

**GREENBASE™ HEC**

Version 2.0

Revision Date 2015-01-29

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

Product Name : GREENBASE™ HEC
Material : 1083673, 1102086

Use : Oil Frac Additive

Company : Chevron Phillips Chemical Company LP
Drilling Specialties Company LLC
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) China: +86-21-22157316

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 : SDS@CPChem.com
Website : www.CPChem.com

SECTION 2: Hazards identification**Classification of the substance or mixture**

This product has been classified in accordance with the hazard communication standard 29 CFR 1910.1200; the SDS and labels contain all the information as required by the standard.

Emergency Overview**Warning**

Physical state: Liquid **Color:** tan **Odor:** Slight

OSHA Hazards : Moderate eye irritant

Classification

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: Eye irritation , Category 2A

Labeling

Symbol(s)

:



Signal Word

: Warning

Hazard Statements

: H319: Causes serious eye irritation.

Precautionary Statements

: **Prevention:**

P264 Wash skin thoroughly after handling.

P280 Wear eye protection/ face protection.

Response:

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

Potential Health Effects

Aggravated Medical Condition

: Eyes

Eyes

: Causes eye irritation.

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

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

SECTION 3: Composition/information on ingredients

Synonyms

: Hydroxyethyl Cellulose Suspension

Molecular formula

: Mixture

Component	CAS-No.	Weight %
Di(Ethylene Glycol) Butyl Ether	112-34-5	54 - 65

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SECTION 4: First aid measures

- General advice : Consult a physician.
- In case of eye contact : Remove contact lenses. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
- If swallowed : Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

SECTION 5: Firefighting measures

- Flash point : 100 °C (212 °F)
- Autoignition temperature : 204 °C (399 °F)
Autoignition temperature
- Suitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
- Specific hazards during fire fighting : Do not use a solid water stream as it may scatter and spread fire. Cool closed containers exposed to fire with water spray.
- Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.
- Hazardous decomposition products : Carbon oxides.

SECTION 6: Accidental release measures

- Personal precautions : Use personal protective equipment. Ensure adequate ventilation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Material can create slippery conditions.
- Environmental precautions : No special environmental precautions required.
- Methods for cleaning up : Keep in suitable, closed containers for disposal. Clean contaminated floors and objects thoroughly while observing environmental regulations.
- Additional advice : No conditions to be specially mentioned.

SECTION 7: Handling and storage**Handling**

- Advice on safe handling : Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area.

Storage

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

US

Ingredients	Basis	Value	Control parameters	Note
Di(Ethylene Glycol) Butyl Ether	ACGIH	TWA	10 ppm,	*, Inhalable fraction and vapor

* 2013 Adoption

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.

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 Dusts and Mists / P100. 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 : Tightly fitting safety goggles.
- Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate:. Protective suit. Safety shoes.
- Hygiene measures : Wash hands before breaks and immediately after handling the product. Remove contaminated clothing and protective equipment before entering eating areas.
- Protective measures : Wear suitable protective equipment. When using do not eat, drink or smoke.

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

Physical state : Liquid
Color : tan
Odor : Slight

Safety data

Flash point : 100 °C (212 °F)
Lower explosion limit : No data available
Upper explosion limit : No data available
Oxidizing properties : no

Autoignition temperature : 204 °C (399 °F)
Autoignition temperature
Molecular formula : Mixture
Molecular weight : Not applicable
pH : Not applicable
pour point : No data available

Boiling point/boiling range : 228 °C (442 °F)
Vapor pressure : 0.02 mbar
at 20 °C (68 °F)
Relative density : 1.1
Water solubility : Soluble
Partition coefficient: n-octanol/water : No data available
Viscosity, dynamic : 4.74 mPa.s
Viscosity, kinematic : No data available
Relative vapor density : 9.13
(Air = 1.0)
Evaporation rate : 0.01
(N-Butyl Acetate = 1)

SECTION 10: Stability and reactivity

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

Possibility of hazardous reactions

Materials to avoid : May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous decomposition products : Carbon oxides

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

SECTION 11: Toxicological information**GREENBASE™ HEC**

Acute oral toxicity : Acute toxicity estimate: 3,708 mg/kg
Method: Calculation method

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Acute dermal toxicity : Acute toxicity estimate: 4,252 mg/kg
Method: Calculation method

Acute toxicity estimate: 4,252 mg/kg
Method: Calculation method

Skin irritation

Di(Ethylene Glycol) Butyl Ether : slight irritation.

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Eye irritation : Eye irritation.

Sensitization

Di(Ethylene Glycol) Butyl Ether : Did not cause sensitization on laboratory animals.

Repeated dose toxicity

Di(Ethylene Glycol) Butyl Ether : Species: rat, Male and female
Sex: Male and female
Application Route: Oral
NOEL: 250 mg/kg
Lowest observable effect level: 1,000 mg/kg
Method: OCED Guideline 408
Target Organs: Blood, Liver, Kidney

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Species: rat, Male and female
 Sex: Male and female
 Application Route: inhalation (vapor)
 NOEL: 94 mg/m3
 Method: OECD Guideline 413
 Target Organs: Lungs

Species: rat, Male and female
 Sex: Male and female
 Application Route: Dermal
 NOEL: 2,000 mg/kg
 Target Organs: Skin

Reproductive toxicity

Di(Ethylene Glycol) Butyl Ether : Species: mouse
 Sex: male and female
 Application Route: Oral
 Dose: 0, 720, 1340, 2050mg/kg bw
 Number of exposures: continuous
 Test period: 14 weeks
 Method: OECD Test Guideline 416
 NOAEL Parent: 720 mg/kg
 NOAEL F1: 720 mg/kg
 NOAEL F2: 720 mg/kg
 Information given is based on data obtained from similar substances.

Developmental Toxicity

Di(Ethylene Glycol) Butyl Ether : Species: rat
 Application Route: Oral diet
 Dose: 25, 115, 633 mg/kg/d
 Number of exposures: GD 0 -20 d
 Method: OECD Guideline 414
 NOAEL Teratogenicity: 633 mg/kg
 NOAEL Maternal: 633 mg/kg
 No adverse effects expected

Species: rabbit
 Application Route: Dermal
 Dose: 25, 115, 633 mg/kg/d
 Exposure time: 4 h/d
 Number of exposures: GD 8 -19 d
 Method: OECD Guideline 414
 NOAEL Teratogenicity: 1,000 mg/kg
 NOAEL Maternal: 1,000 mg/kg
 No adverse effects expected

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Aspiration toxicity : No aspiration toxicity classification.

CMR effects

Di(Ethylene Glycol) Butyl Ether : Carcinogenicity: Not available
 Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects., In vivo tests did not show mutagenic effects

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Teratogenicity: Animal testing did not show any effects on fetal development.
Reproductive toxicity: Animal testing did not show any effects on fertility.

SECTION 12: Ecological information**Toxicity to fish**

Di(Ethylene Glycol) Butyl Ether : LC50: > 1,000 mg/l
Exposure time: 96 h
Species: Scophthalmus maximus (Flatfish, Flounder)
semi-static test Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates

Di(Ethylene Glycol) Butyl Ether : EC50: > 1,000 mg/l
Exposure time: 48 h
Species: Acartia tonsa (Marine Copepod)
static test Method: ISO TC147/SC5/WG2

Toxicity to algae

Di(Ethylene Glycol) Butyl Ether : EC50: > 1,000 mg/l
Exposure time: 72 h
Species: Skeletonema costatum
Growth inhibition Method: ISO 10253

Biodegradability

Di(Ethylene Glycol) Butyl Ether : aerobic
Result: Readily biodegradable.
76 %
This material is expected to be readily biodegradable.

Ecotoxicology Assessment

Results of PBT assessment
Di(Ethylene Glycol) Butyl Ether : This substance is not considered to be persistent, bioaccumulating nor toxic (PBT)., This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

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

SECTION 13: Disposal considerations

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

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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 : Dispose of wastes in an approved waste disposal facility.

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 SDS and the bill of lading.

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)

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

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.

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

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SECTION 15: Regulatory information**National legislation****SARA 311/312 Hazards** : Acute Health 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** : SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.**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 112 (40 CFR 61).

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):

: Di(Ethylene Glycol) Butyl Ether - 112-34-5

US State Regulations

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Pennsylvania Right To Know

: Di(Ethylene Glycol) Butyl Ether - 112-34-5

New Jersey Right To Know

: Di(Ethylene Glycol) Butyl Ether - 112-34-5

California Prop. 65
Ingredients

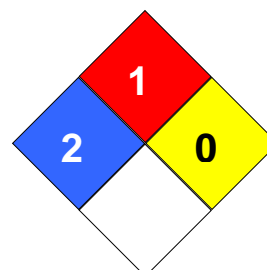
: This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

Notification status

Europe REACH	:	On the inventory, or in compliance with the inventory
United States of America TSCA	:	On the inventory, or in compliance with the inventory
Canada DSL	:	On the inventory, or in compliance with the inventory
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: 1
 : Reactivity Hazard: 0

**Further information**

Legacy SDS Number : 711520

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

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

The information provided in this 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	LOAEL	Lowest Observed Adverse Effect

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	Substances		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%		