

**Diacel® MS-1 Mutual Solvent**

Version 1.1

Revision Date 2013-09-23

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****Product information**

Trade name : Diacel® MS-1 Mutual Solvent  
Material : 1097190

Use : Oil Well Cement Spacer Fluid Additive

**Company** : Chevron Phillips Chemical Company LP  
10001 Six Pines Drive  
The Woodlands, TX 77380

**Emergency telephone:****Health:**

866.442.9628 (North America)

1.832.813.4984 (International)

**Transport:**

North America: CHEMTREC 800.424.9300 or 703.527.3887

Asia: +800 CHEMCALL (+800 2436 2255)

EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

Responsible Department : Product Safety and Toxicology Group  
E-mail address : MSDS@CPChem.com  
Website : www.CPChem.com

**SECTION 2: Hazards identification****Emergency Overview**

**Physical state:** Liquid    **Color:** Colorless    **Odor:** Mild

OSHA Hazards : Combustible Liquid

**GHS Classification**

: Flammable Liquids, Category 4  
Acute toxicity, Category 4, Oral  
Acute toxicity, Category 4, Inhalation  
Acute toxicity, Category 4, Dermal  
Skin irritation, Category 2  
Eye irritation, Category 2A

**GHS-Labeling**

Symbol(s) :



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Signal Word : Warning

Hazard Statements : H227: Combustible liquid  
H302 + H312 + H332: Harmful if swallowed, in contact with skin or if inhaled.  
H315: Causes skin irritation.  
H319: Causes serious eye irritation.

Precautionary Statements : **Prevention:**  
P261: Avoid breathing dust/fume/gas/mist/vapors/spray.  
P264: Wash skin thoroughly after handling.  
P270: Do not eat, drink or smoke when using this product.  
P271: Use only outdoors or in a well-ventilated area.  
P280: Wear eye protection/ face protection.  
P280: Wear protective gloves/ protective clothing.

**Response:**  
P301 + P312: IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.  
P302 + P352: IF ON SKIN: Wash with plenty of water.  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P312: Call a POISON CENTER or doctor/ physician if you feel unwell.  
P321: Specific treatment (see supplemental first aid instructions on this label).  
P330: Rinse mouth.  
P332 + P313: If skin irritation occurs: Get medical advice/ attention.  
P337 + P313: If eye irritation persists: Get medical advice/ attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.

**Disposal:**  
P501: Dispose of contents/ container to an approved waste disposal plant.

**Carcinogenicity:**

**IARC** No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**NTP** No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**ACGIH** Confirmed animal carcinogen with unknown relevance to humans  
Ethylene Glycol Monobutyl 111-76-2  
Ether (EGBE)

**SECTION 3: Composition/information on ingredients**

Synonyms : Not Established

Molecular formula : C6H14O2

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Component	CAS-No.	Weight %
Ethylene Glycol Monobutyl Ether (EGBE)	111-76-2	100

**SECTION 4: First aid measures**

- General advice : Move out of dangerous area. Consult a physician. Show this material safety data sheet to the doctor in attendance.
- If inhaled : Consult a physician after significant exposure. If unconscious place in recovery position and seek medical advice.
- In case of skin contact : If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.
- In case of eye contact : Immediately flush eye(s) with plenty of water. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
- If swallowed : Clean mouth with water and drink afterwards plenty of water. Induce vomiting immediately and call a physician. Keep respiratory tract clear. If symptoms persist, call a physician.

**SECTION 5: Firefighting measures**

- Flash point : 65 °C (149 °F)
- Autoignition temperature : 224 °C (435 °F)
- Unsuitable extinguishing media : High volume water jet.
- Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Special protective equipment for fire-fighters : Wear self contained breathing apparatus for fire fighting if necessary.
- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
- Fire and explosion protection : Normal measures for preventive fire protection.
- Hazardous decomposition products : Carbon oxides.

**SECTION 6: Accidental release measures**

- Personal precautions : Use personal protective equipment.

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Environmental precautions : Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

Methods for cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

**SECTION 7: Handling and storage****Handling**

Advice on safe handling : Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Provide sufficient air exchange and/or exhaust in work rooms. Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

**Storage**

Requirements for storage areas and containers : Keep container tightly closed in a dry and well-ventilated place. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

**SECTION 8: Exposure controls/personal protection****Ingredients with workplace control parameters****US**

Ingredients	Basis	Value	Control parameters	Note
Ethylene Glycol Monobutyl Ether (EGBE)	ACGIH	TWA	20 ppm,	A3,
	OSHA Z-1	TWA	50 ppm, 240 mg/m3	X, (b),
	OSHA Z-1-A	TWA	25 ppm, 120 mg/m3	X,

(b) The value in mg/m3 is approximate.

A3 Confirmed animal carcinogen with unknown relevance to humans

X Skin notation

**Immediately Dangerous to Life or Health Concentrations (IDLH)**

Substance name	CAS-No.	Control parameters	Update
Ethylene Glycol Monobutyl Ether (EGBE)	111-76-2	Immediately Dangerous to Life or Health Concentration Value 700 parts per million	1995-03-01

**Engineering measures**

Adequate ventilation to control airborne concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

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**Personal protective equipment**

- Respiratory protection : Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as: Air-Purifying Respirator for Organic Vapors. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.
- Hand protection : The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
- Eye protection : Eye wash bottle with pure water. Wear face-shield and protective suit for abnormal processing problems.
- Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place. Wear as appropriate: Flame-resistant clothing. Footwear protecting against chemicals.
- Hygiene measures : Avoid contact with skin, eyes and clothing. When using do not eat or drink. When using do not smoke. Wash hands before breaks and immediately after handling the product.

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

- Physical state : Liquid  
 Color : Colorless  
 Odor : Mild

**Safety data**

- Flash point : 65 °C (149 °F)  
 Lower explosion limit : 1.13 %(V)  
 Upper explosion limit : 10.6 %(V)
- Oxidizing properties : no
- Autoignition temperature : 224 °C (435 °F)
- Molecular formula : C6H14O2

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Molecular Weight	: 118.2 g/mol
pH	: No data available
Pour point	: No data available
Boiling point/boiling range	: 171 °C (340 °F)
Vapor pressure	: 0.66 MMHG at 20 °C (68 °F)
Relative density	: 0.901, 25 °C(77 °F)
Density	: 0.902 g/cm <sup>3</sup>
Water solubility	: Soluble
Partition coefficient: n- octanol/water	: No data available
Viscosity, dynamic	: 2.9 cP at 25 °C (77 °F)
Relative vapor density	: No data available
Evaporation rate	: No data available
Percent volatile	: > 99 %

**SECTION 10: Stability and reactivity**

Chemical stability : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

**Possibility of hazardous reactions**

Conditions to avoid : Heat, sparks, fire, and oxidizing agents.

Materials to avoid : Avoid contact with strong oxidizing agents.

Other data : No decomposition if stored and applied as directed.

**SECTION 11: Toxicological information****Acute oral toxicity**

Ethylene Glycol Monobutyl  
Ether (EGBE) : LD50: 1,746 mg/kg  
Species: rat  
Sex: male  
Method: OECD Test Guideline 401

**Acute inhalation toxicity**

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Ethylene Glycol Monobutyl Ether (EGBE) : LC50: > 3.1 mg/l

**Acute dermal toxicity**

Ethylene Glycol Monobutyl Ether (EGBE) : LD50: > 2,000 mg/kg  
Species: guinea pig

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**Skin irritation** : Irritating to skin.

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**Eye irritation** : Irritating to eyes.

**Sensitization**

Ethylene Glycol Monobutyl Ether (EGBE) : Did not cause sensitization on laboratory animals.

**Repeated dose toxicity**

Ethylene Glycol Monobutyl Ether (EGBE) : Species: rat  
Application Route: Inhalation  
Dose: 0.024, 0.121, 0.372 mg/l  
Exposure time: 90 day  
Number of exposures: 6 h/d, 5 d/wk  
NOEL: 0.121 mg/l

**Carcinogenicity**

Ethylene Glycol Monobutyl Ether (EGBE) : Species: rat  
Dose: 31.2, 62.5, 125 ppm  
Exposure time: 2 yrs  
Number of exposures: 6 h/d, 5 d/wk  
Remarks: increased incidence of benign and malignant tumors of the adrenal medulla

Species: mouse  
Sex: male  
Dose: 62.5, 125, 250 ppm  
Exposure time: 2 yrs  
Remarks: increased incidence of hemangiosarcoma of the liver

Species: mouse  
Sex: female  
Dose: 62.5, 125, 250 ppm  
Exposure time: 2 yrs  
Remarks: increased incidence of fore stomach squamous cell papilloma or carcinoma

**Developmental Toxicity**

Ethylene Glycol Monobutyl Ether (EGBE) : Species: rat  
Application Route: Inhalation  
Dose: 0.12, 0.24, 0.48, 0.97 mg/l  
Number of exposures: 6 h/d  
Test period: GD 6-15  
NOEL Teratogenicity: 0.24 mg/l

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NOAEL Maternal: 0.97 mg/l

**Diacel® MS-1 Mutual Solvent****Aspiration toxicity** : May be harmful if swallowed and enters airways.**Diacel® MS-1 Mutual Solvent****Further information** : Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Concentrations substantially above the TLV value may cause narcotic effects. Solvents may degrease the skin.**SECTION 12: Ecological information****Toxicity to fish**Ethylene Glycol Monobutyl Ether (EGBE) : LC50: 1,474 mg/l  
Exposure time: 96 h  
Species: Oncorhynchus mykiss (rainbow trout)  
static test**Toxicity to daphnia and other aquatic invertebrates**Ethylene Glycol Monobutyl Ether (EGBE) : EC50: 1,550 mg/l  
Exposure time: 48 h  
Species: Daphnia magna (Water flea)  
static test**Toxicity to algae**Ethylene Glycol Monobutyl Ether (EGBE) : EbC50: 911 mg/l  
Exposure time: 72 h  
Species: Pseudokirchneriella subcapitata (green algae)  
static test**Toxicity to bacteria**

Ethylene Glycol Monobutyl Ether (EGBE) : IC50: &gt; 1,000 mg/l

**Toxicity to fish (Chronic toxicity)**Ethylene Glycol Monobutyl Ether (EGBE) : NOEC: > 100 mg/l  
Exposure time: 21 d  
Species: Danio rerio (Zebra Fish)  
semi-static test**Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)**Ethylene Glycol Monobutyl Ether (EGBE) : NOEC: 100 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
semi-static test

Biodegradability

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Ethylene Glycol Monobutyl Ether (EGBE) : aerobic  
 Result: Readily biodegradable.  
 90.4 %  
 Testing period: 28 d  
 Method: OECD Test Guideline 301B

Additional ecological information : This material is not expected to be harmful to aquatic organisms.

**SECTION 13: Disposal considerations**

The information in this MSDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Product : Do not dispose of waste into sewer. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.

**SECTION 14: Transport information**

**The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).**

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the MSDS and the bill of lading.

**US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)**

NA1993, COMBUSTIBLE LIQUID, N.O.S., (DI-MONOBUTYL ETHER), III

**IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)**

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

**IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)**

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

**ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))**

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

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**RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))**

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

**ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)**

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

**SECTION 15: Regulatory information****National legislation**

**SARA 311/312 Hazards** : Fire Hazard

CERCLA Reportable Quantity : This material does not contain any components with a CERCLA RQ.

SARA 302 Reportable Quantity : This material does not contain any components with a SARA 302 RQ.

SARA 302 Threshold Planning Quantity : SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 304 Reportable Quantity : This material does not contain any components with a section 304 EHS RQ.

SARA 313 Ingredients : The following components are subject to reporting levels established by SARA Title III, Section 313:

: Ethylene Glycol Monobutyl Ether (EGBE) - 111-76-2

**Clean Air Act**

Ozone-Depletion Potential : This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (40 CFR 61).

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This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489):

: Ethylene Glycol Monobutyl Ether (EGBE) - 111-76-2

**US State Regulations**

Pennsylvania Right To Know

: Ethylene Glycol Monobutyl Ether (EGBE) - 111-76-2

New Jersey Right To Know

: Ethylene Glycol Monobutyl Ether (EGBE) - 111-76-2

California Prop. 65  
Ingredients

: This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

**Notification status**

Europe REACH

: Not in compliance with the inventory

United States of America TSCA

: On TSCA Inventory

Canada DSL

: All components of this product are on the Canadian DSL.

Australia AICS

: On the inventory, or in compliance with the inventory

New Zealand NZIoC

: On the inventory, or in compliance with the inventory

Japan ENCS

: On the inventory, or in compliance with the inventory

Korea KECI

: On the inventory, or in compliance with the inventory

Philippines PICCS

: On the inventory, or in compliance with the inventory

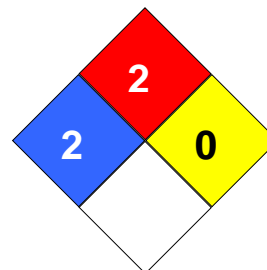
China IECSC

: On the inventory, or in compliance with the inventory

**SECTION 16: Other information**

**NFPA Classification**

: Health Hazard: 2  
Fire Hazard: 2  
Reactivity Hazard: 0



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**Further information**

Legacy MSDS Number : CPC00410

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this MSDS pertains only to the product as shipped.

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**Key or legend to abbreviations and acronyms used in the safety data sheet**

ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		