



**MATHESON**

ask...The Gas Professionals™

## Safety Data Sheet

**Material Name: DIMETHYL ETHER**

**SDS ID: 00244291**

### \*\*\*Section 1 - IDENTIFICATION\*\*\*

**Manufacturer Information**

MATHESON TRI-GAS, INC.  
150 Allen Road, Suite 302  
Basking Ridge, NJ 07920

General Information: 1-800-416-2505  
Emergency #: 1-800-424-9300 (CHEMTREC)  
Outside the US: 703-527-3887 (Call collect)

**Product Identifier: DIMETHYL ETHER**

**Trade Names/Synonyms**

Wood ether; Methyl oxide; Oxybismethane; Methoxymethane

**Chemical Family**

ethers, aliphatic

**Product Use**

industrial

**Restrictions on Use**

None known.

### \*\*\*Section 2 - HAZARDS IDENTIFICATION\*\*\*

**GHS Classification**

Flammable gas, Category 1  
Gas under pressure, Liquefied gas  
Skin Corrosion / Irritation, Category 2  
Eye Damage / Irritation, Category 2B  
Specific Target Organ Toxicity - Single Exposure, Category 3 (central nervous system and respiratory system)

**GHS LABEL ELEMENTS**

**Symbol(s)**



**Signal Word**

DANGER

**Hazard Statement(s)**

Extremely flammable gas  
Contains gas under pressure; may explode if heated  
Causes skin irritation  
Causes eye irritation  
May cause respiratory irritation  
May cause drowsiness and dizziness

## Safety Data Sheet

Material Name: DIMETHYL ETHER

SDS ID: 00244291

### Precautionary Statement(s)

#### Prevention

Keep away from heat, sparks, open flame, and hot surfaces - No smoking. Avoid breathing gas. Wash thoroughly after handling. Wear protective gloves. Use only outdoors or in a well-ventilated area.

#### Response

Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. IF INHALED: 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. IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before re-use. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

#### Storage

Store in a well-ventilated place. Protect from sunlight. Keep container tightly closed. Store locked up.

#### Disposal

Dispose of in accordance with applications with applicable regulations.

#### Other Hazards which do not Result in Classification

May cause frostbite upon sudden release of compressed gas.

### \*\*\*Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS\*\*\*

CAS#	Component	Percent
115-10-6	Dimethyl ether	100

### \*\*\*Section 4 - FIRST AID MEASURES\*\*\*

#### Inhalation

If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

#### Skin

If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.

#### Eyes

Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

#### Ingestion

If a large amount is swallowed, get medical attention.

#### Note to Physicians

For inhalation, consider oxygen.

#### Symptoms: Immediate

respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, frostbite

#### Symptoms: Delayed

No information on significant adverse effects.

### \*\*\*Section 5 - FIRE FIGHTING MEASURES\*\*\*

See Section 9 for Flammability Properties

#### Specific Hazards Arising from the Chemical

Severe fire hazard. Severe explosion hazard. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back. Vapor/air mixtures are explosive. Containers may rupture or explode if exposed to heat. Electrostatic discharges may be generated by flow or agitation resulting in ignition or explosion.

## Safety Data Sheet

Material Name: DIMETHYL ETHER

SDS ID: 00244291

### Extinguishing Media

carbon dioxide, regular dry chemical  
Large fires: Flood with fine water spray.

### Unsuitable Extinguishing Media

None known.

### Protective Equipment and Precautions for Firefighters

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

### Fire Fighting Measures

Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck: Stop leak if possible without personal risk. Let burn unless leak can be stopped immediately. For smaller tanks or cylinders, extinguish and isolate from other flammables. Evacuation radius: 800 meters (1/2 mile). Do not attempt to extinguish fire unless flow of material can be stopped first. Flood with fine water spray. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Evacuate if fire gets out of control or containers are directly exposed to fire. Evacuation radius: 500 meters (1/3 mile). Consider downwind evacuation if material is leaking.

### Hazardous Combustion Products

Combustion: formaldehyde, oxides of carbon, peroxides

## \*\*\*Section 6 - ACCIDENTAL RELEASE MEASURES\*\*\*

### Personal Precautions

Wear personal protective clothing and equipment, see Section 8.

### Environmental Precautions

Avoid release to the environment.

### Methods for Containment

Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Keep unnecessary people away, isolate hazard area and deny entry. Remove sources of ignition. Ventilate closed spaces before entering.

### Cleanup Methods

Avoid heat, flames, sparks and other sources of ignition. Do not touch spilled material. Stop leak if possible without personal risk. Reduce vapors with water spray.

## \*\*\*Section 7 - HANDLING AND STORAGE\*\*\*

### Handling Procedures

Wash thoroughly after handling.

### Storage Procedures

Store and handle in accordance with all current regulations and standards. Protect from physical damage. Store outside or in a detached building. Inside storage: Store in a cool, dry place. Store in a well-ventilated area. Avoid heat, flames, sparks and other sources of ignition. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.

**Incompatibilities** combustible materials, halogens, oxidizing materials, strong acids

## Safety Data Sheet

Material Name: DIMETHYL ETHER

SDS ID: 00244291

### \*\*\*Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION\*\*\*

#### Component Exposure Limits

##### Dimethyl ether (115-10-6)

Europe: 1000 ppm TWA; 1920 mg/m<sup>3</sup> TWA

AIHA: 1000 ppm TWA

#### Component Biological Limit Values

There are no biological limit values for any of this product's components.

#### Engineering Controls

Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

#### PERSONAL PROTECTIVE EQUIPMENT

##### Eyes/Face

Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

##### Protective Clothing

For the gas: Wear appropriate chemical resistant clothing. For the liquid: Wear appropriate protective, cold insulating clothing.

##### Glove Recommendations

For the gas: Wear appropriate chemical resistant gloves. For the liquid: Wear insulated gloves.

##### Respiratory Protection

Under conditions of frequent use or heavy exposure, respiratory protection may be needed.

Respiratory protection is ranked in order from minimum to maximum.

Consider warning properties before use.

##### **For Unknown Concentrations or Immediately Dangerous to Life or Health -**

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

### \*\*\*Section 9 - PHYSICAL AND CHEMICAL PROPERTIES\*\*\*

## Safety Data Sheet

Material Name: DIMETHYL ETHER

SDS ID: 00244291

<b>Physical State:</b> Gas	<b>Appearance:</b> Colorless gas
<b>Color:</b> colorless	<b>Physical Form:</b> liquefied gas
<b>Odor:</b> sweet odor	<b>Odor Threshold:</b> Not available
<b>pH:</b> Not available	<b>Melting/Freezing Point:</b> -142 °C
<b>Boiling Point:</b> -24.8 °C	<b>Flash Point:</b> -41 °C CC
<b>Decomposition:</b> Not available	<b>Evaporation Rate:</b> Not available
<b>LEL:</b> 3.4 %	<b>UEL:</b> 18 %
<b>Vapor Pressure:</b> 77 psia @ 20 °C	<b>Henry's Law Constant:</b> 0.00317683 atm-m3/mol
<b>Vapor Density (air = 1):</b> 1.6	<b>Specific Gravity (water=1):</b> 1.92 g/L @ 25 °C
<b>Water Solubility:</b> 7.6 %	<b>KOW:</b> 891.25 estimated from water solubility
<b>Log KOW:</b> Not available	<b>Coeff. Water/Oil Dist:</b> Not available
<b>KOC:</b> 1425.61 estimated from water solubility	<b>Auto Ignition:</b> 350 °C
<b>Viscosity:</b> Not available	<b>Molecular Weight:</b> 46.08
<b>Molecular Formula:</b> C2-H6-O	

### Solvent Solubility

**Soluble:** alcohol, ether, chloroform, acetone, organic solvents

## \*\*\*Section 10 - STABILITY AND REACTIVITY\*\*\*

### Chemical Stability

May form explosive peroxides. Avoid prolonged storage or contact with air, light or storage and use above room temperature.

### Conditions to Avoid

Avoid heat, flames, sparks and other sources of ignition. Minimize contact with material. Containers may rupture or explode if exposed to heat.

### Possibility of Hazardous Reactions

Will not polymerize.

### Incompatible Materials

combustible materials, halogens, oxidizing materials, strong acids

### Hazardous Decomposition

**Combustion:** formaldehyde, oxides of carbon, peroxides

## \*\*\*Section 11 - TOXICOLOGICAL INFORMATION\*\*\*

### Acute and Chronic Toxicity

#### Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and the following selected endpoints are published:

**Dimethyl ether (115-10-6)**

Inhalation LC50 Rat 308.5 mg/L 4 h

## Safety Data Sheet

Material Name: DIMETHYL ETHER

SDS ID: 00244291

### RTECS Acute Toxicity (selected)

The components of this material have been reviewed, and RTECS publishes the following endpoints:

#### Dimethyl ether (115-10-6)

**Inhalation:** 93000 mg/m<sup>3</sup>/15 minute(s) Inhalation Mouse LC50; 72600 mg/m<sup>3</sup>/30 minute(s) Inhalation Mouse LC50  
164000 ppm/4 hour Inhalation Rat LC50; 308 gm/m<sup>3</sup> Inhalation Rat LC50; 309 gm/m<sup>3</sup>/4 hour Inhalation Rat LC50

### Acute Toxicity Level

#### Dimethyl ether (115-10-6)

**Slightly Toxic:** inhalation

### Immediate Effects

respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, frostbite

### Delayed Effects

No information on significant adverse effects.

### Irritation/Corrosivity Data

No animal testing data available for skin or eyes.

### RTECS Irritation

The components of this material have been reviewed and RTECS publishes no data as of the date on this document.

### Local Effects

#### Dimethyl ether (115-10-6)

**Irritant:** inhalation, skin, eye

### Target Organs

#### Dimethyl ether (115-10-6)

central nervous system

### Respiratory Sensitizer

No data available.

### Dermal Sensitizer

No data available.

### Carcinogenicity

#### Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, NTP, OSHA or DFG.

### Mutagenic Data

No data available.

### RTECS Mutagenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

### RTECS Reproductive Effects

The components of this material have been reviewed, and RTECS publishes the following endpoints:

#### Dimethyl ether (115-10-6)

200 mg/kg Intraperitoneal Hamster TDLo (pregnant 8 day(s)); 20000 ppm Inhalation Rat TCLo (pregnant 6-15 day(s))

### Tumorigenic Data

No data available.

### RTECS Tumorigenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

### Specific Target Organ Toxicity - Single Exposure

respiratory system, skin, eye, central nervous system

## Safety Data Sheet

Material Name: DIMETHYL ETHER

SDS ID: 00244291

### Specific Target Organ Toxicity - Repeated Exposure

No data available.

### Aspiration Hazard

Not applicable.

### Medical Conditions Aggravated by Exposure

None known.

## \*\*\*Section 12 - ECOLOGICAL INFORMATION\*\*\*

### Component Analysis - Aquatic Toxicity

No LOLI ecotoxicity data are available for this product's components.

### Persistence and Degradability

No data available.

### Bioaccumulative Potential

No data available.

### Mobility in Environmental Media

No data available.

## \*\*\*Section 13 - DISPOSAL CONSIDERATIONS\*\*\*

### Disposal Methods

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262.

Hazardous Waste Number(s): D001.

### Component Waste Numbers

The U.S. EPA has not published waste numbers for this product's components.

## \*\*\*Section 14 - TRANSPORT INFORMATION\*\*\*

### US DOT Information

Shipping Name: Dimethyl ether

UN/NA #: UN1033 Hazard Class: 2.1

Required Label(s): 2.1

### IMDG Information

Shipping Name: Dimethyl ether

UN #: UN1033 Hazard Class: 2.1

## \*\*\*Section 15 - REGULATORY INFORMATION\*\*\*

### Component Analysis

### U.S. Federal Regulations

None of this products components are listed under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), or require an OSHA process safety plan.

### SARA 311/312 Hazardous Categories

Acute Health: Yes Chronic Health: No Fire: Yes Pressure: Yes Reactive: No

### U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
Dimethyl ether	115-10-6	No	Yes	Yes	Yes	Yes

Not regulated under California Proposition 65

## Safety Data Sheet

Material Name: DIMETHYL ETHER

SDS ID: 00244291

### Component Analysis - Inventory

Component	CAS	US	CA	EU	AU	PH	JP	KR	CN	NZ
Dimethyl ether	115-10-6	Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	Yes

### \*\*\*Section 16 - OTHER INFORMATION\*\*\*

**NFPA Ratings: Health: 2 Fire: 4 Reactivity: 1**

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

#### Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; RID - European Rail Transport; RTECS - Registry of Toxic Effects of Chemical Substances®; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States

#### Other Information

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End of Sheet 00244291