

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: CHARGE, 2.70 TC HMX - C2703000

Revision Date: 20-Dec-2012

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: CHARGE, 2.70 TC HMX - C2703000

Synonyms: None

Chemical Family: Explosive

Application: Explosive Charge

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
e-mail: fdunexchem@halliburton.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

Substances	CAS Number	PERCENT (w/w)	ACGIH TLV-TWA	OSHA PEL-TWA
Cyclotetramethylenetetranitramine (HMX)	2691-41-0	NF	Not applicable	Not applicable
Lead	7439-92-1	NF	TWA: 0.05 mg/m ³	0.05 mg/M3
Iron	7439-89-6	NF	Not applicable	10 mg/M3
Aluminum	7429-90-5	NF	TWA: 1 mg/m ³	15 mg/m ³
Copper	7440-50-8	NF	TWA: 0.2 mg/m ³	1 mg/m ³
Tungsten	7440-33-7	NF	TWA: 5 mg/m ³ STEL: 10 mg/m ³	Not applicable
Graphite	7782-42-5	NF	TWA: 2 mg/m ³	15 mg/M3
Corrosion resistant steel	Mixture	NF	Not applicable	Not applicable
Desensitizing wax	Mixture	NF	Not applicable	Not applicable

3. HAZARDS IDENTIFICATION

Hazard Overview: Explosive. May cause eye, skin, and respiratory irritation. May cause headache, dizziness, and other central nervous system effects. May be harmful if swallowed.

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: Wash with soap and water. Get medical attention if irritation persists.

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	Treat symptomatically.

5. FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined

Fire Extinguishing Media None. Do NOT fight fire. Isolate area and evacuate personnel to a safe area. Guard against intruders. Allow fire to burn itself out.

Special Exposure Hazards May detonate with impact or on heating. May explode and throw fragments 1 mile or more in fire. Evacuate all persons, including emergency responders.

Special Protective Equipment for Fire-Fighters Not applicable.

NFPA Ratings: Health 1, Flammability 3, Reactivity 4
HMIS Ratings: Health 1, Flammability 3, Reactivity 4

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment. Use only competent persons for cleanup.

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

Procedure for Cleaning / Absorption Isolate area and remove sources of friction, impact, heat, low level electrical current, and RF energy. Remove ignition sources and work with non-sparking tools.

7. HANDLING AND STORAGE

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

Storage Information Store only in ATF approved magazines. Keep away from friction, impact, and heat.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls Use in a well ventilated area.

Respiratory Protection Dust/mist respirator. (N95, P2/P3)

Hand Protection Cloth gloves.

Skin Protection	Cotton coveralls, undergarments, and socks. Conductive soled shoes.
Eye Protection	Wear safety glasses or goggles to protect against exposure.
Other Precautions	None known.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Color:	Metallic
Odor:	Odorless
pH:	Not Determined
Specific Gravity @ 20 C (Water=1):	Not Determined
Density @ 20 C (lbs./gallon):	Not Determined
Bulk Density @ 20 C (lbs/ft3):	Not Determined
Boiling Point/Range (F):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Insoluble
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):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	May detonate with friction, impact, heat, and low level electrical current.
Incompatibility (Materials to Avoid)	Strong acids. Strong alkalis.
Hazardous Decomposition Products	Shrapnel. Oxides of nitrogen. Metal oxides. Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation. Product does not present exposures health hazards during normal handling and use. However, this product is an explosive material and uncontrolled detonation may cause severe physical injury including death. All explosives are dangerous and must be handles carefully and used following approved safety procedures under the direction of competent, experience persons in accordance with all applicable regulations and ordinances.
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Symptoms related to exposure

Acute Toxicity**Inhalation**

May cause effects to the blood and blood system. May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

May cause damage to the nervous, urinary, and reproductive systems. Nitrogen oxides generated during use are irritating to the respiratory system.

Eye Contact

May cause eye irritation.

Skin Contact

May be absorbed through the skin and contribute to the symptoms listed under ingestion. Nitrogen oxides generated during use are skin irritants.

Ingestion

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

Chronic Effects/Carcinogenicity

Prolonged or repeated exposure may cause blood forming system, nervous, urinary tract and reproductive system damage. Prolonged or repeated exposure may cause embryo and fetus toxicity.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Cyclotetramethylenetetranitramine (HMX)	2691-41-0	6490 mg/kg (Rat)	5 g/kg (Rat) 630 mg/kg (Rabbit)	No data available
Lead	7439-92-1	No data available	No data available	No data available
Iron	7439-89-6	984 mg/kg (Rat)	No data available	No data available
Aluminum	7429-90-5	No data available	No data available	No data available
Copper	7440-50-8	No data available	No data available	No data available
Tungsten	7440-33-7	No data available	No data available	No data available
Graphite	7782-42-5	10000 mg/kg (Rat)	No data available	No data available
Corrosion resistant steel	Mixture	No data available	No data available	No data available
Desensitizing wax	Mixture	No data available	No data available	No data available

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	Daphnia Magna (Water Flea)
Cyclotetramethylenetetranitramine (HMX)	2691-41-0	No information available	LC50: 8.8-26 mg/L (Pimephales promelas)	No information available	No information available
Lead	7439-92-1	No information available	No information available	No information available	No information available
Iron	7439-89-6	No information available	No information available	No information available	No information available
Aluminum	7429-90-5	EC50: 6919.83 mg/L (Skeletonema costatum)	LC50: >10000 mg/L (Scophthalmus maximus)	No information available	LC50: 190 mg/L (Arcatia tonsa)
Copper	7440-50-8	EC50: 0.0426 - 0.0535 mg/L (Pseudokirchneriella subcapitata)	LC50: 0.0068 - 0.0156 mg/L (Pimephales promelas)	No information available	EC50: 0.03 mg/L (Daphnia magna)
Tungsten	7440-33-7	No information available	No information available	No information available	No information available
Graphite	7782-42-5	No information available	No information available	No information available	No information available
Corrosion resistant steel	Mixture	No information available	No information available	No information available	No information available
Desensitizing wax	Mixture	No information available	No information available	No information available	No information available

Persistence and degradability

No information available

Bioaccumulative potential

No information available

Mobility in soil

No information available

Results of PBT and vPvB assessment

No information available.

Other adverse effects**13. DISPOSAL CONSIDERATIONS**

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

Contaminated Packaging Do NOT reuse container. Store only in ATF approved magazines.

14. TRANSPORT INFORMATION**Land Transportation****DOT**

UN0440, Charges, Shaped , 1.4D , II EX 1986070140 EX1987090016
NAERG 114

Canadian TDG

Charges, Shaped , 1.4D , UN0440 , II EX 1986070140 EX1987090016

ADR

UN0440, Charges, Shaped , 1.4D , II EX 1986070140 EX1987090016

Air Transportation**ICAO/IATA**

UN0440, Charges, Shaped , 1.4D , II EX 1986070140 EX1987090016

Sea Transportation**IMDG**

UN0440, Charges, Shaped , 1.4D , II EX 1986070140 EX1987090016
EmS F-B, S-X

Other Transportation Information

Labels: Explosive 1.4D

15. REGULATORY INFORMATION**US Regulations**

US TSCA Inventory All components listed on inventory or are exempt.

CHARGE, 2.70 TC HMX - C2703000

EPA SARA Title III Extremely Hazardous Substances	Not applicable
EPA SARA (311,312) Hazard Class	Acute Health Hazard Fire Hazard Sudden Release of Pressure 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: Lead//7439-92-1 Copper//7440-50-8
EPA CERCLA/Superfund Reportable Spill Quantity	EPA Reportable Spill Quantity is 400 Pounds based on Lead (CAS: 7439-92-1).
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: Reactivity D003
California Proposition 65	The California Proposition 65 regulations apply to this product.
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	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*****