

Trade name: DME**Product no.:** -

Current version : 2.0.0, issued: 14.12.2023

Replaced version: -, issued: -

Region:
GER**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier****Trade name****DME**

Substance name	dimethyl ether
REACH registration no.	01-2119472128-37

Identification numbers

CAS no.	115-10-6
EC no.	204-065-8
Index no.	603-019-00-8

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

Industrial Use
Professional use
Aerosol
Propellant
Pure chemical
Initial product for chemical reactions
Manufacture of gas mixtures in pressure vessels
Refrigerant

Uses advised against

Consumer use

1.3 Details of the supplier of the safety data sheet**Address**

TEGA - Technische Gase und Gasetechnik GmbH
Werner-von-Siemens-Straße 18
97076 Würzburg

Telephone no.	+49 931 2093-220
Fax no.	+49 931 2093-180
e-mail	kaeltemittel@tega.de

Advice on Safety Data Sheet

sdb_info@umco.de

1.4 Emergency telephone number

For medical advice (in German and English):
+49 (0)551 192 40 (Giftinformationszentrum Nord)

SECTION 2: Hazards identification**2.1 Classification of the substance or mixture****Classification in accordance with Regulation (EC) No 1272/2008 (CLP)**

Flam. Gas 1A; H220
Press. Gas liq.; H280

Classification information

This product is assessed and classified using the methods and criteria below referred to in Article 9 of Regulation (EC) n° 1272/2008:

Physical hazards: determined through assessment data based on the methods or standards referred to in part 2 of Annex I to CLP

Health hazards and environmental hazards: determined through toxicological and ecotoxicological assessment data based on the methods or standards referred to in Part 3 and 4 of Annex I to CLP.

2.2 Label elements

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115-10-6 (dimethyl ether)

Hazard pictograms

GHS02



GHS04

Signal word

Danger

Hazard statement(s)

H220

Extremely flammable gas.

H280

Contains gas under pressure; may explode if heated.

Precautionary statement(s)

P210

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

P377

Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

P381

In case of leakage, eliminate all ignition sources.

P410+P403

Protect from sunlight. Store in a well-ventilated place.

2.3 Other hazards

Contact with the liquid can cause cold burns or frostbite.

PBT assessment

The product is not considered to be a PBT.

vPvB assessment

The product is not considered to be a vPvB.

SECTION 3: Composition/information on ingredients**3.1 Substances****Chemical characterization**

Substance name dimethyl ether

Formula C₂H₆O

Molecular weight 46,07

Identification numbers

CAS no. 115-10-6

EC no. 204-065-8

Index no. 603-019-00-8

Other information

Note	Specific concentration limits	M-factor (acute)	M-factor (chronic)
U	-	-	-

Full text for the notes: pls. see section 16 "Notes relating to the identification, classification and labelling of substances ((EC) No 1272/2008, Annex VI)".

3.2 Mixtures

Not applicable. The product is not a mixture.

SECTION 4: First aid measures**4.1 Description of first aid measures****General information**

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In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Remove affected person from danger area, lay him down. Seek medical advice immediately.

After inhalation

Remove affected persons from dangerous area by observing suitable respiratory protection measures. Ensure supply of fresh air. Irregular breathing/no breathing: artificial respiration. Call a doctor immediately.

After skin contact

In case of contact with skin wash off immediately with soap and water. In case of frostbite, rinse with plenty of water. Do not remove clothing.

After eye contact

Remove contact lenses. Rinse eye thoroughly under running water keeping eyelids wide open and protecting the unaffected eye (at least 10 to 15 minutes).

After ingestion

Rinse the mouth thoroughly with water. Do not induce vomiting. Never give anything by mouth to an unconscious person.

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

Shortness of breath; respiratory arrest. Unconsciousness; Frostbite

4.3 Indication of any immediate medical attention and special treatment needed

Thaw frosted parts with lukewarm water. Do not rub affected area. Get medical attention immediately.

SECTION 5: Firefighting measures**5.1 Extinguishing media****Suitable extinguishing media**

Extinguishing powder; Water spray jet; Water mist; Foam

Unsuitable extinguishing media

High power water jet; Carbon dioxide

5.2 Special hazards arising from the substance or mixture

In the event of fire, the following can be released: Carbon monoxide and carbon dioxide; May explode if exposed to heat. Liquefied gas: Spilled liquid can cause cold burns. This gas is heavier than air and may accumulate in low areas.

5.3 Advice for firefighters

Use self-contained breathing apparatus. Wear full protective suit. Containers close to fire should be transferred to a safe place. Cool closed containers exposed to fire with water. Pressure increase, bursting and explosion hazard during heating. Fire residues and contaminated firefighting water must be disposed of in accordance with the local regulations.

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

Refer to protective measures listed in sections 7 and 8. Ensure adequate ventilation. Keep away from ignition sources. Do not breathe gas. Cordon and mark contaminated area. Remove persons to safety. Risk of explosion.

For emergency responders

No data available. Personal protective equipment (PPE) - see Section 8.

6.2 Environmental precautions

Avoid release in the environment. Suppress gases/vapours/mists with water spray jet.

6.3 Methods and material for containment and cleaning up

Ensure adequate ventilation. Dispose of absorbed material in accordance with the regulations.

6.4 Reference to other sections

Information regarding safe handling, see section 7. Information regarding personal protective measures, see section 8. Information regarding waste disposal, see section 13.

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

Only qualified and trained persons are authorised to handle. Provide good ventilation at the work area (local exhaust ventilation, if necessary). To be used only according to instructions for use. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose containers heat or sources of ignition. In case of accidental release: danger due to low temperature of the liquid product. The product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Prevent the creation of flammable or explosive concentrations of vapour in air and avoid vapour concentration higher than the occupational exposure limits. Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50 °C. Do not pierce or burn, even after use. Comply with the health and safety at work laws.

General protective and hygiene measures

Wash hands before breaks and after work. Do not inhale gases. Do not eat, drink or smoke during work time. Keep away from foodstuffs and beverages. Have emergency shower available.

Advice on protection against fire and explosion

Vapours can form an explosive mixture with air. Isolate from sources of heat, sparks and open flame. Take precautionary measures against electrostatic loading (earthing necessary during loading operations). Use explosion-proof equipment/fittings and non-sparking tools. Electrical equipment should be protected to the appropriate standard.

7.2 Conditions for safe storage, including any incompatibilities**Technical measures and storage conditions**

Keep container tightly closed in a cool, well-ventilated place, open and handle carefully. Protect from heat and direct sunlight.

Recommended storage temperature

Value < 50 °C

Requirements for storage rooms and vessels

Containers which are opened must be carefully closed and kept upright to prevent leakage. Always keep in containers of same material as the original.

Incompatible products

Do not store together with: combustible materials; oxidizing agents; oxidizing substances; spontaneously combusting substances; explosive substances

Storage Class according TRGS 510

2A Gases (except aerosol dispensers and lighters)

7.3 Specific end use(s)

No data available.

SECTION 8: Exposure controls/personal protection**8.1 Control parameters****Occupational exposure limit values**

No	Substance name	CAS no.	EC no.
1	dimethyl ether	115-10-6	204-065-8
	TRGS 900		
	Dimethylether		
	WEL long-term (8-hr TWA reference period)	1900	mg/m ³ 1000 ml/m ³
	Ceiling Limit	8(II)	
	2000/39/EC		
	Dimethylether		
	WEL long-term (8-hr TWA reference period)	1920	mg/m ³ 1000 ppm

DNEL, DMEL and PNEC values

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No	Substance name	CAS / EC no	
	Route of exposure	Exposure time	Effect
	Value		
1	dimethyl ether		
	inhalative	Long term (chronic)	systemic
			1894 mg/m ³

DNEL value (consumer)

No	Substance name	CAS / EC no	
	Route of exposure	Exposure time	Effect
	Value		
1	dimethyl ether		
	inhalative	Long term (chronic)	systemic
			471 mg/m ³

PNEC values

No	Substance name	CAS / EC no	
	ecological compartment	Type	Value
1	dimethyl ether		
	water	fresh water	0,155 mg/L
	water	marine water	0,016 mg/L
	water	Aqua intermittent	1,549 mg/L
	water	fresh water sediment	0,681 mg/kg dry weight
	water	marine water sediment	0,069 mg/kg dry weight
	soil	-	0,045 mg/kg dry weight
	sewage treatment plant	-	160 mg/L

8.2 Exposure controls**Appropriate engineering controls**

Ensure adequate ventilation, local exhaust at the work station if necessary. If these are not sufficient to maintain concentrations of particulates and solvent vapour below the OEL, suitable respiratory protection must be worn.

Personal protective equipment**Respiratory protection**

Self-contained breathing apparatus. In case of insufficient ventilation or long-term effect use breathing apparatus.
Respiratory filter (gas) : AX

Eye / face protection

Tightly fitting safety glasses (EN 166).

Hand protection

Low-temperature-resistant gloves (EN 511). Sufficient protection is given wearing suitable protective gloves checked according to i.e. EN 374, in the event of risk of skin contact with the product. Before use, the protective gloves should be tested in any case for its specific work-station suitability (i.e. mechanical resistance, product compatibility and antistatic properties). Adhere to the manufacturer's instructions and information relating to the use, storage, care and replacement of protective gloves. Protective gloves shall be replaced immediately when physically damaged or worn. Design operations thus to avoid permanent use of protective gloves.

Appropriate Material Leather

Other

Chemical-resistant work clothes. Fire-resistant antistatic protective clothing. Protective shoes.

Environmental exposure controls

Information regarding waste disposal, see chapter 13.

SECTION 9: Physical and chemical properties**9.1 Information on basic physical and chemical properties**

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State of aggregation	
gas	
Form	
liquified gas	
Colour	
colourless	
Odour	
ether-like	
pH value	
No data available	
Boiling point / boiling range	
Value	-24,82 °C
Melting point/freezing point	
Value	-141,5 °C
Decomposition temperature	
No data available	
Flash point	
No data available	
Ignition temperature	
No data available	
Auto-ignition temperature	
Value	235 °C
Explosive properties	
May form explosive gas-air mixtures.	
Flammability	
highly flammable	
Lower explosion limit	
Value	2,7 % vol
Upper explosion limit	
Value	32 % vol
Vapour pressure	
Value	593,3 kPa
Reference temperature	25 °C
Relative vapour density	
Value	1,6
Comments	Air = 1
Relative density	
No data available	
Density	
Value	0,73 kg/l
Reference temperature	-24,82 °C
Solubility in water	
Value	46 g/l
Reference temperature	25 °C
Solubility	
No data available	

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Partition coefficient n-octanol/water (log value)			
No	Substance name	CAS no.	EC no.
1	dimethyl ether	115-10-6	204-065-8
log Pow		0,07	
Reference temperature		25 °C	
with reference to		pH 7	
Method		QSAR	
Source		ECHA	

Kinematic viscosity
No data available

Particle characteristics
No data available

9.2 Other information

Other information
Critical temperature: 127 °C
Minimum ignition energy: 0.29 mJ

SECTION 10: Stability and reactivity

10.1 Reactivity

Dangerous reactions are not expected if the product is handled according to its intended use.

10.2 Chemical stability

Stable under recommended storage and handling conditions (See section 7).

10.3 Possibility of hazardous reactions

May react violently with oxygen-rich (oxidizing) material. Risk of explosion. Risk of formation of explosive gas mixtures in air.

10.4 Conditions to avoid

T > 48 °C; Heat, naked flames and other ignition sources.

10.5 Incompatible materials

Oxidizing agents; humidity

10.6 Hazardous decomposition products

None, if handled according to intended use.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute oral toxicity
No data available

Acute dermal toxicity
No data available

Acute inhalational toxicity			
No	Substance name	CAS no.	EC no.
1	dimethyl ether	115-10-6	204-065-8
LC50		164000	ppmV
Duration of exposure		4	h
State of aggregation		Gas	
Species		rat	
Method		OECD 403	
Source		ECHA	
Evaluation/classification		Based on available data, the classification criteria are not met.	

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Region:
GER**Skin corrosion/irritation**

No data available

Serious eye damage/irritation

No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No	Substance name	CAS no.	EC no.
1	dimethyl ether	115-10-6	204-065-8
Type of examination		in vitro gene mutation study in bacteria	
Species		Salmonella typhimurium / Escherichia coli	
Method		OECD 471	
Source		ECHA	
Evaluation/classification		Based on available data, the classification criteria are not met.	

Reproduction toxicity

No	Substance name	CAS no.	EC no.
1	dimethyl ether	115-10-6	204-065-8
Route of exposure		inhalational	
Species		rat	
Method		OECD 452	
Source		ECHA	
Evaluation/classification		Based on available data, the classification criteria are not met.	

Carcinogenicity

No	Substance name	CAS no.	EC no.
1	dimethyl ether	115-10-6	204-065-8
Route of exposure		inhalational	
Species		rat	
Method		OECD 453	
Source		ECHA	
Evaluation/classification		Based on available data, the classification criteria are not met.	

STOT - single exposure

No data available

STOT - repeated exposure

No	Substance name	CAS no.	EC no.
1	dimethyl ether	115-10-6	204-065-8
Route of exposure		inhalational	
Species		rat	
Method		OECD 452	
Source		ECHA	
Evaluation/classification		Based on available data, the classification criteria are not met.	

Aspiration hazard

No data available

11.2 Information on other hazards**Endocrine disrupting properties**

No data available.

Other information

No data available.

SECTION 12: Ecological information**12.1 Toxicity**

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Toxicity to fish (acute)			
No	Substance name	CAS no.	EC no.
1	dimethyl ether	115-10-6	204-065-8
LC50	>	4100	mg/l
Duration of exposure		96	h
Species	Poecilia reticulata		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		

Toxicity to fish (chronic)			
No data available			

Toxicity to Daphnia (acute)			
No	Substance name	CAS no.	EC no.
1	dimethyl ether	115-10-6	204-065-8
EC50	>	4400	mg/l
Duration of exposure		48	h
Species	Daphnia magna		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		

Toxicity to Daphnia (chronic)			
No data available			

Toxicity to algae (acute)			
No data available			

Toxicity to algae (chronic)			
No data available			

Bacteria toxicity			
No data available			

12.2 Persistence and degradability

Biodegradability			
No	Substance name	CAS no.	EC no.
1	dimethyl ether	115-10-6	204-065-8
Type	aerobic biodegradation		
Value		5	%
Duration		28	d
Method	OECD 301 D		
Source	ECHA		
Evaluation	not readily biodegradable		

12.3 Bioaccumulative potential

Partition coefficient n-octanol/water (log value)			
No	Substance name	CAS no.	EC no.
1	dimethyl ether	115-10-6	204-065-8
log Pow		0,07	
Reference temperature		25	°C
with reference to	pH 7		
Method	QSAR		
Source	ECHA		

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

Results of PBT and vPvB assessment	
PBT assessment	The product is not considered to be a PBT.
vPvB assessment	The product is not considered to be a vPvB.

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Region:
GER**12.6 Endocrine disrupting properties**

No data available.

12.7 Other adverse effects**Other adverse effects**

global warming potential: 1

12.8 Other information**Other information**

Do not discharge product unmonitored into the environment.

SECTION 13: Disposal considerations**13.1 Waste treatment methods****Product**

dispose of in accordance with local regulation.

Allocation of a waste code number, according to the European Waste Catalogue, should be carried out in agreement with the regional waste disposal company.

Packaging

Compressed gas packaging under pressure. Do not open by force. Do not heat above 50°C. Dispose of compressed gas packagings only if completely discharged. Do not burn empty compressed gas packagings. Do not pierce, cut or weld uncleaned containers.

SECTION 14: Transport information**14.1 Transport ADR/RID/ADN**

Class	2
Classification code	2F
Hazard identification no.	23
UN number	UN1033
Proper shipping name	DIMETHYL ETHER
Tunnel restriction code	B/D
Label	2.1 RID: (+13)

14.2 Transport IMDG

Class	2.1
UN number	UN1033
Proper shipping name	DIMETHYL ETHER
EmS	F-D, S-U
Label	2.1

14.3 Transport ICAO-TI / IATA

Class	2.1
UN number	UN1033
Proper shipping name	Dimethyl ether
Label	2.1

14.4 Other information

No data available.

14.5 Environmental hazards

Information on environmental hazards, if relevant, please see 14.1 - 14.3.

14.6 Special precautions for user

To be transported always in closed, upright and safe containers. Make sure that persons handling these containers are aware of the rules of conduct in case of incident or spillage.

14.7 Maritime transport in bulk according to IMO instruments

Not relevant

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SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No 1907/2006 (REACH) Annex XIV (List of substances subject to authorisation)

In accordance with the REACH regulation (EC) 1907/2006, the product does not contain any substances that are considered as subject to listing in annex XIV, inventory of substances requiring authorisation.

REACH candidate list of substances of very high concern (SVHC) for authorisation

In accordance with article 57 and article 59 of the Reach regulation (EC) 1907/2006, this substance is not considered as subject to listing in annex XIV, inventory of substances requiring authorisation ("Authorization list").

Regulation (EC) No 1907/2006 (REACH) Annex XVII: RESTRICTIONS ON THE MANUFACTURE, PLACING ON THE MARKET AND USE OF CERTAIN DANGEROUS SUBSTANCES, MIXTURES AND ARTICLES

The product is considered being subject to REACH regulation (EC) 1907/2006 annex XVII.	No 40
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Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances

This product is subject to Part I of Annex I, risk category:	P2
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Other regulations

Adhere to the national sanitary and occupational safety regulations when using this product.

National regulations

Water Hazard Class (Germany)

Class	1
Identification number	714
Source	Classification according to AwSV (Regulation on facilities for handling substances that are hazardous to water).

Other regulations

Take into account: TRGS 510 "Storage of hazardous substances in non-stationary containers"

15.2 Chemical safety assessment

A chemical safety assessment has been carried out for this substance.

SECTION 16: Other information

Sources of key data used to compile the data sheet:

Regulation (EC) No 1907/2006 (REACH), 1272/2008 (CLP) as amended in each case.

Directives 2000/39/EC, 2006/15/EC, 2009/161/EU, (EU) 2017/164.

National Threshold Limit Values of the corresponding countries as amended in each case.

Transport regulations according to ADR, RID, IMDG, IATA as amended in each case.

The data sources used to determine physical, toxic and ecotoxic data, are indicated directly in the corresponding section.

Notes relating to the identification, classification and labelling of substances and mixtures ((EC) No 1272/2008, Annex VI)

U	When put on the market gases have to be classified as 'Gases under pressure', in one of the groups compressed gas, liquefied gas, refrigerated liquefied gas or dissolved gas. The group depends on the physical state in which the gas is packaged and therefore has to be assigned case by case.
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Creation of the safety data sheet

UMCO GmbH

This information is based on our present knowledge and experience.

The safety data sheet describes products with a view to safety requirements.

It does not however, constitute a guarantee for any specific product properties and shall not establish a legally valid contractual relationship.

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Alterations/supplements:

Alterations to the previous edition are marked in the left-hand margin.

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