

# MATERIAL SAFETY DATA SHEET

**Product Trade Name:** **NFC-11**

**Revision Date:** 03-Jan-2012

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Trade Name:** NFC-11

**Synonyms:** None

**Chemical Family:** Organic peroxide

**Application:** Breaker

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

**Prepared By** Chemical Compliance  
Telephone: 1-580-251-4335  
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## 2. COMPOSITION/INFORMATION ON INGREDIENTS

<b>Substances</b>	<b>CAS Number</b>	<b>PERCENT</b>	<b>ACGIH TLV-TWA</b>	<b>OSHA PEL-TWA</b>
tert-Butyl Hydroperoxide	75-91-2	60 - 100%	Not applicable	Not applicable

## 3. HAZARDS IDENTIFICATION

**Hazard Overview** May cause eye, skin, and respiratory burns. May be harmful if inhaled. May be absorbed through the skin. May cause allergic skin and respiratory reaction. May be harmful if swallowed. Organic peroxide.

## 4. FIRST AID MEASURES

**Inhalation** If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention.

**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.

**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.

**Ingestion** Do not induce vomiting. Slowly dilute with 1-2 glasses of water or milk and seek medical attention. Never give anything by mouth to an unconscious person.

**Notes to Physician** Not Applicable

## 5. FIRE FIGHTING MEASURES

<b>Flash Point/Range (F):</b>	109
<b>Flash Point/Range (C):</b>	43
<b>Flash Point Method:</b>	TCC
<b>Autoignition Temperature (F):</b>	460
<b>Autoignition Temperature (C):</b>	238
<b>Flammability Limits in Air - Lower (%):</b>	5.7
<b>Flammability Limits in Air - Upper (%):</b>	99.99

**Fire Extinguishing Media** Water fog, carbon dioxide, foam, dry chemical.

**Special Exposure Hazards** Oxidizer. May ignite combustibles. Use water spray to cool fire exposed surfaces. Closed containers may explode in fire. Decomposition in fire may produce toxic gases. Vapors are heavier than air and may accumulate in low areas. Vapors may travel along the ground to be ignited at distant locations.

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

**NFPA Ratings:** Health 3, Flammability 2, Reactivity 2

**HMIS Ratings:** Health 3, Flammability 3, Reactivity 2

## 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautionary Measures** Use appropriate protective equipment.

**Environmental Precautionary Measures** Prevent from entering sewers, waterways, or low areas.

**Procedure for Cleaning / Absorption** Isolate spill and stop leak where safe. Remove ignition sources and work with non-sparking tools. Contain spill with sand or other inert materials. Scoop up and remove.

## 7. HANDLING AND STORAGE

**Handling Precautions** Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Do NOT consume food, drink, or tobacco in contaminated areas. Wash hands after use. Launder contaminated clothing before reuse.

**Storage Information** Store away from combustibles. Keep from heat, sparks, and open flames. Store in a cool well ventilated area. Keep container closed when not in use.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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

**Respiratory Protection** In high concentrations, supplied air respirator or a self-contained breathing apparatus.

**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

<b>Physical State:</b>	Liquid
<b>Color:</b>	Clear colorless to pale yellow
<b>Odor:</b>	Pungent
<b>pH:</b>	4.3
<b>Specific Gravity @ 20 C (Water=1):</b>	0.93
<b>Density @ 20 C (lbs./gallon):</b>	7.79
<b>Bulk Density @ 20 C (lbs/ft<sup>3</sup>):</b>	Not Determined
<b>Boiling Point/Range (F):</b>	205
<b>Boiling Point/Range (C):</b>	96
<b>Freezing Point/Range (F):</b>	27
<b>Freezing Point/Range (C):</b>	-3
<b>Vapor Pressure @ 20 C (mmHg):</b>	23
<b>Vapor Density (Air=1):</b>	3.1
<b>Percent Volatiles:</b>	Not Determined
<b>Evaporation Rate (Butyl Acetate=1):</b>	Not Determined
<b>Solubility in Water (g/100ml):</b>	Soluble
<b>Solubility in Solvents (g/100ml):</b>	Not Determined
<b>VOCs (lbs./gallon):</b>	Not Determined
<b>Viscosity, Dynamic @ 20 C (centipoise):</b>	Not Determined
<b>Viscosity, Kinematic @ 20 C (centistrokes):</b>	4.4
<b>Partition Coefficient/n-Octanol/Water:</b>	Not Determined
<b>Molecular Weight (g/mole):</b>	Not Determined

## 10. STABILITY AND REACTIVITY

<b>Stability Data:</b>	Stable
<b>Hazardous Polymerization:</b>	Will Not Occur
<b>Conditions to Avoid</b>	Keep away from heat, sparks and flame. Avoid contact with organic materials.
<b>Incompatibility (Materials to Avoid)</b>	All flammables, especially petroleum products, asphalt & other volatile flammables. Organic matter. Reducing agents. Strong acids.
<b>Hazardous Decomposition Products</b>	Oxygen. Hydrocarbons. Carbon monoxide and carbon dioxide.
<b>Additional Guidelines</b>	Not Applicable

## 11. TOXICOLOGICAL INFORMATION

<b>Principle Route of Exposure</b>	Eye or skin contact, inhalation.
<b>Inhalation</b>	Causes severe respiratory irritation. May cause chemical pneumonia. May cause lungs to fill with fluids. May cause allergic respiratory reaction.
<b>Skin Contact</b>	Causes burns. May be absorbed through the skin and produce effects similar to those caused by inhalation and/or ingestion. May cause an allergic skin reaction.
<b>Eye Contact</b>	Causes severe eye burns.
<b>Ingestion</b>	May be fatal if swallowed. Causes burns of the mouth, throat and stomach. May cause abdominal pain, vomiting, nausea, and diarrhea.
<b>Aggravated Medical Conditions</b>	Eye ailments. Skin disorders. Lung disorders.
<b>Chronic Effects/Carcinogenicity</b>	No data available to indicate product or components present at greater than 1% are chronic health hazards.

**Other Information** None known.

**Toxicity Tests**

**Oral Toxicity:** Not determined  
**Dermal Toxicity:** Not determined  
**Inhalation Toxicity:** Not determined  
**Primary Irritation Effect:** Not determined  
**Carcinogenicity** Not determined  
**Genotoxicity:** Not determined  
**Reproductive / Developmental Toxicity:** Not determined

**12. ECOLOGICAL INFORMATION**

**Mobility (Water/Soil/Air)** Not determined

**Persistence/Degradability** Readily biodegradable

**Bio-accumulation** Not determined

**Ecotoxicological Information**

**Acute Fish Toxicity:** Not determined  
**Acute Crustaceans Toxicity:** Not determined  
**Acute Algae Toxicity:** Not determined

**Chemical Fate Information** Not determined

**Other Information** Not applicable

**13. DISPOSAL CONSIDERATIONS**

**Disposal Method** Disposal should be made in accordance with federal, state, and local regulations.

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

**14. TRANSPORT INFORMATION**

**Land Transportation**

**DOT**

UN3109, Organic Peroxide Type F, Liquid(Contains < 72% tert-Butyl Hydroperoxide), 5.2, (8), II  
NAERG 145

**Canadian TDG**

Organic Peroxide Type F, Liquid(Contains < 72% tert-Butyl Hydroperoxide), 5.2, (8), UN3109, II

**ADR**

UN3109,Organic Peroxide Type F, Liquid(Contains < 72% tert-Butyl Hydroperoxide), 5.2, (8), II

## Air Transportation

### ICAO/IATA

UN3109,Organic Peroxide Type F, Liquid, 5.2, (8), II  
(Contains < 72% tert-Butyl Hydroperoxide)

## Sea Transportation

### IMDG

UN3109,Organic Peroxide Type F, Liquid(Contains < 72% tert-Butyl Hydroperoxide), 5.2, (8), II  
EmS F-J, S-R

## Other Transportation Information

**Labels:** Organic Peroxide  
Corrosive

## 15. REGULATORY INFORMATION

### US Regulations

<b>US TSCA Inventory</b>	All components listed on inventory or are exempt.
<b>EPA SARA Title III Extremely Hazardous Substances</b>	Not applicable
<b>EPA SARA (311,312) Hazard Class</b>	Acute Health Hazard Fire Hazard Reactive Hazard
<b>EPA SARA (313) Chemicals</b>	This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372).
<b>EPA CERCLA/Superfund Reportable Spill Quantity</b>	EPA Reportable Spill Quantity is 19 Gallons based on t-Butyl hydroperoxide (CAS: 75-91-2).
<b>EPA RCRA Hazardous Waste Classification</b>	If product becomes a waste, it does meet the criteria of a hazardous waste as defined by the US EPA, because of:  Ignitability D001
<b>California Proposition 65</b>	All components listed do not apply to the California Proposition 65 Regulation.
<b>MA Right-to-Know Law</b>	One or more components listed.
<b>NJ Right-to-Know Law</b>	One or more components listed.
<b>PA Right-to-Know Law</b>	One or more components listed.
<b>Canadian Regulations</b>	
<b>Canadian DSL Inventory</b>	All components listed on inventory or are exempt.

<b>WHMIS Hazard Class</b>	B3 Combustible Liquids C Oxidizing Materials D2A Very Toxic Materials D2B Toxic Materials E Corrosive Material F Dangerously Reactive Material
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## **16. OTHER INFORMATION**

**The following sections have been revised since the last issue of this MSDS**

Not applicable

**Additional Information**

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

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

**Disclaimer Statement**

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**\*\*\*END OF MSDS\*\*\***