Single Base Powders

MATERIAL SAFETY DATA SHEET

April 2009

The following smokeless powders
are distributed by
IMR Legendary Powders

IMR 3031™
IMR 4007SSC™
IMR 4064®
IMR 4198™ - Canada
IMR 4227™ - Canada
IMR 4320™
IMR 4350™
SR4756™
SR4759™
IMR 4831™
IMR 4895™
SR7625™
IMR 7828™
PB™
IMR 7828SSC™
# Material Safety Data Sheet

**General Dynamics Ordnance and Tactical Systems—Canada Valleyfield Inc.**

55, rue Masson
Valleyfield (Québec)
Canada J6S 4V9

**Emergency phone number**
24 hours: 1-688-922-3330

**Emergency Response Plan** ERP2-1693

## SECTION I - PRODUCT IDENTIFICATION

**Product name:** IMR & CF (all types) Single base smokeless powder

**WHMIS classification:** Division: not controlled


**Chemical formula:** N/AP

**Product use:** Gun propellant

**CAS number:** N/AP

**MSDS number:** 08D114

## SECTION II - PHYSICAL / CHEMICAL DATA

**Physical state and appearance:** Black granular solid.

**Molecular weight:** N/AP

**Boiling point (°C):** N/AP

**Odour threshold:** N/AP

**Vapour pressure:** N/AP

**Evaporation:** N/AP

**Freezing point (°C):** N/AP

**pH:** N/AP

**Coefficient of water / oil distribution:** N/AP

**Density:** 1.6g/cm³

**Solubility in water (20°C):** N/AP
### SECTION III - COMPOSITION

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>% wt</th>
<th>TWA</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrocellulose</td>
<td>80-100</td>
<td>None</td>
<td>9004-70-0</td>
</tr>
<tr>
<td>Diphenylamine</td>
<td>1-2</td>
<td>10 mg/m³</td>
<td>122-39-4</td>
</tr>
<tr>
<td>Dinitrotoluene</td>
<td>4-12</td>
<td>1.5 mg/m³</td>
<td>121-14-2</td>
</tr>
<tr>
<td>Potassium sulfate</td>
<td>0.5</td>
<td>N/AV</td>
<td>7778-80-5</td>
</tr>
<tr>
<td>Graphite</td>
<td>&lt;1</td>
<td>10 mg/m³</td>
<td>7782-42-5</td>
</tr>
</tbody>
</table>

### SECTION IV - FIRE AND EXPLOSION INFORMATION

- Flash point (°C): N/AV
- Autoignition temperature (°C): 170°C (approx.)
- Upper flammable limit (volume %): N/AV
- Lower flammable limit (volume %): N/AV
- Flammability?: NO
- If yes, under what conditions?: Heat, open flame, static discharge and impact.
- Means of extinction: Water can be used from a distance.
- Special procedures: **EVACUATE IMMEDIATELY.** Do not fight fire.
- Hazardous combustion products: Nitrogen and carbon oxides (NOx and COx).
- Explosion data: This product is explosive and will ignite at high temperature, with an open flame or with a spark.
- Sensitivity to mechanical impact or to static discharge: Dust is sensitive to static discharge and impact.

### SECTION V - REACTIVITY DATA

- Chemical stability: YES
- If no, under what conditions?: Heat, open flame and sparks.
- Incompatibility to other substances?: YES
- If so, which ones?: Strong alkalis, strong acids and ignition sources.
- Reactivity and under what conditions?: N/AV
- Hazardous decomposition products: Nitrogen oxides.
### SECTION VI - HEALTH HAZARD DATA

**Route of entry:**

<table>
<thead>
<tr>
<th>Route of entry</th>
<th>Skin absorption</th>
<th>Inhalation</th>
<th>Ingestion</th>
<th>Skin contact</th>
<th>Eye contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin absorption</td>
<td>▫️</td>
<td></td>
<td></td>
<td></td>
<td>▫️</td>
</tr>
<tr>
<td>Inhalation</td>
<td>▪️</td>
<td>▪️</td>
<td>▪️</td>
<td>▪️</td>
<td>▫️</td>
</tr>
<tr>
<td>Ingestion</td>
<td>▪️</td>
<td>▪️</td>
<td>▪️</td>
<td>▪️</td>
<td>▫️</td>
</tr>
<tr>
<td>Skin contact</td>
<td>▪️</td>
<td>▪️</td>
<td>▪️</td>
<td>▪️</td>
<td>▫️</td>
</tr>
<tr>
<td>Eye contact</td>
<td>▪️</td>
<td>▪️</td>
<td>▪️</td>
<td>▪️</td>
<td>▫️</td>
</tr>
</tbody>
</table>

**Exposure limits (TWA):**

<table>
<thead>
<tr>
<th>Substance</th>
<th>Graphite</th>
<th>Dinitrotoluene</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limit (mg/m³)</td>
<td>10</td>
<td>1.5</td>
</tr>
</tbody>
</table>

**Irritancy (product):**

Is irritating to the eyes and the respiratory tract.

**Sensitization to product:**

N/A

**Cancerogenicity:**

N/A

**Teratogenicity:**

N/A

**Reproductive effects:**

N/A

**Synergistic materials:**

N/A

**Mutagenicity:**

N/A

**Effects of acute exposure to product:**

Irritation of the eyes and the upper respiratory tract (nose and throat), followed by coughing.

**Effects of chronic exposure to product:**

N/A

**Toxicological data:**

<table>
<thead>
<tr>
<th>Products</th>
<th>Species</th>
<th>DL50 oral</th>
<th>DL50 skin</th>
<th>CL50 inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dinitrotoluene</td>
<td>Rat</td>
<td>278 mg/kg</td>
<td>N/AV</td>
<td>N/AV</td>
</tr>
<tr>
<td>Diphenylamine</td>
<td>Rat</td>
<td>&gt;1500 mg/kg</td>
<td>N/AV</td>
<td>N/AV</td>
</tr>
<tr>
<td>Diphenylamine</td>
<td>Rabbit</td>
<td>N/AV</td>
<td>&gt;5000 mg/kg</td>
<td>N/AV</td>
</tr>
</tbody>
</table>
### SECTION VII - PREVENTIVE MEASURE

**PERSONAL PROTECTIVE EQUIPMENT**
- **Gloves and clothing:** Cotton or nitrile gloves and protective clothing. Change frequently.
- **Eye protection:** Safety glasses with lateral protection.
- **Footwear:** Anti-static conductive shoes.
- **Other:** Safety shower and safety eye shower could be available.
- **Respiratory protection:** If ventilation is insufficient, wear a dust mask or a cartridge respirator.
- **Engineering controls:** N/A
- **Handling procedures and equipment:** Explosive, will ignite if exposed to sudden heat.
- **Storage requirements:** Store away from source of ignition and heat.
- **Shipping information:**
  - Hazard Class: 1.3C
  - UN number: UN 0161
  - Shipping name: Powder smokeless
  - Subsidiary risk: Ø
  - Packing group: II

### SECTION VIII - FIRST AID MEASURES

- **Skin:** Wash contaminated area with soap and water.
- **Eye:** Keeping eyes open, rinse immediately with running water for at least 15 minutes.
- **Inhalation:** Move victim to fresh air. If victim is not breathing give CPR. Give oxygen, keep victim warm and get medical help.
- **Ingestion:** Consult a physician.
- **Other and advice to doctor:** N/A

### SECTION IX - ENVIRONMENTAL PROTECTION INFORMATION

- **Environmental effects:** N/A
- **Deactivating chemicals:** N/A
- **Steps to be taken in the event of a spill or a leak:** Be sure to wet powder thoroughly before picking up with conventional methods.
- **Waste disposal:** Incinerate at an approved site.
### SECTION X – PREPARATION INFORMATION

<table>
<thead>
<tr>
<th>Prepared by</th>
<th>General Dynamics Ordnance and Tactical Systems–Canada Valleyfield Inc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone number</td>
<td>450-371-5520</td>
</tr>
<tr>
<td>Fax number</td>
<td>450-377-7873</td>
</tr>
<tr>
<td>Date</td>
<td>April, 2008</td>
</tr>
</tbody>
</table>

Information contained herein is provided without any warranty and General Dynamics Ordnance and Tactical Systems–Canada Valleyfield Inc. will not be liable for any damage which may result from the use or reliance on any information contained herein.

**Legend:**

- **N/AP**: Non applicable
- **N/AV**: Not available
- **CAS**: Chemical Abstract Service
- **TWA**: Time weighted average
- **WHIMS**: Workplace hazardous materials information system