HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: **DCA-13004**

Revision Date: 03-Apr-2014

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: DCA-13004
Synonyms: None
Chemical Family: Organic peroxide
Application: Breaker

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

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

2. COMPOSITION/INFORMATION ON INGREDIENTS

Substances	CAS Number	PERCENT (w/w)	ACGIH TLV-TWA	OSHA PEL-TWA
tert-Butyl Hydroperoxide	75-91-2	60 - 100%	Not applicable	Not applicable
Hydrotreated light petroleum distillate	Proprietary	NF	Not applicable	Not applicable

3. HAZARDS IDENTIFICATION

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

Flash Point/Range (F):	109
Flash Point/Range (C):	43
Flash Point Method:	TCC
Autoignition Temperature (F):	460
Autoignition Temperature (C):	238
Flammability Limits in Air - Lower (%):	5.7
Flammability Limits in Air - Upper (%):	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 2, Physical Hazard 2 , PPE: X

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. Keep from freezing. Store away from direct sunlight. Store between 32 F (0 C) and 95 F (35 C). Product has a shelf life of 12 months.

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	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. Full Facepiece Respirator with Organic vapor respirator with a dust/mist filter. (A2P2/P3) Organic vapor respirators have a short service life. 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

Physical State:	Liquid
Color:	Clear colorless
Odor:	Pungent
pH:	4.3
Specific Gravity @ 20 C (Water=1):	0.93
Density @ 20 C (lbs./gallon):	7.79
Bulk Density @ 20 C (lbs/ft3):	Not Determined
Boiling Point/Range (F):	205
Boiling Point/Range (C):	96
Freezing Point/Range (F):	27
Freezing Point/Range (C):	-3
Vapor Pressure @ 20 C (mmHg):	23
Vapor Density (Air=1):	3.1
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Soluble
Solubility in Solvents (g/100ml):	Not Determined
VOCs (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	90.14

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	Keep away from heat, sparks and flame. Avoid contact with organic materials.
Incompatibility (Materials to Avoid)	Organic matter. All flammables, especially petroleum products, asphalt & other volatile flammables. Reducing agents. Sulfides. Ketones.

Hazardous Decomposition Products Oxygen. Carbon monoxide and carbon dioxide.

Additional Guidelines Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure Eye or skin contact, inhalation.

Sympotoms related to exposure

Acute Toxicity

Inhalation Causes severe respiratory irritation. May cause chemical pneumonia. May cause lungs to fill with fluids. May cause allergic respiratory reaction.

Eye Contact Causes severe eye burns.

Skin Contact 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.

Ingestion Causes burns of the mouth, throat and stomach. May cause abdominal pain, vomiting, nausea, and diarrhea.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 1% are chronic health hazards.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
tert-Butyl Hydroperoxide	75-91-2	370 mg/kg (Rat)	790 mg/kg (Rat)	500 ppm (Rat) 4 h 1.85 mg/L (Rat) 4 h
Hydrotreated light petroleum distillate	Proprietary	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	5.28 mg/L (Rat) 4h

12. ECOLOGICAL INFORMATION

Ecotoxicological Information

Ecotoxicity Product

Acute Fish Toxicity: Not determined

Acute Crustaceans Toxicity: Not determined

Acute Algae Toxicity: Not determined

Ecotoxicity Substance

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
tert-Butyl Hydroperoxide	75-91-2	No information available	No information available	No information available	No information available
Hydrotreated light petroleum distillate	Proprietary	EC50(72h): > 10,000 mg/L (Skeletonema costatum) (ISO 10253)	LC50 96h): > 10,000 mg/L (Scophthalmus maximus) (OSPARCOM 1995)	No information available	LC50(48h): > 10,000 mg/L (Acartia tonsa) (ISO 14669) EC50(48h): 1100 mg/L (mobility) (Daphnia pulex)

12.2 Persistence and degradability

No information available

Substances	Persistence and Degradability
Hydrotreated light petroleum distillate	Readily biodegradable (87% @ 28d)

12.3 Bioaccumulative potential

No information available

Substances	Log Pow
Hydrotreated light petroleum distillate	7.5

12.4 Mobility in soil
No information available

12.5 Results of PBT and vPvB assessment
No information available.

12.6 Other adverse effects

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

US DOT

UN Number:	UN3109
UN Proper Shipping Name:	Organic Peroxide Type F, Liquid (Contains < 72% tert-Butyl Hydroperoxide)
Transport Hazard Class(es):	5.2
Subsidiary Hazard:	(8)
Packing Group:	II
Environmental Hazards:	, Marine Pollutant (tert-Butyl Hydroperoxide)
NAERG:	NAERG 145

US DOT Bulk

DOT (Bulk)	Not Applicable

Canadian TDG ul0

UN Number:	UN3109
UN Proper Shipping Name:	Organic Peroxide Type F, Liquid (Contains < 72% tert-Butyl Hydroperoxide)
Transport Hazard Class(es):	5.2
Subsidiary Hazard:	(8)
Packing Group:	II
Environmental Hazards:	, Marine Pollutant (tert-Butyl Hydroperoxide)

IMDG/IMO

UN Number:	UN3109
UN Proper Shipping Name:	Organic Peroxide Type F, Liquid (Contains < 72% tert-Butyl Hydroperoxide)
Transport Hazard Class(es):	5.2
Subsidiary Hazard:	(8)
Packing Group:	II
Environmental Hazards:	, Marine Pollutant (tert-Butyl Hydroperoxide)
EMS:	EmS F-J, S-R

IATA/ICAO

UN Number:	UN3109
UN Proper Shipping Name:	Organic Peroxide Type F, Liquid (Contains < 72% tert-Butyl Hydroperoxide)
Transport Hazard Class(es):	5.2
Subsidiary Hazard:	(8)
Packing Group:	II
Environmental Hazards:	, Marine Pollutant (tert-Butyl Hydroperoxide)

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

Labels:

Organic Peroxide
Corrosive
Environmentally Hazardous Substance

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

Acute Health Hazard
Fire Hazard
Reactive Hazard

EPA SARA (313) Chemicals

This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372).

EPA CERCLA/Superfund Reportable Spill Quantity

EPA Reportable Spill Quantity is 19 Gallons based on t-Butyl hydroperoxide (CAS: 75-91-2).

EPA RCRA Hazardous Waste Classification

If product becomes a waste, it does meet the criteria of a hazardous waste as defined by the US EPA, because of:

Ignitability D001

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.

WHMIS Hazard Class

B3 Combustible Liquids
C Oxidizing Materials
D2A Very Toxic Materials
D2B Toxic Materials
E Corrosive Material
F Dangerously Reactive Material

16. OTHER INFORMATION

The following sections have been revised since the last issue of this SDS
Not applicable

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 Compliance at 1-580-251-4335.

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

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