DIMETHYL ETHER

DIM

CAUTIONARY RESPONSE INFORMATION

Common Synonyms
Methyl ether
Wood ether

Liquefied gas Colorless Pleasant odor

Floats and boils on water. Flammable, irritating vapor is produced.

Keep people away.
Shut off ignition sources. Call fire department.
Evacuate.
Stay upwind. Use water spray to ``knock down'' vapor.
Notify local health and pollution control agencies.

Fire

FLAMMABLE.
Containers may explode in fire.
Flashback along vapor trail may occur.
Vapor may explode if ignited in an enclosed area.
Let fire burn.
Stop flow of gas if possible.
Cool exposed containers and protect men effecting shutoff with water.

Exposure

Call for medical aid.

VAPOR
Irritating to eyes, nose and throat.
If inhaled will cause headache, dizziness, or loss of consciousness.
Move victim to fresh air.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.

LIQUID
Irritating to skin and eyes.
Will cause frostbite.
Remove contaminated clothing and shoes.
Flush affected areas with plenty of water.
DO NOT RUB AFFECTED AREAS.
IF IN EYES, hold eyelids open and flush with plenty of water.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.

Water Pollution

Effect of low concentrations on aquatic life is unknown.
May be dangerous if it enters water intakes.
Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. CORRECTIVE RESPONSE ACTIONS

Stop discharge
Chemical and Physical Treatment: Burn

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: Not listed.
2.2 Formula: CH_3OCH_3
2.3 IMO/UN Designation: 2/1033
2.4 DOT ID No.: 1033
2.5 CAS Registry No.: 115-10-6
2.6 NAERG Guide No.: 115
2.7 Standard Industrial Trade Classification: 51616

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Mask for organic vapors; plastic or rubber gloves; safety glasses.
3.2 Symptoms Following Exposure: Inhalation produces some anesthesia (but less than that of ethyl ether), blurring of vision, headache, intoxication, loss of consciousness. Liquid or concentrated vapor irritates eyes. Contact of liquid with skin may cause frostbite.
3.3 Treatment of Exposure: INHALATION: remove from exposure and support respiration; call physician. EYES: wash with water for at least 15 min.; consult an eye specialist. SKIN: treat frostbite by use of warm water or by wrapping the affected part in blanket.
3.4 TLV-TWA: Not listed.
3.5 TLV-STEL: Not listed.
3.6 TLV-Ceiling: Not listed.
3.7 Toxicity by Ingestion: Not pertinent
3.8 Toxicity by Inhalation: Currently not available.
3.9 Chronic Toxicity: Currently not available
3.10 Vapor (Gas) Irritant Characteristics: Currently not available
3.11 Liquid or Solid Characteristics: Currently not available
3.12 Odor Threshold: Currently not available
3.13 IDLH Value: Not listed.
3.14 OSHA PEL-TWA: Not listed.
3.15 OSHA PEL-STEL: Not listed.
3.16 OSHA PEL-Ceiling: Not listed.
3.17 EPA AEGL: Not listed

4. FIRE HAZARDS

4.1 Flash Point: Not pertinent (flammable gas)
4.2 Flammable Limits in Air: 2%-50%
4.3 Fire Extinguishing Agents: Let fire burn; shut off gas flow; cool exposed surroundings with water.
4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent
4.5 Special Hazards of Combustion Products: Not pertinent
4.6 Behavior in Fire: Containers may explode. Vapors are heavier than air and may travel long distance to a source of ignition and flash back.
4.7 Auto Ignition Temperature: 662°F
4.8 Electrical Hazards: Currently not available
4.9 Burning Rate: 6.6 mm/min.
4.10 Adiabatic Flame Temperature: Currently not available
4.11 Stoichometric Air to Fuel Ratio: 14.3 (calc.)
4.12 Flame Temperature: Currently not available
4.13 Combustion Molar Ratio (Reactant to Product): 5.0 (calc.)
4.14 Minimum Oxygen Concentration for Combustion (MOCC): N_2 diluent: 10.5%; O_2 diluent: 13.0%

5. CHEMICAL REACTIVITY

5.1 Reactivity with Water: No reaction
5.2 Reactivity with Common Materials: No reaction
5.3 Stability During Transport: Stable
5.4 Neutralizing Agents for Acids and Caustics: Not pertinent
5.5 Polymerization: Not pertinent
5.6 Inhibitor of Polymerization: Not pertinent

6. WATER POLLUTION

6.1 Aquatic Toxicity: Currently not available
6.2 Waterfowl Toxicity: Currently not available
6.3 Biological Oxygen Demand (BOD): Currently not available
6.4 Food Chain Concentration Potential: None
6.5 GESAMP Hazard Profile:
Bioaccumulation: 0
Damage to living resources: 0
Human Oral hazard: 1
Human Contact hazard: 0
Reduction of amenities: 0

7. SHIPPING INFORMATION

7.1 Grades of Purity: 99+%
7.2 Storage Temperature: Ambient
7.3 Inert Atmosphere: No requirement
7.4 Venting: Safety relief
7.5 IMO Pollution Category: Currently not available
7.6 Ship Type: Currently not available
7.7 Barge Hull Type: Currently not available

8. HAZARD CLASSIFICATIONS

8.1 49 CFR Category: Flammable gas
8.2 49 CFR Class: 2.1
8.3 49 CFR Package Group: Not pertinent.
8.4 Marine Pollutant: No
8.5 NFPA Hazard Classification:

Category	Classification
Health Hazard (Blue).....	2
Flammability (Red).....	4
Instability (Yellow).....	1

8.6 EPA Reportable Quantity: Not listed.
8.7 EPA Pollution Category: Not listed.
8.8 RCRA Waste Number: Not listed
8.9 EPA FWPCA List: Not listed

9. PHYSICAL & CHEMICAL PROPERTIES

9.1 Physical State at 15° C and 1 atm: Gas
9.2 Molecular Weight: 46.1
9.3 Boiling Point at 1 atm: –12.5°F = –24.7°C = 248.5°K
9.4 Freezing Point: –222.7°F = –141.5°C = 131.7°K
9.5 Critical Temperature: 260.4°F = 126.9°C = 400.1°K
9.6 Critical Pressure: 780 psia = 53 atm = 5.4 MN/m^2
9.7 Specific Gravity: 0.724 at –24.7°C (liquid)
9.8 Liquid Surface Tension: 21 dynes/cm = 0.021 N/m at –40°C
9.9 Liquid Water Interfacial Tension: (est.) 15 dynes/cm = 0.015 N/m at –40°C
9.10 Vapor (Gas) Specific Gravity: 1.6
9.11 Ratio of Specific Heats of Vapor (Gas): 1.1456
9.12 Latent Heat of Vaporization: 200 Btu/lb = 111 cal/g = 4.65 X 10^5 J/kg
9.13 Heat of Combustion: –13,450 Btu/lb = –7,480 cal/g = –313 X 10^5 J/kg
9.14 Heat of Decomposition: Not pertinent
9.15 Heat of Solution: Not pertinent
9.16 Heat of Polymerization: Not pertinent
9.17 Heat of Fusion: 25.62 cal/g
9.18 Limiting Value: Currently not available
9.19 Reid Vapor Pressure: Currently not available

NOTES

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9.20 SATURATED LIQUID DENSITY		9.21 LIQUID HEAT CAPACITY		9.22 LIQUID THERMAL CONDUCTIVITY		9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit inch per hour-square foot-F	Temperature (degrees F)	Centipoise
	CURRENTLY NOT AVAILABLE	-20 -18 -16 -14	0.536 0.537 0.538 0.539	-35 -30 -25 -20 -15	0.984 0.976 0.968 0.960 0.952	-35 -30 -25 -20 -15	0.267 0.259 0.252 0.245 0.239

9.24 SOLUBILITY IN WATER		9.25 SATURATED VAPOR PRESSURE		9.26 SATURATED VAPOR DENSITY		9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
68	7.000	-110 -105 -100 -95 -90 -85 -80 -75 -70 -65 -60 -55 -50 -45 -40 -35 -30 -25 -20 -15 -10 -5	0.607 0.745 0.910 1.105 1.335 1.604 1.918 2.284 2.707 3.194 3.754 4.394 5.123 5.951 6.889 7.947 9.137 10.470 11.960 13.630 15.480 17.530	-110 -105 -100 -95 -90 -85 -80 -75 -70 -65 -60 -55 -50 -45 -40 -35 -30 -25 -20 -15 -10 -5	0.00745 0.00902 0.01086 0.01301 0.01550 0.01839 0.02170 0.02550 0.02983 0.03476 0.04033 0.04663 0.05370 0.06164 0.07050 0.08036 0.09132 0.10350 0.11690 0.13160 0.14780 0.16560	0 25 50 75 100 125 150 175 200 225 250 275 300 325 350 375 400 425 450 475 500 525 550 575 600	0.313 0.322 0.332 0.342 0.352 0.361 0.371 0.381 0.390 0.400 0.410 0.420 0.429 0.439 0.449 0.459 0.468 0.478 0.488 0.498 0.507 0.517 0.527 0.536 0.546