

## SAFETY DATA SHEET

### 1. Product and Company Identification

**Red Emergency Flare – No Perchlorate (NPC) Formulation**      **Identification:** The NPC Flare will have the following symbol on it.



**Synonyms:** Emergency Road Flare, Railway Flare  
 NSN#: 1370-01-009-2593

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

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

**EMERGENCY RESPONSE**      CHEMTREC  
 1-800-424-9300  
 1-703-527-3887

### 2. Hazards Identification

<b>GHS Classifications</b>	Explosive	Category 1.4
	Skin Irritation	Category 2
	Eye Irritation	Category 2A
	STOT-Single Exposure	Category 3

**GHS Label Elements**

**Hazard Statements**

H204	Fire or projection hazard
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation

**Pictograms**



**Signal Word**      **Warning**

**Precautionary Statements**

P102	Keep out of reach of children.	P301/315	IF SWALLOWED: Get immediate medical advice /attention.
P103	Read carefully and follow all instructions.	P302/352	IF ON SKIN: Wash with plenty of soap and water.
P210	Keep away from heat, sparks, open flames, hot surfaces.	P304/340/342	IF INHALED: Remove victim to fresh air and keep at rest in a comfortable for breathing. If experiencing respiratory symptoms: Call POISON CENTER or doctor/physician.
P261	Avoid breathing dust/fumes.		
P264	Wash hands thoroughly after handling.		
P270	Do not eat, drink or smoke when using this product.	P305/338/351	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P271	Use only outdoors.		
P280	Wear protective eye protection.	P332/313	If skin irritation or rash occurs, get medical advice/attention.
P370	In case of fire use water deluge.	P501	Dispose of contents / container in accordance with local and national

**Hazards Not Otherwise Classified (HNOC):** produces hot flame

### 3. Composition / Information on Ingredients

Component	CAS #	EINCS #	Percentage
Strontium Nitrate	10042-76-9	233-131-6	<75%
Sulfur	7704-34-9	231-722-6	<25%
Potassium Nitrate	7757-79-1	231-818-8	<25%
Paraffinic Oil	64742-54-7	232-384-2	<10%
Potassium Chlorate	3811-04-9	231-100-4	<5%
Sawdust (cellulose)	9004-34-6	232-674-9	<5%
Polyvinyl Chloride	9002-86-2	200-831-0	<5%
Charcoal	1333-86-4	231-153-3	<1%

**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

**Description of first aid measures**

<b>Inhalation</b>	If contents are inhaled, remove to fresh air. Watch for signs of allergic reaction. If other symptoms develop, get medical aid immediately.
<b>Skin</b>	If contents are contacted, wash with area with soap and water for 15 minutes. Remove contaminated clothing and wash before reuse. Get medical aid if irritation occurs.
<b>Eyes</b>	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.
<b>Ingestion</b>	Get medical aid immediately.

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

See section 2 labeling and section 11  
 Burning flare can cause severe burns if in contact with body. For burns to skin, cool with water and bandage appropriately. Seek medical attention. If eye is burned, cover eye and get medical aid immediately.

**Indication of any immediate medical attention and special treatment needed**

## 5. Firefighting Measures

<b>Extinguishing Media</b>	Water deluge	<b>Unsuitable Extinguishing Media</b>	Foam and dry chemical extinguishers and suffocation are ineffective.
<b>Protective Equipment and Precautions for Firefighters</b>	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. Use copious amounts of water to extinguish fire comprised of flares. Flares contain oxidizers and will continue to burn unless a significant amount of water is used. Do not breathe smoke.		
<b>Specific Hazards Arising from the Chemical</b>	Only use outdoors. Flame and sparks are ejected out the open end of the flare when it functions. Do not point flare at any part of the body or flammable material.		
<b>Further Information</b>	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.

### 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. Do not absorb in sawdust or other combustible absorbents. Pick up spill for recovery or disposal and place in an approved container. Wash away remainder with plenty of water. Collect wash water for approved disposal.

## 7. Handling and Storage

### Precautions for Safe Handling

Hold and point flare away from body when igniting. Exercise caution when using the product since molten flecks may be emitted. Produces hot flame. Burning flare can cause severe burns if in contact with body. Avoid contact with clothing and other combustible materials. Wear eye protection during use. Follow instructions on package. Use outdoors only! Do not ignite or burn product inside a vehicle or building. Avoid inhalation of smoke. Do not dismantle. Do not allow contents to touch eyes, skin or clothing. Do not ingest contents as they may be harmful if swallowed. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Avoid contact with heat, sparks, and flame.

### Conditions for Safe Storage, Including Any Incompatibilities

Store in a dry place away from direct sunlight, heat and incompatible materials. See section 10. Store away from food and beverages. 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, warehouse, or any other building. Plastic bags are provided for moisture protection. Keep partially used bags sealed at all times.

## 8. Exposure Controls / Personal Protection

### Control Parameters

Exposure Limits	OSHA PEL	ACGIH TLV
Strontium Nitrate	Not established	Not established
Sulfur	Not established	Not established
Potassium Nitrate	Nuisance dust, 15 mg/m <sup>3</sup>	Nuisance dust, 15 mg/m <sup>3</sup>
Paraffinic Oil	5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup> TWA
Potassium Chlorate	No Airborne Exposure Limits established	No Airborne Exposure Limits established
Sawdust (cellulose)	5 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>
Polyvinyl Chloride	No known hazardous components above regulatory thresholds in this product.	No known hazardous components above regulatory thresholds in this product.
Charcoal	Nuisance dust, 15 mg/m <sup>3</sup>	Nuisance dust, 15 mg/m <sup>3</sup>

### Exposure Controls

<b>Engineering Controls</b>	Use product outdoors only! When cleaning up contents, use local and/or general exhaust.
<b>Eye / Face Protection</b>	Safety glasses or goggles
<b>Skin Protection</b>	None under normal conditions when using product unless prolonged handling is anticipated. Impervious protective clothing, including gloves, boots, and a lab coat, apron or coveralls, as appropriate, when cleaning up spilled product. Wash hands and face before eating, drinking or using tobacco products
<b>Respiratory Protection</b>	None under normal conditions when using product. A particulate respirator (NIOSH t N95 or better filters) may be worn during the cleanup of spilled contents.
<b>General Hygiene</b>	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

<b>Appearance</b> (color, physical form, shape):	Grey powder	<b>Melting Point:</b>	No data available	<b>Solubility:</b>	No data available
<b>pH:</b>	No data available	<b>Freezing Point:</b>	Not applicable	<b>Evaporation Rate:</b>	Not applicable
<b>Boiling Point / Range:</b>	Not applicable	<b>Specific Gravity:</b>	Not applicable	<b>Vapor Density:</b>	Not applicable
<b>Vapor Pressure:</b>	Not applicable	<b>Odor Threshold:</b>	No data available	<b>Flash Point:</b>	No data available
<b>Odor:</b>	No data available	<b>Flammability Limits:</b>	No data available	<b>Relative Density:</b>	No data available
<b>Flammability:</b>	No data available	<b>Viscosity:</b>	No data available	<b>Decomposition Temperature:</b>	No data available
<b>Partition Coefficient:</b>	No data available				
<b>Auto Ignition Temperature:</b>	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**  
Combustible materials, heat, flames, sparks and other sources of ignition. Moisture.

**Incompatible Materials**  
Strong acids, strong fuels, ammonia salts and strong bases.  
Strong oxidizers; chlorate salts.

**Hazardous Decomposition Products**  
Carbon monoxide, carbon dioxide, sulfur oxides and nitrogen oxides.

## 11. Toxicology Information

### Ingredient acute toxicity information

Toxicology	Oral LD50	Skin LD50	LC50
Strontium Nitrate	Rat: 2750 mg/kg	No information found	No information found
Sulfur	Rat: >2000 mg/kg	Rat: >2000 mg/kg	Rat: 79.23 mg/L 4hr
Potassium Nitrate	Rat: 3750 mg/kg	No information found	No information found
Paraffinic Oil	Rat: >2000 mg/kg	Rat: >2000 mg/kg	No information found
Potassium Chlorate	Rat: 1870 mg/kg	Rabbit: >2000 mg/kg	No information found
Sawdust (cellulose)	Rat: > 5000 mg/kg	Rabbit: >2000 mg/kg	Rat 758 mg/m <sup>3</sup>
Polyvinyl Chloride	Rat: > 5000 mg/kg	no known hazardous components above regulatory thresholds in this product	no known hazardous components above regulatory thresholds in this product
Charcoal	Rat: > 15400 mg/kg	Rabbit: 3 g/kg	No information found

### Product toxicological information

<b>Acute Toxicity</b>	Not classified – <i>Acute Toxicity Estimate yields oral LD<sub>50</sub> over 5000 mg/kgbw</i>
<b>Skin Irritation / Corrosion</b>	Category 2 – <i>over 10% of ingredients classified as a Category 2 skin irritant</i>
<b>Serious Eye Damage / Irritation</b>	Category 2A – <i>over 10% of ingredients classified as a Category 2A eye irritant</i>
<b>Respiratory / Skin Sensitization</b>	Not classified (Based on available data, the classification criteria are not met)
<b>Germ Cell Mutagen</b>	Not classified (Based on available data, the classification criteria are not met)
<b>Carcinogen</b>	Not classified (Based on available data, the classification criteria are not met)
<b>Reproductive Toxicity</b>	Not classified (Based on available data, the classification criteria are not met)
<b>STOT – single exposure</b>	Category 3 - <i>respiratory-over 10% of ingredients classified as a Category 3 respiratory STOT hazard</i>
<b>STOT – repeated exposure</b>	Not classified (Based on available data, the classification criteria are not met)
<b>Aspiration Hazard</b>	Not classified (Based on available data, the classification criteria are not met)
<b>Likely routes of exposure</b>	Skin, ingestion, inhalation
<b>Symptoms related to the physical, chemical and toxicological characteristics</b>	Contents irritating to eyes due to chemical and physical properties of the mixture. Ingestion of contents may cause gastrointestinal irritation with nausea, vomiting and diarrhea. Individuals with known allergies to sulfide drugs may also have allergic reactions to elemental sulfur.
<b>Delayed and immediate effects and chronic effects from short and long term exposure</b>	Inhalation of contents or smoke from burning flare will cause irritation to the lungs and mucus membrane. Prolonged or repeated skin contact with contents may cause dermatitis.
<b>Interactive effects</b>	No information found

## 12. Ecological Information

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

<b>Aquatic Toxicity</b>	<u>Strontium Nitrate:</u> Acute toxicity - Fishes, Carassius auratus, LC100, 9,615 mg/l; Chronic toxicity - Fishes, Gasterosteus aculeatus, LC100, 2,912 mg/l <u>Sulfur:</u> Toxicity to fish LC50 - Oncorhynchus mykiss (rainbow trout) - > 180 mg/l - 96 h Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna (Water flea) – > 5,000 mg/l - 48 h <u>Potassium Chlorate:</u> fish: LC50 oncorhynchus mykiss (rainbow trout) 1750 mg/l – 96 hr, EC50 daphnia magna (water flea) 1093 mg/l 24 hr <u>Paraffinic Oil:</u> Oil Mist, Mineral Lepomis macrochirus (LC50) 96 hour(s) >100 mg/l Oncorhynchus mykiss (LC50) 96 hour(s) >100 mg/l <u>Potassium Nitrate:</u> fish: Guppy (Poecilia Reticulata) LC50 180 mg/L (96 h); zooplankton: Daphnia magna LC50 490mg/l – 48hr <u>Potassium Nitrate:</u> Soluble in water Persistence is unlikely based on information available.
<b>Persistence / Degradability</b>	No information found
<b>Bioaccumulation / Accumulation</b>	No information found
<b>Mobility in Environmental Media</b>	<u>Strontium Nitrate:</u> Water: considerable solubility and mobility; Soil/sediments non-significant adsorption <u>Potassium Nitrate:</u> Will likely be mobile in the environment due to its water solubility.
<b>Other adverse effects</b>	No information found

### 13. Disposal Considerations (for spills and leakage)

**Disposal methods**

Flares should be allowed to burn to completion. Partially burned or unburned flares, spilled contents, and ash from burned flares should be disposed of in accordance with federal, state, and local requirements. Consult factory for any additional disposal concerns.

### 14. Transportation Information

Packaging Description	ID Number	Proper Shipping Name	Hazard Class	P G	EX Number	Reportable Quantities	Comments
<b>Competent Authority Approval / Classification Reference #EX1992090001</b>							
Inner Packaging (bag)	UN0373	Signal devices, hand	1.4S	n/a	EX1992090001	none	Allowed by Passenger Aircraft, Ground, Vessel
<b>Allowed for Domestic Shipments / Noted on Original classification shown above</b>							
No Inner Package Required	NA1325	Fusee	4.1	II	n/a	none	Allowed for Domestic shipments only
<b>Allowed when packaged as specified on Approval / Reference #EX2002110114</b>							
*Specific on Approval	**UN3178	Flammable solid, inorganic, n.o.s.	4.1	II	EX2002110114	none	*Up to 4 fusees per inner package, up to 144 fusees per outer package.

\*\*According to 49CFR, Exceptions for Class 4, Limited Quantities of flares properly packaged and classed as UN3178, Flammable solid, inorganic, n.o.s. are excepted from several requirements unless offered for transport by air or until Dec. 31<sup>st</sup> 2020, they may be renamed "Consumer Commodity" and reclassified as ORM-D and offered for transport in accordance with the applicable provisions of that subchapter.

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
Strontium Nitrate	yes	no	no	no	no	no	yes	no	no	yes	no
Sulfur	yes	no	no	no	no	no	yes	no	yes	no	no
Potassium Nitrate	yes	no	no	no	yes	no	no	no	no	yes	no
Paraffinic Oil	yes	no	no	no	no	no	no	no	no	no	no
Potassium Chlorate	yes	no	no	no	no	no	yes	no	no	yes	no
Sawdust (cellulose)	yes	no	no	no	no	no	no	no	no	no	no
Polyvinyl Chloride	yes	no	no	no	no	no	yes	no	no	no	no
Charcoal	yes	no	no	no	no	no	no	no	no	no	no
US States	Prop 65	NJ	PA	Canada	WHMIS		DLS	Europe	Wgk		
Strontium Nitrate	no	1743	no		C Oxidizing materials		yes				2
Sulfur	no	1757	yes		D1B Toxic materials						
Potassium Nitrate	no	1574	yes		D2B Toxic materials						
Paraffinic Oil	no	1437	no		B4 Flammable solid		yes				1 / nwg
Potassium Chlorate	yes	1560	yes		D2B Toxic materials						
Sawdust (cellulose)	yes	no	no		C Oxidizing materials		yes				1
Polyvinyl Chloride	no	3622	no		No results		yes				not listed
Charcoal	yes	yes	yes		C Oxidizing materials		yes				2
					D1B Toxic materials						
					No results		yes				not listed
					No results		yes				not listed
					D2A Very Toxic materials		yes				Nwg
					D2B Toxic materials						

## 16. Other Information

**Revision Information:** March 2019

<b>NFPA Rating</b>		<b>HMIS Rating</b>	
Flammability	1	Flammability	1
Health	2	Health	2
Reactivity	1	Physical Hazard	1

### 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

TSCA: toxic substance control act - US  
 CERCLA: comprehensive environmental response compensation and liability act – US  
 CAA: clean air act - US  
 SARA: superfund amendments and reauthorization act – US  
 PROP 65: California's Proposition 65 list  
 WHMIS: workplace hazardous materials information system - Canada  
 DSL: Domestic Substances List - Canada  
 WGK: water hazard classes - Germany

### Legal Statement

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