SAFETY DATA SHEET

1. Product and Company Identification

**SAR Orange Smoke Signal**

**Identified Use:** Emergency signal  **Use Advised Against:** Do not use indoors or inside of a vehicle.

**Manufacturers Information:**
Orion Safety Products
3157 N 500 W
Peru, Indiana 46970
US 1-800-851-5260
Int'l (11) 1-765-472-4375

**2. Hazards Identification**

**GHS Classifications**
- Explosive Category 1.4 H204
- Skin Irritation Category 2 H315
- Eye Irritation Category 2A H319
- Skin Sensitization Category 1 H317
- STOT-Repeated Exposure Category 1 H372

**Pictograms**

**Signal Word**  **Danger**
- P102 Keep out of reach of children.
- P103 Read carefully and follow all instructions.
- P210 No smoking
- P261 Avoid breathing dust/fumes.
- P264 Wash hands thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors.
- P280 Wear protective eye protection.

**Hazard Statements**
- H204 Fire or projection hazard
- H315 Causes skin irritation
- H319 Causes serious eye irritation
- H317 May cause an allergic skin reaction
- H372 Causes damage to lungs through prolonged or repeated exposure

**Perchlorate Material:** special handling may apply, see www.dtsc.ca.gov/hazardouswaste/perchlorate.

**Hazards Not Otherwise Classified (HNOC):** produces hot flame and copious amount of smoke

3. Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>EINCS #</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solvent Yellow Dye</td>
<td>842-07-9</td>
<td>212-668-2</td>
<td>&lt;40%</td>
</tr>
<tr>
<td>Lactose</td>
<td>63-42-3</td>
<td>200-559-2</td>
<td>&lt;40%</td>
</tr>
<tr>
<td>Potassium Chlorate</td>
<td>3811-04-9</td>
<td>231-100-4</td>
<td>&lt;25%</td>
</tr>
<tr>
<td>Solvent Orange 7 Dye</td>
<td>3118-97-6</td>
<td>221-490-4</td>
<td>&lt;20%</td>
</tr>
<tr>
<td>Potassium Perchlorate</td>
<td>7778-74-7</td>
<td>231-912-9</td>
<td>&lt;0.5%</td>
</tr>
</tbody>
</table>

**Note:** Due to Confidential Business Information, “Trade Secrets”, the exact percentage of each ingredient has not been disclosed. CBI information will be shared with appropriate authorities if circumstances warrant.
4. First Aid Measures

**Inhalation:** If contents are inhaled, remove to fresh air. Watch for signs of allergic reaction. If other symptoms develop, get medical aid immediately.

**Skin:** If contents are contacted, wash with water, soap and water for 15 minutes. Remove contaminated clothing and wash before reuse. Get medical aid if irritation occurs.

**Eyes:** If contents get into eyes, flush with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Remove contact lenses if easily possible. Get medical aid immediately.

**Ingestion:** Get medical aid immediately.

**Most important symptoms and effects both acute and delayed.**

**Indication of any immediate medical attention and special treatment needed:** See section 2 labeling and section 11

5. Firefighting Measures

**Extinguishing Media:** Water deluge

**Unsuitable Extinguishing Media:** Foam and dry chemical extinguishers and suffocation are ineffective.

**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. Contents / dust may form explosive mixtures. Flame and copious amounts of smoke are ejected out the open end of the signal when it functions. Do not point signal at any part of the body or flammable material.

**Further Information:** No data available

6. Accidental Release Measures

**Personal Precautions / Protective Equipment / Emergency Procedures:** Do not breathe smoke or contents. Avoid contact with skin and eyes. Wear flame retardant clothing with long sleeves, dust mask, rubber or nitrile gloves, safety goggles, safety shoes when cleaning up contents. Avoid friction on the released product. Keep away from ignition sources. Contains strong dyes which will color all exposed areas.

**Environmental Precautions:** Prevent dispersion of contents on soil and in water. Prevent contents from spreading or entering into drains, ditches, groundwater or rivers by using appropriate barriers.

**Methods for Containment and Clean-up:** Use caution when cleaning up spilled 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. When cleaning up contents, use local and/or general exhaust. Clean up avoiding dust generation and place in a well identified container. Do not absorb in sawdust or other combustible absorbents. Mop up exposed area with bleach to destroy color. Wash away remainder with plenty of water. Collect wash water for approved disposal.

7. Handling and Storage

**Precautions for Safe Handling:** Hold and point signal away from body when igniting. Hold signal downwind when burning. Avoid breathing smoke. Avoid contact with clothing and other combustible materials. Use outdoors only! Do not ignite or burn product inside a vehicle, boat cabin or building. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Avoid contact with skin and eyes. Avoid contact with heat, sparks, and flame. Contains strong dyes which will color all exposed areas. Signals should be allowed to burn to completion. Unburned and partially burned signals should not be allowed to come into contact with surface and ground water.

**Conditions for Safe Storage, Including Any Incompatibilities:** 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. Do not store partially burned signals in a vehicle, boat, closed container, warehouse, or any other building.

8. Exposure Controls / Personal Protection

**Control Parameters / Exposure Limits / OSHA PEL / ACGIH TLV**

<table>
<thead>
<tr>
<th>Solvent Yellow Dye</th>
<th>Lactose</th>
<th>Potassium Chlorate</th>
<th>Solvent Orange 7 Dye</th>
<th>Shellac</th>
<th>Potassium Perchlorate</th>
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</thead>
<tbody>
<tr>
<td>Exposure Limits</td>
<td>OSHA PEL</td>
<td>ACGIH TLV</td>
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<td></td>
</tr>
<tr>
<td>No information found</td>
<td>No Airborne Exposure Limits established</td>
<td>None</td>
<td></td>
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<tr>
<td>Nuisance particulate, 15 mg/m³ of total dust</td>
<td>No information found</td>
<td>Nuisance dust 10 mg/m³ of total dust</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1000 ppm</td>
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<td>1000 ppm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nuisance dust 15 mg/m³.</td>
<td></td>
<td>Nuisance dust 15 mg/m³.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Exposure Controls

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

Engineering Controls

Safety glasses or goggles

Eye / Face Protection

None under normal conditions when using product unless prolonged handling is anticipated. Contains strong dyes which will color all exposed areas. When cleaning up spilled contents, wear full length 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

Skin Protection

Respiratory Protection

None under normal conditions when using product. A particulate respirator (NIOSH 1 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): orange powder

pH: No data available

Melting Point: No data available

Solubility: No data available

Boiling Point / Range: No data available

Freezing Point: Not applicable

Evaporation Rate: Not applicable

Vapor Pressure: No data available

Flash Point: No data available

Auto Ignition Temperature: >167°F

Viscosity: No data available

Decomposition Temperature: No data available

10. Stability and Reactivity

Chemical Stability: Stable

Reactivity: No information available

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

Carbon monoxide, carbon dioxide, nitrogen oxides.

11. Toxicology Information

Ingredient acute toxicity information

Toxicology

Oral LD50

Skin LD50

LC50

Solvent Yellow Dye

Rat: 5000 mg/kg

Rat: 5000 mg/kg

Rat: 5000 mg/kg

Lactose

Rat: 10000 mg/kg

Rat: 10000 mg/kg

Rat: 10000 mg/kg

Potassium Chlorate

Rat: 1870 mg/kg

Rat: 2100 mg/kg

Rat: 1870 mg/kg

Solvent Orange 7 Dye

Rat: 5000 mg/kg

Rat: 5000 mg/kg

Rat: 5000 mg/kg

Shellac

Rat: 5000 mg/kg

Rat: 5000 mg/kg

Rat: 5000 mg/kg

Potassium Perchlorate

Rat: 2100 mg/kg

Rat: 2100 mg/kg

Rat: 2100 mg/kg

Product toxicological information

Acute Toxicity

Not classified – Acute Toxicity Estimate yields oral LD50 over 5000 mg/kg bw

Skin Irritation / Corrosion

Category 2 – over 10% of ingredients classified as a Category 2 skin irritant

Serious Eye Damage / Irritation

Category 2A – over 10% of ingredients classified as a Category 2A eye irritant

Respiratory / Skin Sensitization

Category 1 Skin – over 0.1% of ingredients are classified as a Category 1 skin sensitizer

Germ Cell Mutagen

Not classified (Based on available data, the classification criteria are not met)

Carcinogen

Not classified (Based on available data, the classification criteria are not met)

Reproductive Toxicity

Not classified (Based on available data, the classification criteria are not met)

STOT – single exposure

Not classified (Based on available data, the classification criteria are not met)

Aspiration Hazard

Not classified (Based on available data, the classification criteria are not met)

Likely routes of exposure

Skin, ingestion, inhalation

Irritation to the eyes will cause watering and redness. Reddening, scaling, and itching are characteristics of skin inflammation. Ingestion of contents may cause gastrointestinal irritation with nausea, vomiting and diarrhea. Inhalation will cause irritation to the lungs and mucus membrane.

Symptoms related to the physical, chemical and toxicological characteristics

Delayed and immediate effects and chronic effects from short and long term exposure

Interactive effects

Both the solvent yellow and orange dyes may cause dermatitis in sensitive individuals.

No information found
12. Ecological Information

Ingredient toxicity / persistence / degradability / bioaccumulation / mobility in soil and water

Aquatic Toxicity: Potassium Chlorate: fish: LC50 oncorhynchus mykiss (rainbow trout) 1750 mg/l – 96 hr, EC50 daphnia magna (water flea) 1093 mg/l 24 hr

Persistence / Degradability: No information found

Bioaccumulation / Accumulation: No information found

Mobility in Environmental Media: No information found

Other adverse effects: No information found

13. Disposal Considerations (for spills and leakage)

Flares should be allowed to burn to completion. Dispose of partially burned flares, ash, spilled contents, contaminated product and materials used in cleaning up spills or leaks in the manner approved for pyrotechnic material in accordance with federal, state and local requirements. Open burning is preferred method of disposal for pyrotechnic materials.

14. Transportation Information

<table>
<thead>
<tr>
<th>ID Number</th>
<th>Proper Shipping Name</th>
<th>Hazard Class</th>
<th>Packing Group</th>
<th>EX Number</th>
<th>Reportable Quantities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic &amp; International</td>
<td>UN0373 Signal devices, hand</td>
<td>1.4S</td>
<td>n/a</td>
<td>EX1997080126</td>
<td>none</td>
</tr>
</tbody>
</table>

Marine pollutant: no

Special precautions for user: no information available

15. Regulatory Information

| US Regulations | TS CA CERCLA CWA CAA SARA 313 SARA 302 Acute Chronic Fire Reactivity Pressure |
|----------------|---------------------------------|-----------------|-------------|---------------------|
| Solvent Yellow Dye | yes no no no yes | no yes yes no no no |
| Lactose | yes no no no no | no no no no no no |
| Potassium Chlorate Solvent | yes no no no no | no yes no no yes no |
| Orange 7 Dye Shellac | yes no no no no | no no no no no no |
| Potassium Perchlorate | yes no no no no | no yes no no yes no |

| US States | Prop 65 NJ PA Canada WHMIS DLS Europe Wgk |
|-----------|-----------------|---------------------------------|-----------------|---------------------|
| Solvent Yellow Dye | yes 0509 yes | D2A Very toxic materials yes | not listed |
| Lactose | no no no | C Oxidizing materials yes | not listed |
| Potassium Chlorate | no 1560 yes | D1B Toxic materials | 2 |
| Solvent Orange 7 Dye Shellac | no 0506 yes | D2B Toxic materials | 3 |
| Potassium Perchlorate | no 0844 yes | B2-D2B Toxic materials yes | 0 |
| | no 1577 yes | C Oxidizing materials yes | 1 |
16. Other Information

Revision Information: March 2019

<table>
<thead>
<tr>
<th>NFPA Rating</th>
<th>HMIS Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability</td>
<td>2 Flammability 1</td>
</tr>
<tr>
<td>Health</td>
<td>2 Health 3</td>
</tr>
<tr>
<td>Reactivity</td>
<td>1 Physical Hazard 1</td>
</tr>
</tbody>
</table>

Key / Legend
HMIS: hazardous material identification system
NFPA: national fire protection association
CAS: Chemical Abstracts Service number
EINECS: European inventory of existing chemical substances
OSHA PEL: occupational safety and health administration permissible exposure limit
NIOSH TLV: national institute of occupational safety and health Threshold Limit Value
NTP: National Toxicology Program
IARC: International Agency for Research on Cancer
CWA: clean water act - US

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