

# SAFETY DATA SHEET

## 1. Product and Company Identification

**Emergency Road Flare / Fusee / Railway Flare**

NSN#: 1370-01-009-2593

**Backfire Torches (p/n 4100)**

NSN#: 1370-00-294-1279

**SAR Signal Flare / Campfire Starter**

**Use:** Emergency signal  
Forest fire control  
Campfire starter

**Identification:** Only the NPC flare will have the following symbol on it:



**For Both Perchlorate (PC) and No Perchlorate (NPC) Formulations**

Orion Safety Products  
28320 St. Michaels Rd  
Easton, MD 21601

**Phone Number:** 800-637-7807  
410-822-0318  
**EMERGENCY CHEMTREC 1-800-424-9300**

## 2. Hazards Identification

### Emergency Overview



**Danger**

GHS Classifications	
Explosive	Division 1.4
Acute Toxicity	Category 5
Skin Corrosion / Irritation	Product- Category 1A Contents - Category 2
Serious Eye Damage / Irritation	Product-Category 1 Contents - Category 2B
Respiratory or Skin Sensitization	Contents - Category 1
Carcinogenicity	Category 1A
PC only: STOT - Repeated Exposure	Contents - Category 2

**Hazard Statements:**

Fire or projection hazard  
May be harmful if swallowed  
Causes severe skin burns and eye damage when used / burned  
Causes skin and eye irritation if exposed to contents  
May cause allergy or asthma symptoms or breathing difficulties if inhaled  
May cause cancer  
PC only: May cause damage to thyroid through ingestion after prolonged or repeated exposure

**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.  
Use only non-sparking tools for cleanup of spilled contents  
Avoid breathing dust/smoke  
Use only outdoors.  
Avoid release to the environment.  
Use personal protective equipment as required.  
In case of fire: use water deluge. Do not use dry powder or foam extinguishers!

**NFPA Rating**

Flammability 1  
Health 2  
Reactivity 1

**HMIS Rating**

Flammability 1  
Health 2  
Physical Hazard 1

## 3. Composition / Information on Ingredients

Component	CAS #	EINCS #	NPC %age	PC %age
Strontium Nitrate	10042-76-9	233-131-9	<75%	<75%
Sulfur	7704-34-9	231-722-6	<25%	<25%
Paraffinic Oil	64742-54-7	232-384-2	<25%	<25%
Potassium Chlorate	3811-04-9	231-100-4	<25%	<25%
Sawdust / Wood Flour	9004-34-6	232-674-9	<25%	<25%
Shellac	mixture	none	<25%	<25%
Marble Dust	1317-65-3	215-279-6	<10%	<10%
Burnt Umber	12713-03-0	235-784-5	<10%	<10%
NPC only: Potassium Nitrate	7757-79-1	231-818-8	<25%	n/a
NPC only: Polyvinyl Chloride	9002-86-2	200-831-0	<25%	n/a
PC only: Potassium Perchlorate	7778-74-7	231-912-9	n/a	<25%

## 4. First Aid Measures

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

**Skin** For burns, cool with water and bandage appropriately. If contents are contacted, wash with area with soap and water for 15 minutes. Remove contaminated clothing and wash before reuse. Get medical aid immediately if burned or irritation occurs.

**Eyes** If burned, cover eye and get medical aid immediately. If contents get into eye, flush with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Remove contact lenses if easily possible. Do not use boric acid to rinse with; sulfur is an acid irritant. Get medical aid immediately.

**Ingestion** Get medical aid immediately.

## 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.		
<b>Specific Hazards Arising from the Chemical</b>	Flame and sparks are ejected out the open end of the flare when it functions.		
<b>Flashpoint</b>	Not Applicable	<b>Flammability Limits</b>	Not Applicable
		<b>Ignition Temperature</b>	>167°F

## 6. Accidental Release Measures

<b>Personal Precautions</b>	<b>Environmental Precautions</b>
Do not breathe contents and avoid contact with skin and eyes. Wear flame retardant clothing with long sleeves, dust mask, rubber or nitrile gloves, safety goggles, safety shoes. Avoid friction on the released product. Keep away from ignition sources.	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.
<b>Methods for Containment and Clean-up</b>	
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 remainder with plenty of water. Collect wash water for approved disposal.	

## 7. Handling and Storage

<b>Handling</b>	Hold and point flare away from body when igniting. Exercise caution when using this product since molten flecks may be emitted. 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.
<b>Storage</b>	Store in a closed container 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 flares in a vehicle, warehouse, or any other building. <b>NPC only:</b> Plastic bags are provided for moisture protection. Keep partially used bags sealed at all times.

## 8. Exposure Controls / Personal Protection

Exposure Limits	OSHA PEL	ACGIH TLV
Strontium Nitrate	Not Established	Not Established
Sulfur	Not Established	Not Established
Paraffinic Oil	5 mg/m <sup>3</sup>	TWA 5 mg/m <sup>3</sup>
Potassium Chlorate	No Airborne Exposure Limits established	No Airborne Exposure Limits established
Sawdust / Wood Flour	Wood dust 5.0 mg/m <sup>3</sup> (respirable fraction) Western red cedar: TWA – 2.5 mg/m <sup>3</sup>	TWA-5.0 mg/m <sup>3</sup> ; STEL (15 min.) – 10 mg/m <sup>3</sup> (softwood) TWA – 1.0 mg/m <sup>3</sup> (certain hardwoods such as beech or oak)
Marble Dust	15 mg/m <sup>3</sup> TWA (total dust); 5 mg/m <sup>3</sup> TWA (respirable fraction)	not stated
Burnt Umber	10 mg/cu m. Fume	8 hr Time Weighted Avg (TWA): 5 mg/cu m, respirable fraction
<b>NPC only:</b> Potassium Nitrate	Nuisance dust 15 mg/m <sup>3</sup> .	Nuisance dust 15 mg/m <sup>3</sup> .
<b>NPC only:</b> Polyvinyl Chloride	No known hazardous components above regulatory thresholds in this product.	No known hazardous components above regulatory thresholds in this product.
<b>PC only:</b> Potassium Perchlorate	nuisance dust 15 mg/m <sup>3</sup> .	nuisance dust 15 mg/m <sup>3</sup> .

<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 materials.
<b>General Hygiene</b>	Use product outdoors away from combustible products. For cleanup of spilled materials, emergency showers and eye wash stations should be available. Educate and train employees in the safe use and handling of hazardous materials.

## 9. Physical and Chemical Properties

<b>Appearance (color, physical form, shape):</b>	Red, yellow, or kraft paper tube with plastic or cardboard cap on one end		
<b>pH:</b>	Not available	<b>Melting Point:</b>	Not available
<b>Boiling Point</b>	Not applicable	<b>Freezing Point:</b>	Not applicable
<b>Vapor Pressure:</b>	Not applicable	<b>Specific Gravity</b>	Not applicable
		<b>Solubility:</b>	Not available
		<b>Evaporation Rate:</b>	Not applicable
		<b>Vapor Density:</b>	Not applicable

## 10. Stability and Reactivity

<b>Chemical Stability</b> Stable	<b>Possibility of Hazardous Reactions</b> Hazardous polymerization will not occur.
<b>Conditions to Avoid</b> Combustible materials, heat, flames, sparks and other sources of ignition. Moisture.	<b>Incompatible Materials</b> Strong acids, strong fuels, ammonia salts, and strong bases. Strong oxidizers; chlorate salts.
	<b>Hazardous Decomposition Products</b> Carbon monoxide, carbon dioxide, sulfur oxides, and nitrogen oxides.

## 11. Toxicology 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
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 / Wood Flour	not stated	not stated	not stated
Marble Dust	not stated	not stated	not stated
Burnt Umber	not stated	not stated	not stated
<b>NPC only: Potassium Nitrate</b>	<b>Rat: 3750 mg/kg</b>	<b>No information found</b>	<b>No information found</b>
<b>NPC only: Polyvinyl Chloride</b>	<i>no known hazardous components above regulatory thresholds in this product.</i>	<i>no known hazardous components above regulatory thresholds in this product.</i>	<i>no known hazardous components above regulatory thresholds in this product.</i>
<b>PC only: Potassium Perchlorate</b>	Rat: 2100 mg/kg	No information found	No information found

### Acute Dose Effects

Burning flare can cause severe burns if in contact with body. Contents may cause moderate eye irritation or burns. Skin contact with flare contents causes irritation and possible burns, especially if skin is wet or moist. Ingestion of contents may cause gastrointestinal irritation with nausea, vomiting and diarrhea. Inhalation of smoke or contents will cause irritation to the lungs and mucus membrane. Individuals with known allergies to sulfide drugs may also have allergic reactions to elemental sulfur.

### Repeated Dose Effects

Prolonged or repeated skin contact with contents may cause dermatitis.

<b>Irritation</b>	Contents irritating to the skin and eyes on contact. Inhalation of contents or smoke from burning flare will cause irritation to the lungs and mucus membrane.	<b>Corrosivity</b>	Burning flare can cause severe burns if in contact with body
<b>Carcinogenicity</b>	Sawdust and Quartz Silica in Marble Dust and Burnt Umber are known to be carcinogens by IARC, PROP 65, NTP and ACGIH	<b>Reproductive Effects</b>	No information found
<b>Genetic Effects</b>	No information found	<b>Neurological Effects</b>	No information found
<b>Developmental Effects</b>	<b>PC only:</b> Perchlorate exposure at certain levels can disrupt the function of the thyroid gland by interfering with the iodide uptake and thyroid hormone production. This interference may lead to developmental defects. Scientists consider pregnant women, children, infants, and individuals with thyroid disorders to be the populations most at risk of harm from being exposed to perchlorate.	<b>Sensitization</b>	Individuals with known allergies to sulfide drugs may also have allergic reactions to elemental sulfur. Various species of wood dust can elicit allergic contact dermatitis in sensitized individuals.
<b>Target Organ Effects</b>	Eye, skin, kidney, lungs, and heart. <b>PC only:</b> Thyroid		

## 12. Ecological Information

Aquatic Toxicity	Persistence / Degradability	Bioaccumulation / Accumulation	Mobility in Environmental Media
<u>Strontium Nitrate:</u> Acute toxicity - Fishes, <i>Carassius auratus</i> , LC100, 9,615 mg/l; Chronic toxicity - Fishes, <i>Gasterosteus aculeatus</i> , LC100, 2,912 mg/l	No information found	No information found	<u>Strontium Nitrate:</u> Water:: considerable solubility and mobility; Soil/sediments non-significant adsorption
<u>Sulfur:</u> Toxicity to fish LC50 - <i>Oncorhynchus mykiss</i> (rainbow trout) - > 180 mg/l - 96 h Toxicity to daphnia and other aquatic invertebrates: EC50 - <i>Daphnia magna</i> (Water flea) - > 5,000 mg/l - 48 h			<b>NPC only Potassium Nitrate:</b> Predicted Distribution : Water, 45% ; Soil, 54.7%
<u>Paraffinic Oil:</u> Oil Mist, Mineral <i>Lepomis macrochirus</i> (LC50) 96 hour(s) >100 mg/l <i>Oncorhynchus mykiss</i> (LC50) 96 hour(s) >100 mg/l			
<u>Potassium Chlorate:</u> fish: LC50 <i>oncorhynchus mykiss</i> (rainbow trout) 1750 mg/l - 96 hr, EC50 <i>daphnia magna</i> (water flea) 1093 mg/l 24 hr			
<b>NPC only: Potassium Nitrate:</b> fish: <i>Guppy</i> ( <i>Poecilia Reticulata</i> ) LC50 180 mg/L (96 h); zooplankton: <i>Daphnia magna</i> LC50 490mg/l - 48hr			

## 13. Disposal Considerations

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. **PC only:** Refer to California Code of Regulations, Title 33, Sections 67384.1-67384.10 for additional information on handling and disposal of potassium perchlorate containing materials.

### 14. Transportation Information

Description	shipping name	hazard class	ID Number	packing group	EX Number	Reportable Quantities	Shipping method
<b>United States</b>							
Bulk flares	Fusee	4.1	NA1325	II	Not applicable	none	Ground only
Retail packaged flares	ORM-D / Limited Quantity	Not applicable	UN3178	Not applicable	Not applicable	none	Ground only
<b>International / Air</b>							
Bulk flares	Signal Devices, Hand	1.4S	UN0373	II	EX-1992090001	none	Air / ground

### 15. Regulatory Information

US Regulations	TSCA	CERCLA	CWA	CAA	SARA 313	SARA 302	Acute	Chronic	Fire	Reactivity	Pressure
Strontium Nitrate	yes	no	no	no	no	no	yes	yes	yes	yes	no
Sulfur	yes	no	no	no	no	no	yes	no	yes	no	no
Paraffinic Oil	yes	no	no	no	no	no	no	no	no	no	no
Potassium Chlorate	yes	no	no	no	no	no	yes	yes	no	yes	no
Sawdust / Wood Flour	yes	no	no	no	no	no	not stated	not stated	not stated	not stated	not stated
Marble Dust	yes	no	no	no	no	no	no	yes	yes	no	no
Burnt Umber	yes	no	no	no	no	yes	no	no	no	no	no
<b>NPC only: Potassium Nitrate</b>	yes	no	no	no	yes	no	no	yes	no	yes	no
<b>NPC only: Polyvinyl Chloride</b>	yes	no	no	no	no	no	yes	no	no	no	no
<b>PC only: Potassium Perchlorate</b>	yes	no	no	no	no	no	no	no	no	no	no

US States	Prop 65	NJ	PA	Canada	WHMIS	DSL	Europe	wgk
Strontium Nitrate	no	1743	no		No results	yes		2
Sulfur	no	1757	yes		No results	yes		1 / nwg
Paraffinic Oil	no	1437	no		No results	yes		not listed
Potassium Chlorate	yes	1560	yes		No results	yes		2
Sawdust / Wood Flour	yes	3227	yes		No results	yes		not listed
Marble Dust	yes	Does not meet criteria	yes		yes	NDSL		nwg
Burnt Umber	yes	Does not meet criteria	yes		No results	yes		not listed
<b>NPC only: Potassium Nitrate</b>	no	1574	yes		No results	yes		1
<b>NPC only: Polyvinyl Chloride</b>	no	3622	no		No results	yes		not listed
<b>PC only: Potassium Perchlorate</b>	no	1577	no		C	yes		1

### 16. Other Information

Revision Information: April 2014

#### Risk and Safety Phrases:

R7 May cause fire  
R10 Flammable  
R38, Irritating to skin  
R20 Harmful by inhalation.  
R21 Harmful in contact with skin.  
R22 Harmful if swallowed.  
R34 Causes burns  
R36 Irritating to eyes.  
R37 Irritating to respiratory system.  
S2 Keep out of the reach of children.

S8 Keep container dry  
S17 Keep away from combustible material  
S16 Keep away from sources of ignition  
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.  
S41, In case of fire and / or explosion do not breathe fumes  
S43 In case of fire use water  
S51 Use only in well ventilated areas

#### Key / Legend:

HMS: 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

TSCA: toxic substance control act - US  
CERCLA: comprehensive environmental response, compensation and liability act - US  
CWA: clean water 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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