

**Material Safety Data Sheet**
The Dow Chemical Company**Product Name:** METHYL CARBITOL(TM) SOLVENT FUEL
ADDITIVE GRADE**Issue Date:** 07/29/2011**Print Date:** 02 Aug 2011

The Dow Chemical Company encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. Product and Company Identification**Product Name**

METHYL CARBITOL(TM) SOLVENT FUEL ADDITIVE GRADE

COMPANY IDENTIFICATION

The Dow Chemical Company
2030 Willard H. Dow Center
Midland, MI 48674
USA

Customer Information Number:

800-258-2436

SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER**24-Hour Emergency Contact:**

989-636-4400

Local Emergency Contact:

989-636-4400

2. Hazards Identification**Emergency Overview****Color:** Colorless**Physical State:** Liquid.**Odor:** Mild**Hazards of product:****CAUTION!** Combustible liquid and vapor. Isolate area.**OSHA Hazard Communication Standard**

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Potential Health Effects

Eye Contact: May cause pain disproportionate to the level of irritation to eye tissues. May cause slight temporary eye irritation.

Skin Contact: Prolonged contact is essentially nonirritating to skin.

Skin Absorption: Prolonged skin contact is unlikely to result in absorption of harmful amounts.

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Inhalation: No adverse effects are anticipated from single exposure to vapor. For respiratory irritation and narcotic effects: No relevant data found.

Ingestion: Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

Aspiration hazard: Based on physical properties, not likely to be an aspiration hazard.

Effects of Repeated Exposure: In animals, diethylene glycol methyl ether has been reported to produce effects in the liver and kidney and, only after very high oral doses, in the testes and thymus.

Birth Defects/Developmental Effects: In animals, diethylene glycol methyl ether is slightly toxic to the fetus at doses nontoxic to the mother following skin contact; birth defects have been seen only following high oral doses which have little relevance to human exposure.

3. Composition Information

Component	CAS #	Amount
Diethylene glycol monomethyl ether	111-77-3	> 99.0 %

4. First-aid measures

Description of first aid measures

General advice: If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air; if effects occur, consult a physician.

Skin Contact: Wash skin with plenty of water.

Eye Contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

Ingestion: No emergency medical treatment necessary.

Most important symptoms and effects, both acute and delayed

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), no additional symptoms and effects are anticipated.

Indication of immediate medical attention and special treatment needed

No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. Fire Fighting Measures

Suitable extinguishing media

Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Special hazards arising from the substance or mixture

Hazardous Combustion Products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

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Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.

Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Isolate area. Refer to Section 7, Handling, for additional precautionary measures. Keep unnecessary and unprotected personnel from entering the area. No smoking in area. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Small spills: Absorb with materials such as: Sand. Vermiculite. Collect in suitable and properly labeled containers. Large spills: Contain spilled material if possible. Pump into suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

7. Handling and Storage**Handling**

General Handling: Keep away from heat, sparks and flame. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Storage

Store in the following material(s): Carbon steel. Stainless steel. Phenolic lined steel drums. Do not store in: Aluminum. Copper. Galvanized iron. Galvanized steel. See Section 10 for more specific information.

8. Exposure Controls / Personal Protection**Exposure Limits**

Component	List	Type	Value
Diethylene glycol monomethyl ether	Dow IHG	TWA	30 ppm

Product Name: METHYL CARBITOL(TM) SOLVENT FUEL
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Physical State	Liquid.
Color	Colorless
Odor	Mild
Odor Threshold	No test data available
pH	No test data available
Melting Point	Not applicable to liquids
Freezing Point	-84 °C (-119 °F) <i>Literature</i>
Boiling Point (760 mmHg)	194 °C (381 °F) <i>Literature</i>
Flash Point - Closed Cup	91 °C (196 °F) <i>ASTM D3278</i>
Flash Point - Open Cup	83 °C (181 °F) <i>Literature</i>
Evaporation Rate (Butyl Acetate = 1)	0.02 <i>Literature</i>
Flammability (solid, gas)	Not applicable to liquids
Flammable Limits In Air	Lower: 1.38 %(V) <i>Literature</i> Vapor Upper: 22.7 %(V) <i>Literature</i> Vapor
Vapor Pressure	0.19 mmHg @ 25 °C <i>Literature</i>
Vapor Density (air = 1)	4.2 <i>Literature</i>
Specific Gravity (H₂O = 1)	1.020 20 °C/20 °C <i>Literature</i>
Solubility in water (by weight)	100 % @ 20 °C <i>Literature</i>
Partition coefficient, n-octanol/water (log Pow)	-0.47 <i>Measured</i>
Autoignition Temperature	215 °C (419 °F) <i>Literature</i>
Decomposition Temperature	No test data available
Dynamic Viscosity	3.9 mPa.s @ 20 °C <i>Literature</i>
Kinematic Viscosity	No test data available
Explosive properties	No
Oxidizing properties	No
Liquid Density	1.022 g/cm ³ @ 20 °C <i>Literature</i>
Henry's Law Constant (H)	4.43E-08 atm*m ³ /mole; 25 °C Estimated.

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10. Stability and Reactivity

Reactivity

No dangerous reaction known under conditions of normal use.

Chemical stability

Thermally stable at typical use temperatures.

Possibility of hazardous reactions

Polymerization will not occur.

Conditions to Avoid: Do not distill to dryness. Product can oxidize at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.

Incompatible Materials: Avoid contact with: Strong acids. Strong bases. Strong oxidizers.

Hazardous decomposition products

Decomposition products can include and are not limited to: Aldehydes. Ketones. Organic acids.

11. Toxicological Information

Acute Toxicity

Ingestion

LD50, Mouse 7,128 mg/kg

Dermal

LD50, Rabbit 9,404 mg/kg

Inhalation

The LC50 value is greater than the Maximum Attainable Concentration.

No deaths occurred at this concentration. LC0, 6 h, Vapor, Rat > 1.2 mg/l

Eye damage/eye irritation

May cause pain disproportionate to the level of irritation to eye tissues. May cause slight temporary eye irritation.

Skin corrosion/irritation

Prolonged contact is essentially nonirritating to skin.

Sensitization

Skin

Did not cause allergic skin reactions when tested in guinea pigs.

Respiratory

No relevant data found.

Repeated Dose Toxicity

In animals, diethylene glycol methyl ether has been reported to produce effects in the liver and kidney and, only after very high oral doses, in the testes and thymus.

Chronic Toxicity and Carcinogenicity

No relevant data found.

Developmental Toxicity

In animals, diethylene glycol methyl ether is slightly toxic to the fetus at doses nontoxic to the mother following skin contact; birth defects have been seen only following high oral doses which have little relevance to human exposure.

Reproductive Toxicity

In animal studies, a similar material has been shown not to interfere with reproduction.

Genetic Toxicology

In vitro genetic toxicity studies were negative.

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Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity

LC50, fathead minnow (Pimephales promelas), static, 96 h: 5,741 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, water flea Daphnia magna, static, 48 h, mortality: 1,192 mg/l

Aquatic Plant Toxicity

EC50, green alga Pseudokirchneriella subcapitata (formerly known as Selenastrum capricornutum), static, biomass growth inhibition, 96 h: > 1,000 mg/l

Toxicity to Micro-organisms

EC50; activated sludge, 0.5 h: > 1,995 mg/l

Persistence and Degradability

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
100 %	28 d	OECD 301B Test	pass

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
2.60E-11 cm ³ /s	4.9 h	Estimated.

Theoretical Oxygen Demand: 1.73 mg/mg

Bioaccumulative potential

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient, n-octanol/water (log Pow): -0.47 Measured

Mobility in soil

Mobility in soil: Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient, soil organic carbon/water (Koc): < 1 Estimated.

Henry's Law Constant (H): 4.43E-08 atm*m³/mole; 25 °C Estimated.

13. Disposal Considerations

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.

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NOT REGULATED**DOT Bulk****Proper Shipping Name:** COMBUSTIBLE LIQUID, N.O.S.**Technical Name:** DIETHYLENE GLYCOL MONOMETHYL ETHER**Hazard Class:** COMBUSTIBLE LIQUID **ID Number:** NA1993 **Packing Group:** PG III**IMDG**

NOT REGULATED

ICAO/IATA

NOT REGULATED

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. Regulatory Information**OSHA Hazard Communication Standard**

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Immediate (Acute) Health Hazard	No
Delayed (Chronic) Health Hazard	Yes
Fire Hazard	No
Reactive Hazard	No
Sudden Release of Pressure Hazard	No

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

This product contains the following substances which are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and which are listed in 40 CFR 372.

Component	CAS #	Amount
Diethylene glycol monomethyl ether	111-77-3	> 99.0 %

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List:

The following product components are cited in the Pennsylvania Hazardous Substance List and/or the Pennsylvania Environmental Substance List, and are present at levels which require reporting.

Component	CAS #	Amount
Diethylene glycol monomethyl ether	111-77-3	> 99.0 %

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Special Hazardous Substances List:

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

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WARNING: This product contains a chemical(s) known to the State of California to cause birth defects or other reproductive harm.

Component	CAS #	Amount
Ethylene glycol monomethyl ether	109-86-4	500.0 PPM
Ethylene glycol monoethyl ether	110-80-5	250.0 PPM

US. Toxic Substances Control Act

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

CEPA - Domestic Substances List (DSL)

All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

16. Other Information**Product Literature**

Additional information on this product may be obtained by calling your sales or customer service contact. Ask for a product brochure.

Recommended Uses and Restrictions

Fuel additive. Industrial solvent. We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact your sales or technical service representative.

Revision

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Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

N/A	Not available
W/W	Weight/Weight
OEL	Occupational Exposure Limit
STEL	Short Term Exposure Limit
TWA	Time Weighted Average
ACGIH	American Conference of Governmental Industrial Hygienists, Inc.
DOW IHG	Dow Industrial Hygiene Guideline
WEEL	Workplace Environmental Exposure Level
HAZ_DES	Hazard Designation
Action Level	A value set by OSHA that is lower than the PEL which will trigger the need for activities such as exposure monitoring and medical surveillance if exceeded.

The Dow Chemical Company urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

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MATERIAL SAFETY DATA SHEET
CUST:AVIATION LABORATORIES

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