.

#### **Consideration of other advice**

Ground/bond container and receiving equipment.

- **Ventilation requirements**

Use local and general ventilation.

- **Specific designs for storage rooms or vessels**

Recommended storage temperature: 15 – 25 °C.

#### 7.3 Specific end use(s)

No information available.

### SECTION 8: Exposure controls/personal protection

#### 8.1 Control parameters

##### **National limit values**

##### **Occupational exposure limit values (Workplace Exposure Limits)**

Data are not available.

#### 8.2 Exposure controls

##### **Individual protection measures (personal protective equipment)**

##### **Eye/face protection**



Use safety goggle with side protection.

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### Skin protection



- **hand protection**

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

### Splash protection - Protective gloves

- **Type of material**

Butyl caoutchouc (butyl rubber).

- **Material thickness**

> 0,7mm.

- **Breakthrough times of the glove material**

>10 minutes (permeation: level 1).

- **other protection measures**

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Flame-retardant protective clothing.

### Respiratory protection



Respiratory protection necessary at: Aerosol or mist formation. Type: A (against organic gases and vapours with a boiling point of > 65 °C , colour code: Brown).

### Environmental exposure controls

Keep away from drains, surface and ground water.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### Appearance

Physical state	liquid (fluid)
Colour	colourless
Odour	this information is not available
Odour threshold	No data available

#### Other physical and chemical parameters

pH (value)	This information is not available.
Melting point/freezing point	-108 °C
Initial boiling point and boiling range	65 °C
Flash point	-20 °C
Evaporation rate	no data available
Flammability (solid, gas)	not relevant (fluid)

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### Explosive limits

• lower explosion limit (LEL)	1.5 vol%
• upper explosion limit (UEL)	12.4 vol%
Explosion limits of dust clouds	not relevant
Vapour pressure	This information is not available.
Density	0.89 g/cm <sup>3</sup>
Vapour density	This information is not available.
Bulk density	Not applicable
Relative density	Information on this property is not available.
<u>Solubility(ies)</u>	
Water solubility	no data available
<u>Partition coefficient</u>	
n-octanol/water (log KOW)	0.45 (25 °C) (OECD 107)
Auto-ignition temperature	230 °C
Decomposition temperature	no data available
Viscosity	not determined
Explosive properties	Shall not be classified as explosive
Oxidising properties	none

## 9.2 Other information

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Risk of ignition. Vapours can form explosive mixtures with air. May form explosive peroxides.

### 10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

### 10.3 Possibility of hazardous reactions

Violent reaction with: Alkali hydroxide (caustic alkali), Acids, Oxygen, Strong oxidiser

### 10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

### 10.5 Incompatible materials

Rubber articles, different plastics, tin

### 10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

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### SECTION 11: Toxicological information

#### 11.1 Information on toxicological effects

##### Acute toxicity

Exposure route	Endpoint	Value	Species
inhalation: vapour	LC50	53.9 mg/l/4h	rat
oral	LD50	1,650 mg/kg	rat
oral	LD50	2,300 mg/kg	guinea pig

##### Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

##### Serious eye damage/eye irritation

Shall not be classified as seriously damaging to the eye or eye irritant.

##### Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

##### Summary of evaluation of the CMR properties

##### Carcinogenicity:

Suspected of causing cancer (if exposed)

- **Specific target organ toxicity - single exposure**

Shall not be classified as a specific target organ toxicant (single exposure).

- **Specific target organ toxicity - repeated exposure**

Shall not be classified as a specific target organ toxicant (repeated exposure).

##### Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

##### Symptoms related to the physical, chemical and toxicological characteristics

- **If swallowed**

vomiting

- **If in eyes**

Irritating to eyes

- **If inhaled**

cough, pain, choking, and breathing difficulties, dizziness

- **If on skin**

Prolonged or repeated contact with skin or mucous membrane result in irritation symptoms such as redness, blistering, dermatitis, etc

##### Other information

None



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### SECTION 12: Ecological information

#### 12.1 Toxicity

acc. to 1272/2008/EC: Shall not be classified as hazardous to the aquatic environment.

##### Aquatic toxicity (acute)

Endpoint	Value	Species	Exposure time
LC50	2,160 mg/l	Pimephales promelas	96 h

#### 12.2 Process of degradability

Data are not available.

Process	Degradation rate	Time
biotic/abiotic	39 %	28 d

#### 12.3 Bioaccumulative potential

Does not significantly accumulate in organisms.

n-octanol/water (log KOW) 0.45 (25 °C)

#### 12.4 Mobility in soil

Data are not available.

#### 12.5 Results of PBT and vPvB assessment

Data are not available.

#### 12.6 Other adverse effects

Data are not available.

### SECTION 13: Disposal considerations

#### 13.1 Waste treatment methods



This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

##### Sewage disposal-relevant information

Do not empty into drains.

##### Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.

##### Sewage disposal-relevant information

Do not empty into drains.

##### Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.

#### 13.2 Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.


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### 13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

## SECTION 14: Transport information

<b>14.1</b>	UN number	<b>2056</b>
<b>14.2</b>	UN proper shipping name	<b>TETRAHYDROFURAN</b>
	Hazardous ingredients	Tetrahydrofuran D8
<b>14.3</b>	Transport hazard class(es)	
	Class	3 (flammable liquids)
<b>14.4</b>	Packing group	II (substance presenting medium danger)
<b>14.5</b>	Environmental hazards	none (non-environmentally hazardous acc. to the dangerous goods regulations)

### 14.6 Special precautions for user

Provisions for dangerous goods (ADR) should be complied within the premises.

### 14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

The cargo is not intended to be carried in bulk.

### 14.8 Information for each of the UN Model Regulations

#### • Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)

UN number	2056
Proper shipping name	TETRAHYDROFURAN
Particulars in the transport document	UN2056, TETRAHYDROFURAN, 3, II, (D/E)
Class	3
Classification code	F1
Packing group	II
Danger label(s)	3



Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
Transport category (TC)	2
Tunnel restriction code (TRC)	D/E
Hazard identification No	33
<b>Emergency Action Code</b>	<b>2YE</b>

#### • International Maritime Dangerous Goods Code (IMDG)

UN number	2056
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Proper shipping name	TETRAHYDROFURAN
Particulars in the shipper's declaration	UN2056, TETRAHYDROFURAN, 3, II, -20°C c.c.
Class	3
Marine pollutant	-
Packing group	II
Danger label(s)	3



Special provisions (SP)	-
Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
EmS	F-E, S-D
Stowage category	B

### • International Civil Aviation Organization (ICAO-IATA/DGR)

UN number	2056
Proper shipping name	Tetrahydrofuran
Particulars in the shipper's declaration	UN2056, Tetrahydrofuran, 3, II
Class	3
Packing group	II
Danger label(s)	3



Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L

## SECTION 15: Regulatory information

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

#### National inventories

Substance is listed in the following national inventories:

Country	National inventories	Status
EU	ECSI	substance is listed
NZ	NZIoC	substance is listed
TW	TCSI	substance is listed

#### Legend

ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
NZIoC	New Zealand Inventory of Chemicals
TCSI	Taiwan Chemical Substance Inventory

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### 15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

## SECTION 16: Other information

### Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
DGR	Dangerous Goods Regulations (see IATA/DGR)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
vPvB	very Persistent and very Bioaccumulative

### Key literature references and sources for data

- UN Recommendations on the Transport of Dangerous Good
- Dangerous Goods Regulations (DGR) for the air transport (IATA)
- International Maritime Dangerous Goods Code (IMDG)

### List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H225	highly flammable liquid and vapour
H302	harmful if swallowed
H351	suspected of causing cancer (if exposed)

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### Disclaimer

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.