Material Name: DIMETHYL ETHER

Manufacturer Information
ADVANCED GAS TECHNOLOGIES Phone: 1-800-416-2505
1401 Stauffer Road Emergency # 1-800-424-9300 (CHEMTREC
Palm, PA 18070-0035 Mfg Contact: Outside the US: 703-572-3887 (Collect Calls
Accepted)

Chemical Family
ethers, aliphatic

Synonyms
Methyl ether; Wood ether; Methyl oxide; Oxybismethane; Methyoxymethane; UN 1033; RTECS: PM4780000

EMERGENCY OVERVIEW
Color: colorless
Physical Form: liquefied gas
Odor: sweet odor

Health Hazards: respiratory tract irritation, central nervous system depression

Physical Hazards: Flammable gas. May cause flash fire. Flash back hazard. Electrostatic charges may be
generated by flow, agitation, etc. May form peroxides during prolonged storage.

POTENTIAL HEALTH EFFECTS
Inhalation
Short Term: irritation, cough, difficulty breathing, headache, drowsiness, dizziness, loss of coordination, blurred
vision, unconsciousness
Long Term: no information on significant adverse effects

Skin
Short Term: irritation, frostbite
Long Term: no information is available

Eye
Short Term: irritation, frostbite
Long Term: no information is available

Ingestion
Short Term: ingestion of a gas is unlikely
Long Term: ingestion of a gas is unlikely

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**
Contact with liquid: Immediately 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.

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**Section 5 - FIRE FIGHTING MEASURES**

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

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

**Flammable Properties**
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.

**Extinguishing Media**
- carbon dioxide regular dry chemical
- Large fires: Flood with fine water spray.

**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.

**Thermal Decomposition Products**
- Combustion: oxides of carbon, peroxides, formaldehyde
**Section 6 - ACCIDENTAL RELEASE MEASURES**

Occupational spill/release

**Section 7 - HANDLING AND STORAGE**

Storage Procedures

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

Component Analysis
Dimethyl ether (115-10-6)
1000 ppm TWA

Ventilation
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
For the gas: Eye protection not required, but recommended. For the liquid: 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: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.

Glove Recommendations
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**
**Physical State:** Gas

**Color:** colorless

**Odor:** sweet odor

**Melting Point:** -142 °C

**Flash Point:** -41 °C (CC)

**UEL:** 18 %

**Henry’s Law Constant:** 0.00317683 atm-m3/mol

**Specific Gravity (water = 1):** 0.724 @ 25 °C

**KOW:** 891.25 (estimated from water solubility)

**Auto Ignition:** 350 °C

**Molecular Formula:** C2-H6-O

**Vapor Pressure:** 77 psia @ 20 °C

**Vapor Density (air = 1):** 1.6

**Water Solubility:** 7.6 %

**KOC:** 1425.61 (estimated from water solubility)

**Molecular Weight:** 46.08

**Solvent Solubility**

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

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**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.

**Materials to Avoid**

oxidizing materials, combustible materials, strong acids, halogens.

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

**Possibility of Hazardous Reactions**

Will not polymerize.

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**Section 11 - TOXICOLOGICAL INFORMATION**

**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/4H

**Acute Toxicity Level**

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

Slightly Toxic: inhalation.

**Component Carcinogenicity**

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

**Local Effects**

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

**Irritant:** inhalation, skin, eye.

**Target Organs**

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

central nervous system.
**Section 12 - ECOLOGICAL INFORMATION**

Component Analysis - Aquatic Toxicity
No LOLI ecotoxicity data are available for this product's components.

**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

TDG Information
Shipping Name: Dimethyl ether
UN #: UN1033  Hazard Class: 2.1
Required Label(s): 2.1

**Section 15 - REGULATORY INFORMATION**

U.S. Federal Regulations
None of this products components are listed under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 311/312 (40 CFR 370.21), 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
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:

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<tr>
<th>Component</th>
<th>CAS</th>
<th>CA</th>
<th>MA</th>
<th>MN</th>
<th>NJ</th>
<th>PA</th>
<th>RI</th>
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<td>115-10-6</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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Not regulated under California Proposition 65

Component Analysis - Inventory

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<th>CAS</th>
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<th>CA</th>
<th>EU</th>
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<th>PH</th>
<th>JP</th>
<th>KR</th>
<th>CN</th>
<th>NZ</th>
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</thead>
<tbody>
<tr>
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<td>115-10-6</td>
<td>Yes</td>
<td>DSL</td>
<td>EIN</td>
<td>Yes</td>
<td>Yes</td>
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<td>Yes</td>
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</table>
* * * Section 16 - OTHER INFORMATION * * *

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 - Farenheit; 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

End of Sheet 00233329