MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

12 Ga HP (High Performance) Red Aerial Signal
Orion Safety Products
3157 North 500 West
Peru, IN 46970

Use: Marine emergency signal

Phone Number: US 1-800-851-5260
Intl (11) 1-765-472-4375
EMERGENCY CHEMTREC 1-800-424-9300

2. Hazards Identification

Emergency Overview

Hazard Statements:
- Fire or projection hazard
- Causes severe skin burns and eye damage (product when burning)
- Causes skin irritation (contents)
- Harmful if inhaled.
- Causes eye irritation (contents)

Precautionary Statements:
- Keep out of reach of children.
- Keep away from heat/sparks/open flames/hot surfaces. – no smoking.
- Keep/Store away from combustible materials.
- Protect from moisture; avoid long term immersion in water.
- Keep cool. Protect from sunlight.
- Do not expose long term to temperatures exceeding 180°F
- Avoid breathing dust/smoke
- Avoid release to the environment (contents)
- Use only outdoors.
- Wear eye protection.
- Do not dismantle.

In case of fire: use water deluge. Do not use dry powder or foam extinguishers!

NFPA Rating
- Flammability 2
- Health 2
- Reactivity 1

HMS Rating
- Flammability 1
- Health 3
- Physical Hazard 1

3. Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>EINCS #</th>
<th>%age</th>
</tr>
</thead>
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<tr>
<td>Strontium Nitrate</td>
<td>10042-76-9</td>
<td>233-131-9</td>
<td>&lt;50%</td>
</tr>
<tr>
<td>Magnesium</td>
<td>7439-95-4</td>
<td>231-104-6</td>
<td>&lt;50%</td>
</tr>
<tr>
<td>Strontium Peroxide</td>
<td>1314-18-7</td>
<td>215-224-6</td>
<td>&lt;30%</td>
</tr>
<tr>
<td>Black Powder</td>
<td>Mixture</td>
<td>None</td>
<td>&lt;30%</td>
</tr>
<tr>
<td>Polyvinyl Chloride</td>
<td>9002-86-2</td>
<td>none</td>
<td>&lt;20%</td>
</tr>
<tr>
<td>Dextrin</td>
<td>9004-53-9</td>
<td>232-675-4</td>
<td>&lt;20%</td>
</tr>
<tr>
<td>Primer</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

4. First Aid Measures

Inhalation
- If fumes from ignition or contents are inhaled, remove to fresh air. If not breathing, give artificial respiration and get medical aid.
- For burns, cool with water and bandage appropriately. If contents are contacted, wash with soap and water for 15 minutes. Remove contaminated clothing and wash before reuse. Get medical aid if burned or irritation occurs.

Skin
- If burned, cover eye and get medical help immediately. If contents get into eye, flush with plenty of water for at least 15 minutes, occasionally lifting the up and lower lids. Remove contact lenses if easily possible Get medical aid immediately.

Eyes
- If burned, cover eye and get medical help immediately. If contents get into eye, flush with plenty of water for at least 15 minutes, occasionally lifting the up and lower lids. Remove contact lenses if easily possible Get medical aid immediately.

5. Firefighting Measures

Protective Equipment and Precautions for Firefighters

- Wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode. Prevent further propagation of fire by spraying unburnt nearby product with water. Combat fire from a sheltered position.

Specific Hazards Arising from the Chemical

- Only use outdoors. Use copious amounts of water to extinguish fire. Using small quantities of water on contents / broken shells can cause auto / re-ignition as contents contain magnesium. Use of water on a magnesium fire will generate hydrogen gas that may cause an explosion. Irritating fumes. Flaming projectiles may be ejected during a fire. Trace amounts of lead vapor may be produced (from ignition primer) in a fire situation.

NFPA Rating
- Flammability 2
- Health 2
- Reactivity 1

HMS Rating
- Flammability 1
- Health 3
- Physical Hazard 1

6. Accidental Release Measures

Personal Precautions
- Do not breathe smoke from use or contents and avoid contact with skin and eyes. Wear flame retardant clothing with long sleeves, dust mask, rubber or

Environmental Precautions
- Prevent dispersion of contents on soil and in water. Prevent contents from spreading or entering into drains, ditches, groundwater or rivers

Flashpoint
- Not Applicable

Flammability Limits
- Not Applicable

Ignition Temperature
- >180°F
nitrile gloves, safety goggles, safety shoes when cleaning up contents. Avoid friction on the released product. Keep away from ignition sources.

Methods for Containment and Clean-up

Use caution when cleaning up spilled product contents. Remove heat, flames, sparks and other sources of ignition. Use non-sparking tools and equipment. Prevent buildup of electrostatic charges by grounding. Clean spills in a manner that does not disperse dust into the air. Do not absorb in sawdust or other combustible absorbents. Pick up spill for recovery or disposal and place in an approved container. Wash away remains with plenty of water. Collect wash water for approved disposal. Be very careful - magnesium powder may spontaneously ignite in presence of moisture. Magnesium powder reacts with water, producing flammable hydrogen gas.

7. Handling and Storage

Handling

Use product only in designated launcher – do not attempt to use in 12 gauge shotgun. Point launcher away from body, other people, animals or combustible products when firing. Wear eye protection during use. Turn face from launcher when firing. Follow instructions on package. Avoid contact with clothing and other combustible materials. Use outdoors only! Do not ignite or launch product inside a vehicle or building. Avoid ingestion and inhalation of smoke and contents. Wash thoroughly after handling. Avoid contact with heat sparks, and flame. Do not disassemble signal.

Storage

Store in a dry place away from direct sunlight, heat and incompatible materials. Store away from food and beverages. Store away from flammable materials, sources of heat, flame and sparks. Store at ambient temperature.

8. Exposure Controls / Personal Protection

<table>
<thead>
<tr>
<th>Exposure Limits</th>
<th>OSHA PEL</th>
<th>ACGIH TLV</th>
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<tbody>
<tr>
<td>Strontium Nitrate</td>
<td>Not Established</td>
<td>Not Established</td>
</tr>
<tr>
<td>Magnesium</td>
<td>Not Established</td>
<td>Not Established</td>
</tr>
<tr>
<td>Strontium Peroxide</td>
<td>Nuisance dust 15 mg/m³</td>
<td>Nuisance dust 15 mg/m³</td>
</tr>
<tr>
<td>Black Powder</td>
<td>Not Established</td>
<td>Not Established</td>
</tr>
<tr>
<td>Polyvinyl Chloride</td>
<td>5mg/m³ for the respirable portion and 15mg/m³ for total dust.</td>
<td>5 and 10mg/m³, respectively</td>
</tr>
<tr>
<td>Dextrin</td>
<td>15 mg/m³ total dust</td>
<td>10 mg/m³</td>
</tr>
</tbody>
</table>

Engineering Controls

Use product outdoors only! When cleaning up contents, use local and/or general exhaust.

Eye / Face Protection

Turn face from launcher when firing. Wear safety glasses or goggles during use and when cleaning up spilled contents.

Skin Protection

None under normal conditions when using product unless prolonged handling is anticipated. When cleaning up spilled contents, wear impervious protective clothing, including gloves, boots, and a lab coat, apron or coveralls, as appropriate. Wash hands and face before eating, drinking or using tobacco products.

Respiratory Protection

None under normal conditions when using product. A particulate respirator (NIOSH Type N95 or better filters) may be worn during the cleanup of spilled contents.

General Hygiene

Use product outdoors away from combustible products. For cleanup of spilled contents, emergency showers and eye wash stations should be available. Educate and train employees in the safe use and handling of hazardous materials. Maintain good housekeeping and safety practices. Do not let contents accumulate in storage or work areas. Clean spills up promptly.

9. Physical and Chemical Properties

| Appearance (color, physical form, shape): Plastic shotgun shell filled with grey material with primer on one end; all materials sealed / enclosed under normal conditions |
| pH: Not available | Melting Point: Not available | Solubility: Not available |
| Boiling Point: Not applicable | Freezing Point: Not applicable | Evaporation Rate: Not applicable |
| Vapor Pressure: Not applicable | Specific Gravity: Not applicable | Vapor Density: Not applicable |

10. Stability and Reactivity

Chemical Stability

Stable

Possibility of Hazardous Reactions

Hazardous polymerization will not occur.

Conditions to Avoid

Excessive temperatures, moisture, water, acids, and ignition sources.

Incompatible Materials


Hazardous Decomposition Products

Oxides of Strontium and Nitrogen.

11. Toxicology Information

<table>
<thead>
<tr>
<th>Toxicology Information</th>
<th>Oral LD50</th>
<th>skin LD50</th>
<th>LC50</th>
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<tr>
<td>Magnesium</td>
<td>Rat: 230 mg/kg</td>
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<td>Strontium Peroxide</td>
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<tr>
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<td>Polyvinyl Chloride</td>
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<td>Not available</td>
<td>Not available</td>
</tr>
<tr>
<td>Dextrin</td>
<td>Not available</td>
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Acute Dose Effects

Burning shell can cause severe burns if in contact with body - product burns at an extremely high temperature. Particles from firing may be harmful if inhaled. Contact with contents may cause moderate skin and eye irritation. Inhalation of smoke or contents will cause irritation to the lungs and mucus membrane. Exposure to smoke during use may aggravate asthma if inhaled.

Repeated Dose Effects

No known chronic effects. Repeated or prolonged exposure to this compound is not known to aggravate medical conditions.
12. Ecological Information

Aquatic Toxicity

Strontium Nitrate: Acute toxicity - Fishes, Carassius auratus, LC100, 9,615 mg/l; Chronic toxicity - Fishes, Gasterosteus aculeatus, LC100, 2,912 mg/l

13. Disposal Considerations

Burning is the preferred method of disposal of pyrotechnic materials; product is considered inert after ignition. If quantities are too large to destroy by test firing, consult factory. Partially burned, unburned shells, spilled contents, and ash from burned shells should be disposed of in accordance with federal, state, and local requirements. Do not store partially burned shells in a vehicle, closed container, warehouse, or any other building.

14. Transportation Information

United States & International

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<th>shipping name</th>
<th>hazard class</th>
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15. Regulatory Information

US Regulations

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<th>TSCA</th>
<th>CERCLA</th>
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<th>Pressure</th>
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<td>Magnesium</td>
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<td>Polyvinyl Chloride</td>
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US States

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Canada

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<td>Strontium Nitrate</td>
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<td>Magnesium</td>
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<td>Strontium Peroxide</td>
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<td>Black Powder</td>
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<tr>
<td>Polyvinyl Chloride</td>
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Europe

<table>
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<td>Strontium Peroxide</td>
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<tr>
<td>Black Powder</td>
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</tr>
<tr>
<td>Polyvinyl Chloride</td>
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</tr>
</tbody>
</table>

16. Other Information

Revision Information: January 2012

Risk and Safety Phrases:

R10 Flammable
R30 Harmful by inhalation.
R21 Harmful in contact with skin.
R22 Harmful if swallowed.
R43 Causes burns.
R36 Irritating to eyes.
R57 Repeated exposure to high dust concentrations may cause lung irritation.
S2 Keep out of the reach of children.
S8 Keep container dry.
S13 Keep away from food, drink and animal foodstuffs.
S24 Avoid contact with skin.
S25 Avoid contact with eyes.
S29 Do not empty into drains.
S44, in case of fire and/or explosion do not breathe fumes.
S45 In case of fire use water. Cellulose based product.
S39 Wear eye/face protection.
S51 Use only in well ventilated areas.
S53 Wear rubber gloves./
S55 Use only in well ventilated areas.

Legal Statement:

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