HALLIBURTON

# SAFETY DATA SHEET

**Product Trade Name:** **BC-140 X2**

**Revision Date:** 30-Mar-2015 **Revision Number:** 6

## 1. Identification

### 1.1. Product Identifier

**Product Trade Name:** BC-140 X2
**Synonyms:** None
**Chemical Family:** Blend
**Internal ID Code** HM006095

### 1.2 Recommended use and restrictions on use

**Application:** Initiator
**Uses Advised Against** No information available

### 1.3 Manufacturer's Name and Contact Details

**Manufacturer/Supplier** Halliburton Energy Services
P.O. Box 1431
Duncan, Oklahoma 73536-0431
Emergency Telephone: (281) 575-5000

**Prepared By** Chemical Stewardship
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

### 1.4. Emergency telephone number

**Emergency Telephone Number** (281) 575-5000

## 2. Hazard(s) Identification

### 2.1 Classification in accordance with paragraph (d) of §1910.1200

| | |
|---|---|
| Specific Target Organ Toxicity - (Repeated Exposure) | Category 1 - H372 |

### 2.2. Label Elements

**Hazard Pictograms**

**Signal Word** Danger

**Hazard Statements** H372 - Causes damage to organs through prolonged or repeated exposure

**Precautionary Statements**

| | |
|---|---|
| **Prevention** | P260 - Do not breathe dust/fume/gas/mist/vapors/spray<br>P264 - Wash face, hands and any exposed skin thoroughly after handling<br>P270 - Do not eat, drink or smoke when using this product |
| **Response** | P314 - Get medical attention/advice if you feel unwell |
| **Storage** | None |
| **Disposal** | P501 - Dispose of contents/container in accordance with local/regional/national/international regulations |

**Contains**

| **Substances** | **CAS Number** |
|---|---|
| Ethylene glycol | 107-21-1 |

### 2.3 Hazards not otherwise classified

None known

## 3. Composition/information on Ingredients

| Substances | CAS Number | PERCENT (w/w) | GHS Classification - US |
|---|---|---|---|
| Ethylene glycol | 107-21-1 | 10 - 30% | Acute Tox. 4 (H302)<br>STOT RE 1 (H372) |

The exact percentage (concentration) of the composition has been withheld as proprietary.

## 4. First-Aid Measures

### 4.1. Description of first aid measures

**Inhalation** If inhaled, move victim to fresh air and seek medical attention.

**Eyes** In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.

**Skin** In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention. Remove contaminated clothing and launder before reuse.

**Ingestion** Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

### 4.2 Most important symptoms/effects, acute and delayed

Prolonged or repeated exposure may cause kidney damage. May cause damage to internal organs.

### 4.3. Indication of any immediate medical attention and special treatment needed

**Notes to Physician** Treat symptomatically.

## 5. Fire-fighting measures

### 5.1. Extinguishing media

**Suitable Extinguishing Media**

Water fog, carbon dioxide, foam, dry chemical.

**Extinguishing media which must not be used for safety reasons**

None known.

### 5.2 Specific hazards arising from the substance or mixture

**Special Exposure Hazards**
Decomposition in fire may produce toxic gases.

### 5.3 Special protective equipment and precautions for fire-fighters

**Special Protective Equipment for Fire-Fighters**
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

## 6. Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment.
See Section 8 for additional information

### 6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

### 6.3. Methods and material for containment and cleaning up

Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

## 7. Handling and storage

### 7.1. Precautions for Safe Handling

**Handling Precautions**
Avoid contact with eyes, skin, or clothing. Avoid breathing vapors.
**Hygiene Measures**
Handle in accordance with good industrial hygiene and safety practice.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage Information**
Store away from oxidizers. Store in a cool well ventilated area. Keep container closed when not in use. Product has a shelf life of 36 months.

## 8. Exposure Controls/Personal Protection

### 8.1 Occupational Exposure Limits

| Substances | CAS Number | OSHA PEL-TWA | ACGIH TLV-TWA |
|---|---|---|---|
| Ethylene glycol | 107-21-1 | Ceiling: 50 ppm | Ceiling: 100 mg/m$^3$ (aerosol only) |

### 8.2 Appropriate engineering controls

**Engineering Controls** Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

### 8.3 Individual protection measures, such as personal protective equipment

**Respiratory Protection** If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional.

**Hand Protection** Impervious rubber gloves.
**Skin Protection** Rubber apron.
**Eye Protection** Chemical goggles; also wear a face shield if splashing hazard exists.
**Other Precautions** Eyewash fountains and safety showers must be easily accessible.

## 9. Physical and Chemical Properties

### 9.1. Information on basic physical and chemical properties

| | | | |
|---|---|---|---|
| **Physical State:** | Liquid | **Color:** | Clear Pink |
| **Odor:** | Mild sweet | **Odor Threshold:** | No information available |

| Property<br>Remarks/ - Method | Values |
|---|---|
| **pH:** | 7.70 - 8.40 |
| **Freezing Point/Range** | No information available. |
| **Melting Point/Range** | No data available |
| **Boiling Point/Range** | No data available |
| **Flash Point** | No data available |
| **Flammability (solid, gas)** | No data available |
| **upper flammability limit** | No data available |
| **lower flammability limit** | No data available |
| **Evaporation rate** | No data available |
| **Vapor Pressure** | No data available |
| **Vapor Density** | No data available |
| **Specific Gravity** | 1.32 - 1.35 |
| **Water Solubility** | No data available |
| **Solubility in other solvents** | No data available |
| **Partition coefficient: n-octanol/water** | No data available |
| **Autoignition Temperature** | No data available |
| **Decomposition Temperature** | No data available |
| **Viscosity** | No data available |
| **Explosive Properties** | No information available |
| **Oxidizing Properties** | No information available |

### 9.2. Other information

| | |
|---|---|
| **VOC Content (%)** | No data available |

## 10. Stability and Reactivity

### 10.1. Reactivity

Not expected to be reactive.

### 10.2. Chemical Stability

Stable

### 10.3. Possibility of Hazardous Reactions

Will Not Occur

### 10.4. Conditions to Avoid

None anticipated

### 10.5. Incompatible Materials

Strong oxidizers. Dehydrating agents.

### 10.6. Hazardous Decomposition Products

Carbon monoxide and carbon dioxide. Toxic fumes.

# 11. Toxicological Information

## 11.1 Information on likely routes of exposure

**Principle Route of Exposure** Eye or skin contact, inhalation.

## 11.2 Symptoms related to the physical, chemical and toxicological characteristics

**Acute Toxicity**

**Inhalation** May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

**Eye Contact** May cause eye irritation.

**Skin Contact** May cause skin irritation.

**Ingestion** May cause abdominal pain, vomiting, nausea, and diarrhea.

**Chronic Effects/Carcinogenicity** May cause damage to organs through prolonged or repeated exposure Prolonged or repeated exposure may cause kidney damage.

## 11.3 Toxicity data

**Toxicology data for the components**

| Substances | CAS Number | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|---|---|---|---|---|
| Ethylene glycol | 107-21-1 | 4000 mg/kg (Rat)<br>7712 mg/kg (Rat)<br>> 10000 mg/kg (Rat)<br>1670 mg/kg (Cat)<br>1400 – 1600 mg/kg (Human) | 9530 µL/kg (Rabbit)<br>> 3500 mg/kg (Mouse) | > 2.5 mg/L (Rat) 6h (saturated concentration) |

| Substances | CAS Number | Skin corrosion/irritation |
|---|---|---|
| Ethylene glycol | 107-21-1 | Non-irritating to the skin (Rabbit) |

| Substances | CAS Number | Eye damage/irritation |
|---|---|---|
| Ethylene glycol | 107-21-1 | Non-irritating to the eye (Rabbit) |

| Substances | CAS Number | Skin Sensitization |
|---|---|---|
| Ethylene glycol | 107-21-1 | Did not cause sensitization on laboratory animals (guinea pig) Patch test on human volunteers did not demonstrate sensitization properties |

| Substances | CAS Number | Respiratory Sensitization |
|---|---|---|
| Ethylene glycol | 107-21-1 | No information available |

| Substances | CAS Number | Mutagenic Effects |
|---|---|---|
| Ethylene glycol | 107-21-1 | In vitro tests did not show mutagenic effects In vivo tests did not show mutagenic effects. |

| Substances | CAS Number | Carcinogenic Effects |
|---|---|---|
| Ethylene glycol | 107-21-1 | Did not show carcinogenic effects in animal experiments |

| Substances | CAS Number | Reproductive toxicity |
|---|---|---|
| Ethylene glycol | 107-21-1 | Fetotoxic and teratogenic effects observed in experimental animals at concentrations that did not produce maternal toxicity. |

| Substances | CAS Number | STOT - single exposure |
|---|---|---|
| Ethylene glycol | 107-21-1 | No significant toxicity observed in animal studies at concentration requiring classification. |

| Substances | CAS Number | STOT - repeated exposure |
|---|---|---|
| Ethylene glycol | 107-21-1 | Causes damage to organs through prolonged or repeated exposure: (Kidney) |

| Substances | CAS Number | Aspiration hazard |
|---|---|---|

| | | |
|---|---|---|
| Ethylene glycol | 107-21-1 | Not applicable |

## 12. Ecological Information

### 12.1. Toxicity

**Ecotoxicity Effects**

**Product Ecotoxicity Data**

No data available

**Substance Ecotoxicity Data**

| Substances | CAS Number | Toxicity to Algae | Toxicity to Fish | Toxicity to Microorganisms | Toxicity to Invertebrates |
|---|---|---|---|---|---|
| Ethylene glycol | 107-21-1 | EC50 6500 - 13000 mg/L (Pseudokirchneriella subcapitata) TGK (8d) > 10000 mg/L (Scenedesmus quadricauda) | LC50 41000 mg/L (Oncorhynchus mykiss) LC50 (96h) 72860 mg/L (Pimephales promelas) NOEC (7d) 15380 mg/L (mortality) (Pimephales promelas) | TTC (16h) > 10000 mg/L (Pseudomonas putida ) EC20 (30 m) > 1995 mg/L (activated sludge, domestic) (similar substance) | EC50 46300 mg/L (Daphnia magna) EC50 (48h) >100 mg/L (Daphnia magna) NOEC (7d) 8590 mg/L (reproduction) (Ceriodaphnia dubia) |

### 12.2. Persistence and degradability

| Substances | CAS Number | Persistence and Degradability |
|---|---|---|
| Ethylene glycol | 107-21-1 | Readily biodegradable (100% @ 10d) |

### 12.3. Bioaccumulative potential

| Substances | CAS Number | Log Pow |
|---|---|---|
| Ethylene glycol | 107-21-1 | -1.36 |

### 12.4. Mobility in soil

| Substances | Mobility |
|---|---|
| Ethylene glycol | No information available |

### 12.5 Other adverse effects

No information available

## 13. Disposal Considerations

### 13.1. Waste treatment methods

**Disposal Method** Disposal should be made in accordance with federal, state, and local regulations. Incineration recommended in approved incinerator according to federal, state, and local regulations.

**Contaminated Packaging** Follow all applicable national or local regulations.

## 14. Transport Information

**US DOT**

**UN Number:** Not restricted
**UN Proper Shipping Name:** Not restricted
**Transport Hazard Class(es):** Not applicable
**Packing Group:** Not applicable
**Environmental Hazards:** Not applicable

**US DOT Bulk**

| | |
|---|---|
| **DOT (Bulk)** | Not applicable |

**Canadian TDG**

| | |
|---|---|
| **UN Number:** | Not restricted |
| **UN Proper Shipping Name:** | Not restricted |
| **Transport Hazard Class(es):** | Not applicable |
| **Packing Group:** | Not applicable |
| **Environmental Hazards:** | Not applicable |

**IMDG/IMO**

| | |
|---|---|
| **UN Number:** | Not restricted |
| **UN Proper Shipping Name:** | Not restricted |
| **Transport Hazard Class(es):** | Not applicable |
| **Packing Group:** | Not applicable |
| **Environmental Hazards:** | Not applicable |

**IATA/ICAO**

| | |
|---|---|
| **UN Number:** | Not restricted |
| **UN Proper Shipping Name:** | Not restricted |
| **Transport Hazard Class(es):** | Not applicable |
| **Packing Group:** | Not applicable |
| **Environmental Hazards:** | Not applicable |

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:** Not applicable
**Special Precautions for User:** None

## 15. Regulatory Information

### US Regulations

| | |
|---|---|
| **US TSCA Inventory** | All components listed on inventory or are exempt. |
| **EPA SARA Title III Extremely Hazardous Substances** | Not applicable |
| **EPA SARA (311,312) Hazard Class** | Chronic Health Hazard |
| **EPA SARA (313) Chemicals** | This product contains toxic chemical(s) listed below which is(are) subject to the reporting requirements of Section 313 of Title III of SARA and 40 CFR Part 372: Ethylene Glycol//107-21-1 |
| **EPA CERCLA/Superfund Reportable Spill Quantity** | EPA Reportable Spill Quantity is 1674 Gallons based on Ethylene glycol (CAS: 107-21-1). |
| **EPA RCRA Hazardous Waste Classification** | If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA. |
| **California Proposition 65** | All components listed do not apply to the California Proposition 65 Regulation. |
| **MA Right-to-Know Law** | One or more components listed. |
| **NJ Right-to-Know Law** | One or more components listed. |

**PA Right-to-Know Law** One or more components listed.

## Canadian Regulations

**Canadian DSL Inventory** All components listed on inventory or are exempt.

## 16. Other information

**Preparation Information**

**Prepared By**
Chemical Stewardship
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

**Revision Date:** 30-Mar-2015

**Reason for Revision** Update to Format SECTION: 2

**Additional information**
For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

**Key or legend to abbreviations and acronyms**
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
ErC50 – Effective Concentration growth rate 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NIOSH – National Institute for Occupational Safety and Health
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PEL – Permissible Exposure Limit
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
UN – United Nations
h - hour
$mg/m^3$ - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

**Key literature references and sources for data**
www.ChemADVISOR.com/

**Disclaimer Statement**

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**End of Safety Data Sheet**