ORION
The Brightest Name in Safety

Expiry April 1, 2020

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:

Improved Eco-Friendly Formula

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

Identified Use: Emergency signal

Use Advised Against: Do not use indoors or inside a vehicle

Manufacturers Information
Orion Safety Products
28320 St. Michaels Rd
Easton, MD 21601
800-637-7807
410-822-0318

EMERGENCY
CHEMTREC
1-800-424-9300

2. Hazards Identification

GHS Classifications

Skin Irritation	Category 2	H315
Eye Irritation	Category 2A	H319
STOT - Single Exposure	Category 3	H335

GHS Label Elements

Pictograms

Signal Word **Warning**

Hazard Statements
H315 /319 Causes skin and serious eye irritation
H335 May cause respiratory irritation

Precautionary Statements
P103 Keep out of reach of children
P261 Avoid breathing dust/smoke.
P264 Wash hands thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective eye protection
P370 In case of fire: use water deluge
P501 Dispose of contents / container in accordance with local and national regulations.

P301/315 IF SWALLOWED: Get immediate medical advice /attention.
P302/352 IF ON SKIN: Wash with plenty of soap and water.
P304/340/342 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing If experiencing respiratory symptoms: Call a POISON CENTER or doctor / physician.
P305/338/351 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333/313 If skin irritation or rash occurs, get medical advice / attention.

Hazards Not Otherwise Classified (HNOC): produces hot flame

3. Composition / Information on Ingredients

Component	CAS #	EINCS #	%age
Strontium Nitrate	10042-76-9	233-131-9	<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%
Waxy sawdust	mixture	none	<5%
Polyvinyl Chloride	9002-86-2	200-831-0	<5%
Shellac	mixture	none	<1%
Charcoal	1333-86-4	231-153-3	<1%

Note: Due to Confidential Business Information i. e "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

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 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 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.

Most important symptoms and effects both acute and delayed	See section 2 labeling and section 11
Indication of any immediate medical attention and special treatment needed	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

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 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.

Further information No data available

6. Accidental Release Measures

Personal Precautions / Protective Equipment / Emergency Procedures

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

Precautions for Safe Handling Hold and point flare away from body when igniting. Exercise caution when using this 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 away from direct sunlight, heat and incompatible materials. See section 10. 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. 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/m³.	Nuisance dust 15 mg/m³.
Paraffinic Oil	5 mg/m3	TWA 5 mg/m3
Potassium Chlorate	No Airborne Exposure Limits established	No Airborne Exposure Limits established
Waxy sawdust	Not Established	Not Established
Polyvinyl Chloride	No known hazardous components above regulatory thresholds in this product.	No known hazardous components above regulatory thresholds in this product.
Shellac	Not Established	Not Established
Charcoal	Nuisance dust 15 mg/m³.	Nuisance dust 15 mg/m³.

Exposure controls

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

Personal Protective Equipment

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

Appearance (color, physical form, shape):	Yellow to grey powder				
pH:	Not available	**Melting Point:**	Not available	**Solubility:**	Not available
Boiling Point / Range:	Not applicable	**Freezing Point:**	Not applicable	**Evaporation Rate:**	Not applicable
Vapor Pressure:	Not applicable	**Specific Gravity**	Not applicable	**Vapor Density:**	Not applicable
Odor:	No data available	**Odor Threshold:**	No data available	**Flash Point:**	Not available
Flammability:	No data available	**Flammability Limits:**	No data available	**Relative Density:**	No data available
Partition Coefficient:	No data available	**Viscosity:**	No data available		
Auto Ignition Temperature:	360°F			**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
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

Ingredient	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
Waxy sawdust	Rat: > 5000 mg/kg	not stated	not stated
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.
Shellac	Rat: 10000 mg/kg	No information found	No information found
Charcoal	Rat: 15400 mg/kg	Rabbit: 3 g/kg	No information found

Product toxicological information

Acute Toxicity	Not classified – *Acute Toxicity Estimate yields oral LD_{50} over 5000 mg/kg bw*
Skin Irritation / Corrosion	Category 2 – *over 10% of ingredients classified as a Category 2*
Serious Eye Damage / Irritation	Category 2a – *over 10% of ingredients classified as a Category 2a*
Respiratory / Skin Sensitization	Not classified (Based on available data, the classification criteria are not met)
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	Category 3 – respiratory *over 10% of ingredients classified as a Category 3 respiratory STOT hazard*
STOT – repeated 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
Symptoms related to the physical, chemical and toxicological characteristics	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.
Delayed and immediate effects and chronic effects from short and long term exposure	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.
Interactive effects	No information found

12. Ecological Information

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

Aquatic Toxicity	Strontium Nitrate: *Acute toxicity - Fishes, Carassius auratus, LC100, 9,615 mg/l; Chronic toxicity - Fishes, Gasterosteus aculeatus, LC100, 2.912 mg/l* Sulfur: *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* Potassium Chlorate: *fish: LC50 oncorhynchus mykiss (rainbow trout) 1750 mg/l – 96 hr, EC50 daphnia magna (water flea) 1093 mg/l 24 hr* Paraffinic Oil: *Oil Mist, Mineral Lepomis macrochirus (LC50) 96 hour(s) >100 mg/l Oncorhynchus mykiss (LC50) 96 hour(s) >100 mg/l* Potassium Nitrate: *fish: Guppy (Poecilia Reticulata) LC50 180 mg/L (96 h); zooplankton: Daphnia magna LC50 490mg/l – 48hr*
Persistence / Degradability	Potassium Nitrate: Soluble in water Persistence is unlikely based on information available.
Bioaccumulation / Accumulation	No information found
Mobility in Environmental Media	Strontium Nitrate: *Water:: considerable solubility and mobility; Soil/sediments non-significant adsorption* Potassium Nitrate: *Will likely be mobile in the environment due to its water solubility.*
Other adverse effects	No information found

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13. Disposal Considerations

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

Description	ID Number	shipping name	hazard class	packing group	EX Number	Reportable Quantities	Shipping method
Domestic Shipments							
No inner packaging	*NA1325	Fusee	4.1	II	EX1992090001	none	Ground only
Retail Packaging	**UN3178	Flammable solid, inorganic (highway flares or fusees)	4.1	II	EX2002110114	none	Ground only
International / Air							
Inner Packaging (bag)	UN0373	Signal devices, hand	1.4S		EX1992090001	none	Air / ground

* As noted on EX1992090001

** According to 49CFR, Exception for Class 4, flares properly packaged and classed as UN3178, Flammable solid, inorganic (highway flares or fusees), may be renamed "Consumer Commodity" and reclassed as ORM-D and offered for transportation and transported in accordance with the applicable provisions of that subchapter.

Marine Pollutant: no

Special precautions for user: No information available

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	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
Waxy sawdust	yes	no	no	no	no	no	no	no	no	no	no
Polyvinyl Chloride	yes	no	no	no	no	no	yes	no	no	no	no
Shellac Mixture	yes	no	no	no	yes	no	unknown	unknown	unknown	unknown	Unknown
Charcoal	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		C Oxidizing materials D1B Toxic materials D2B Toxic materials	yes		2
Sulfur	no	1757	yes		B4 Flammable solid D2B Toxic materials	yes		1 / nwg
Potassium Nitrate	no	1574	yes		C Oxidizing materials	yes		1
Paraffinic Oil	no	1437	no		No results	yes		not listed
Potassium Chlorate	yes	1560	yes		C Oxidizing materials D1B Toxic materials	yes		2
Waxy sawdust	yes	No	no		No results	yes		not listed
Polyvinyl Chloride	no	3622	no		No results	yes		not listed
Shellac Mixture	no	No	no		No results	unknown		not listed
Charcoal	yes	Yes	yes		D2A Very toxic materials D2B Toxic materials	yes		Nwg

16. Other Information

Revision Information: May 2015

NFPA Rating		HMIS Rating	
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
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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