



# SAFETY DATA SHEET

## 1. Product and Company Identification

**Emergency Road Flare / Fusee / Railway Flare**  
NSN#: 1370-01-009-2593

**Use:** Emergency signal

**Backfire Torches** NSN#: 1370-00-294-1279

Forest fire control

**SAR Signal Flare / Campfire Starter**

Emergency signal / campfire starter

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

**Phone Number:** US 1-800-637-7807

Intl (11) 1-410-822-0318

**EMERGENCY CHEMTREC 1-800-424-9300**

## 2. Hazards Identification

### Emergency Overview



#### 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
STOT - Repeated Exposure	Contents - Category 2

#### Hazard Statements:

Fire or projection hazard  
May be harmful if swallowed  
Causes severe skin burns and eye damage  
Causes skin irritation  
Causes serious eye damage  
Causes eye irritation  
May cause allergy or asthma symptoms or breathing difficulties if inhaled  
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  
Avoid breathing dust/smoke  
Use only outdoors or in a well-ventilated area.  
Avoid release to the environment.(contents)  
Use personal protective equipment as required.  
In case of fire: use water deluge. Do not use dry powder or foam extinguishers!

#### NFPA Rating

Flammability	2
Health	2
Reactivity	1

#### HMIS Rating

Flammability	1
Health	3
Physical Hazard	1

## 3. Composition / Information on Ingredients

Component	CAS #	EINCS #	%age
Strontium Nitrate	10042-76-9	233-131-9	<75%
Potassium Perchlorate	7778-74-7	231-912-9	<50%
Potassium Chlorate	3811-04-9	231-100-4	<25%
Sulfur	7704-34-9	231-722-6	<25%
Shellac	mixture	none	<25%
Paraffinic Oil	64742-54-7	232-384-2	<25%
Sawdust / Wood Flour	9004-34-6	232-674-9	<10%

## 4. First Aid Measures

<b>Inhalation</b>	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.
<b>Skin</b>	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 if burned or irritation occurs.
<b>Eyes</b>	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. Do not use boric acid to rinse with; sulfur is an acid irritant. Get medical aid immediately.
<b>Ingestion</b>	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. Do not point flare at any part of the body or flammable material. Only use outdoors – smoke is harmful. Contents may ignite and burn explosively when suspended in air and exposed to open flame or spark.		
<b>Flashpoint</b>	Not Applicable	<b>Flammability Limits</b>	Not Applicable
		<b>Ignition Temperature</b>	>167F



## 6. Accidental Release Measures

### Personal Precautions

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.

### 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 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

### Handling

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. Flares should be allowed to burn to completion. Unburned and partially burned flares contain potassium perchlorate which should not be allowed to come into contact with surface and ground water. Perchlorate Material – special handling may apply. See [www.dtsc.ca.gov/hazardouswaste/perchlorate](http://www.dtsc.ca.gov/hazardouswaste/perchlorate). Avoid ingestion and inhalation of smoke and contents. Do not dismantle. Do not allow contents to touch eyes, skin or clothing. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Avoid contact with skin and eyes. Avoid contact with heat sparks, and flame. Do not ingest contents as they may be harmful if swallowed.

### 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. Do not store partially burned flares in a vehicle, closed container, warehouse, or any other building.

## 8. Exposure Controls / Personal Protection

Exposure Limits	OSHA PEL	ACGIH TLV
Strontium Nitrate	Not Established	Not Established
Potassium Perchlorate	nuisance dust 15 mg/m <sup>3</sup> .	nuisance dust 15 mg/m <sup>3</sup> .
Potassium Chlorate	Not Established	Not Established
Sulfur	Not Established	Not Established
Shellac	Not Established	Not Established
Paraffinic Oil	TWA: 5 mg/m <sup>3</sup> 8 hour(s). Form: All forms	STEL: 10 mg/m <sup>3</sup> 15 minute(s). Form: All forms; TWA: 5 mg/m <sup>3</sup> 8 hour(s). Form: All forms
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)

### Engineering Controls

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

### Eye / Face Protection

Safety glasses or goggles

### Skin Protection

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.

### Respiratory Protection

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.

### General Hygiene

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 or yellow 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>	>300 g/l powder
		<b>Evaporation Rate:</b>	Not applicable
		<b>Vapor Density:</b>	Not applicable

## 10. Stability and Reactivity

**Chemical Stability** Stable      **Possibility of Hazardous Reactions** Hazardous polymerization will not occur.

<b>Conditions to Avoid</b>	<b>Incompatible Materials</b>	<b>Hazardous Decomposition Products</b>
Combustible materials, heat, flames, sparks and other sources of ignition. Moisture.	Strong acids, strong fuels, ammonia salts, and strong bases. Strong oxidizers; chlorate salts,	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
Potassium Perchlorate	Rat: 2100 mg/kg	No information found	No information found
Potassium Chlorate	Rat: 1870 mg/kg (CAT 4)	No information found	No information found
Sulfur	Rat:>5050 mg/kg body weight	Rat:>2020 mg/kg body weight	Rat:>5.49 mg/L air concentration
Shellac	No information found	No information found	No information found
Paraffinic Oil	Rat: >2000 mg/kg	Rat: >2000 mg/kg	No information found
Sawdust / Wood Flour	No information found	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. Contact with skin 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>	Irritating to the skin and eyes on contact. Inhalation 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>	None of the ingredients are listed by NTP, IARC or regulated as a Carcinogen by OSHA	<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>	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>	No information found
<b>Target Organ Effects</b>	Eye, skin, liver, kidney, and thyroid.		

## 12. Ecological Information

Aquatic Toxicity	Persistence / Degradability	Bioaccumulation / Accumulation	Mobility in Environmental Media
Potassium Chlorate: <i>fish: LC50 oncorhynchus mykiss (rainbow trout) 1750 mg/l – 96 hr, EC50 daphnia magna (water flea) 1093 mg/l 24 hr</i> Strontium Nitrate: <i>Acute toxicity - Fishes, Carassius auratus, LC100, 9,615 mg/l; Chronic toxicity - Fishes, Gasterosteus aculeatus, LC100, 2,912 mg/l</i> Sulfur: <i>Toxicity to fish LC50 - Oncorhynchus mykiss (rainbow trout) - &gt; 180 mg/l - 96 h Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna (Water flea) - &gt; 5,000 mg/l - 48 h</i> Paraffinic Oil: <i>Oil Mist, Mineral Lepomis macrochirus (LC50) 96 hour(s) &gt;100 mg/l Oncorhynchus mykiss (LC50) 96 hour(s) &gt;100 mg/l</i>	No information found	No information found	No information found

## 13. Disposal Considerations

Finished product is considered reactive and could ignite. 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. Flares should be allowed to burn to completion. Partially burned, unburned flares, spilled contents, and ash from burned flares should be disposed of in accordance with federal, state, and local requirements. Do not store partially burned flares in a vehicle, closed container, warehouse, or any other building. 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

Part Number	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
3153-08	3-15 min flares	ORM-D / Limited Quantity	Not applicable	UN3178	Not applicable	Not applicable	none	Ground only
3153-63	3-15 min flare display	ORM-D / Limited Quantity	Not applicable	UN3178	Not applicable	Not applicable	none	Ground only
6020	20 min flare 6 pack	ORM-D / Limited Quantity	Not applicable	UN3178	Not applicable	Not applicable	none	Ground only
6030	30 min flare 6 pack	ORM-D / Limited Quantity	Not applicable	UN3178	Not applicable	Not applicable	none	Ground only
8900	Roadside Emergency Kit	ORM-D / Limited Quantity	Not applicable	UN3178	Not applicable	Not applicable	none	Ground only
8905	Flare Kit Plus Emergency Kit	ORM-D / Limited Quantity	Not applicable	UN3178	Not applicable	Not applicable	none	Ground only
8901	Deluxe Roadside Emergency Kit	ORM-D / Limited Quantity	Not applicable	UN3178	Not applicable	Not applicable	none	Ground only
8902	Extreme Weather Roadside Kit	ORM-D / Limited Quantity	Not applicable	UN3178	Not applicable	Not applicable	none	Ground only



8902-5	Deluxe "5" Flare Roadside Kit	ORM-D / Limited Quantity	Not applicable	UN3178	Not applicable	Not applicable	none	Ground only
750	Signal Flare / Fire Starter	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-9209001	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	no	no	no	no	no
Potassium Perchlorate	yes	no	no	no	no	no	no	no	no	no	no
Potassium Chlorate	yes	no	no	no	no	no	yes	no	no	yes	no
Sulfur	yes	no	no	no	no	no	no	yes	no	no	no
Shellac	mixture	mixture	mixture	mixture	mixture	mixture	not stated	not stated	not stated	not stated	not stated
Paraffinic Oil	yes	no	no	no	no	no	no	no	no	no	no
Sawdust / Wood Flour	yes	no	no	no	no	no	not stated	not stated	not stated	not stated	not stated

US States	Prop 65	NJ	PA	Canada	WHMIS	DSL	Europe	wgk
Strontium Nitrate	no	1743	no		No results	yes		2
Potassium Perchlorate	no	1577	no		C	yes		1
Potassium Chlorate	no	1560	no		No results	yes		2
Sulfur	no	1757	yes		No results	yes		1 / nwg
Shellac	mixture	mixture	mixture		mixture	mixture		not listed
Paraffinic Oil	no	1437	no		No results	yes		not listed
Sawdust / Wood Flour	yes	3227	yes		No results	yes		not listed

### 16. Other Information

Revision Information: May, 2012

**Risk and Safety Phrases:**

- 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.
- S17 Keep away from combustible material
- S16 Keep away from sources of ignition
- 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.
- 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

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