

## MATERIAL SAFETY DATA SHEET

**Product Trade Name:** HMX

**Revision Date:** 21-Dec-2012

### 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

**Statement of Hazardous Nature** Hazardous according to the criteria of NOHSC, Dangerous Goods according to the criteria of ADG.

**Manufacturer/Supplier** Halliburton Australia Pty. Ltd.  
15 Marriott Road  
Jandakot  
WA 6164  
Australia

ACN Number: 009 000 775  
Telephone Number: 61 (08) 9455 8300  
Fax Number: 61 (08) 9455 5300

**Product Emergency Telephone**

Australia: 08-64244950  
Papua New Guinea: 05 1 281 575 5000  
New Zealand: 06-7559274

**Fire, Police & Ambulance - Emergency Telephone**

Australia: 000  
Papua New Guinea: 000  
New Zealand: 111

#### Identification of Substances or Preparation

**Product Trade Name:** HMX  
**Synonyms:** None  
**Chemical Family:** Explosive  
**UN Number:** , UN0226  
**Dangerous Goods Class:** 1.1D  
**Subsidiary Risk:** None  
**Hazchem Code:** E  
**Poisons Schedule:** None Allocated  
**Application:** Explosive Charge

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

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

| Substances                              | CAS Number | PERCENT   | Australia<br>NOHSC | New Zealand<br>WES | ACGIH TLV-TWA  |
|-----------------------------------------|------------|-----------|--------------------|--------------------|----------------|
| Cyclotetramethylenetetranitramine (HMX) | 2691-41-0  | 60 - 100% | Not applicable     | Not applicable     | Not applicable |

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

|                                     |          |        |                            |                            |                            |
|-------------------------------------|----------|--------|----------------------------|----------------------------|----------------------------|
| Cyclotrimethylenetrinitramine (RDX) | 121-82-4 | 1 - 5% | TWA: 1.5 mg/m <sup>3</sup> | TWA: 1.5 mg/m <sup>3</sup> | TWA: 0.5 mg/m <sup>3</sup> |
|-------------------------------------|----------|--------|----------------------------|----------------------------|----------------------------|

Non-Hazardous Substance to Total of 100%

## 3. HAZARDS IDENTIFICATION

|                     |                                                                                                                  |
|---------------------|------------------------------------------------------------------------------------------------------------------|
| Hazard Overview     | May cause headache, dizziness, and other central nervous system effects. May be harmful if swallowed. Explosive. |
| Risk Phrases        | R2 Risk of explosion by shock, fire, friction, or other sources of ignition.                                     |
| HSNO Classification | Not Determined                                                                                                   |

## 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

|                                                               |                                                                                                                                                       |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Suitable Extinguishing Media                                  | Do NOT fight fire. Isolate area and evacuate personnel to a safe area. Guard against intruders. Allow fire to burn itself out.                        |
| Extinguishing media which must not be used for safety reasons | None known.                                                                                                                                           |
| 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.                                                                                                                                       |

## 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:                                         | Powder         |
| Color:                                                  | White          |
| Odor:                                                   | Odorless       |
| pH:                                                     | Not Determined |
| Specific Gravity @ 20 C (Water=1):                      | Not Determined |
| Density @ 20 C (kg/l):                                  | Not Determined |
| Bulk Density @ 20 C (kg/m <sup>3</sup> ):               | Not Determined |
| Boiling Point/Range (C):                                | Not Determined |
| Freezing Point/Range (C):                               | Not Determined |
| Pour Point/Range (C):                                   | Not Determined |
| Flash Point/Range (C):                                  | Not Determined |
| Flash Point Method:                                     | Not Determined |
| Autoignition Temperature (C):                           | Not Determined |
| Flammability Limits in Air - Lower (g/m <sup>3</sup> ): | Not Determined |
| Flammability Limits in Air - Lower (%):                 | Not Determined |
| Flammability Limits in Air - Upper (g/m <sup>3</sup> ): | Not Determined |
| Flammability Limits in Air - Upper (%):                 | 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 (g/l):                                             | 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 |
| Decomposition Temperature (C):                          | > 190          |

## 10. STABILITY AND REACTIVITY

|                           |                |
|---------------------------|----------------|
| Stability Data:           | Stable         |
| Hazardous Polymerization: | Will Not Occur |

|                                             |                                                                                 |
|---------------------------------------------|---------------------------------------------------------------------------------|
| <b>Conditions to Avoid</b>                  | May detonate with friction, impact, heat, and low level electrical current.     |
| <b>Incompatibility (Materials to Avoid)</b> | Strong acids. Strong alkalis.                                                   |
| <b>Hazardous Decomposition Products</b>     | Shrapnel. Oxides of nitrogen. Metal oxides. Carbon monoxide and carbon dioxide. |
| <b>Additional Guidelines</b>                | Not Applicable                                                                  |

## 11. TOXICOLOGICAL INFORMATION

|                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Principle Route of Exposure</b>            | 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. Eye or skin contact, inhalation. |
| <b>Symptomts related to exposure</b>          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Inhalation</b>                             | 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.                                                                                             |
| <b>Skin Contact</b>                           | May be absorbed through the skin and contribute to the symptoms listed under ingestion. Nitrogen oxides generated during use are skin irritants.                                                                                                                                                                                                                                                                                                                            |
| <b>Eye Contact</b>                            | May cause eye irritation.                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Ingestion</b>                              | May cause abdominal pain, vomiting, nausea, and diarrhea.                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Aggravated Medical Conditions</b>          | None known.                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Chronic Effects/Carcinogenicity</b>        | Prolonged or repeated exposure may cause blood forming system, nervous, urinary tract and reproductive system damage.                                                                                                                                                                                                                                                                                                                                                       |
| <b>Other Information</b>                      | None known.                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Toxicity Tests</b>                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Oral Toxicity:</b>                         | Not determined                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Dermal Toxicity:</b>                       | Not determined                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Inhalation Toxicity:</b>                   | Not determined                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Primary Irritation Effect:</b>             | Not determined                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Carcinogenicity</b>                        | Not determined                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Genotoxicity:</b>                          | Not determined                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Reproductive / Developmental Toxicity:</b> | Not determined                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

## 12. ECOLOGICAL INFORMATION

|                                  |                |
|----------------------------------|----------------|
| <b>Mobility (Water/Soil/Air)</b> | Not determined |
|----------------------------------|----------------|

**Persistence/Degradability** Not applicable

**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** Do NOT reuse container. Store only in ATF approved magazines.

## 14. TRANSPORT INFORMATION

### Land Transportation

#### ADR

UN0226, Octogen, Wetted, 1.1D, II  
EX-9712224

### Air Transportation

#### ICAO/IATA

UN0226, Octogen, Wetted, 1.1D, II  
EX-9712224

### Sea Transportation

#### IMDG

UN0226, Octogen, Wetted, 1.1D, II  
EX-9712224  
EmS F-B, S-X

### Other Transportation Information

**Labels:** Explosive 1.4S

## 15. REGULATORY INFORMATION

### Chemical Inventories

**Australian AICS Inventory**  
**New Zealand Inventory of Chemicals**

All components listed on inventory or are exempt.  
This product does not comply with NZIOC

**US TSCA Inventory**  
**EINECS Inventory**

All components listed on inventory or are exempt.  
This product, and all its components, complies with EINECS

**Classification**

E - Explosive.

**Risk Phrases**

R2 Risk of explosion by shock, fire, friction, or other sources of ignition.

**Safety Phrases**

S2 Keep out of reach of children.  
S16 Keep away from sources of ignition - No Smoking.  
S33 Take precautionary measures against static discharges.  
S34 Avoid shock and friction.

**16. OTHER INFORMATION**

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

Not applicable

**Contact****Australian Poisons Information Centre**

24 Hour Service: - 13 11 26

Police or Fire Brigade: - 000 (exchange): - 1100

**New Zealand National Poisons Centre**

0800 764 766

**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**

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