

MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Marine Hand Held Red Flare (HHRF)

Orion Safety Products
3157 North 500 West
Peru, IN 46970

Use: Emergency signal

Phone Number: US 1-800-851-5260

Intl (11) 1-765-472-4375

EMERGENCY CHEMTREC 1-800-424-9300

2. Hazards Identification

Emergency Overview



Warning

Danger

Warning

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
STOT - Repeated Exposure	Contents - Category 2

Hazard Statements:

Fire or projection hazard
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	>50%
Sulfur	7704-34-9	231-722-6	<50%
Potassium Perchlorate	7778-74-7	231-912-9	<50%
Polyethylene	9002-88-4	none	<20%
Potassium Chlorate	3811-04-9	231-100-4	<20%
Shellac / Synosol	mixture	none	<20%

4. First Aid Measures

Inhalation

If fumes from ignition or contents are inhaled, remove to fresh air. If not breathing, give artificial respiration and get medical aid.

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 if burned or irritation occurs.

Eyes

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 Get medical aid immediately.

Ingestion

Get medical aid immediately.

5. Firefighting Measures

Extinguishing Media

Water

Unsuitable Extinguishing Media

Foam or dry chemical. Suffocation.

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

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.

Flashpoint

Not Applicable

Flammability Limits

Not Applicable

Ignition Temperature

>180F

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. 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 . Avoid ingestion and inhalation of smoke and contents. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Avoid contact with skin and eyes. Avoid contact with heat sparks, and flame.
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.

8. Exposure Controls / Personal Protection

Exposure Limits	OSHA PEL	ACGIH TLV
Strontium Nitrate	Not established	Not established
Sulfur	Not established	Not established
Potassium Perchlorate	Nuisance dust 15 mg/m ³	Nuisance dust 15 mg/m ³
Polyethylene	not stated	not stated
Potassium Chlorate	Not established	Not established
Shellac / Synosol	Not Established	Not Established

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

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

10. Stability and Reactivity

Chemical Stability	Stable	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.
		Hazardous Decomposition Products	Carbon monoxide, carbon dioxide, sulfur oxides, and nitrogen oxides.

11. Toxicology Information

Toxicology	Oral LD50	skin LD50	LC50
Strontium Nitrate	Rat: 2750 mg/kg	not stated	not stated
Sulfur	Rat:>5050 mg/kg	Rat:>2020 mg/kg	Rat:>5.49 mg/L air concentration
Potassium Perchlorate	Rat: 2100 mg/kg	not stated	not stated
Polyethylene	not stated	not stated	not stated
Potassium Chlorate	Rat 1870 mg/kg	No information found	No information found
Shellac / Synosol	not stated	not stated	not stated

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.

Irritation	Irritating to the skin and eyes on contact. Inhalation will cause irritation to the lungs and mucus membrane.
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Corrosivity	May cause eye burns and contact with skin causes irritation and possible burns, especially if skin is wet or moist due to the potassium chlorate.
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Carcinogenicity	None of the ingredients are listed by NTP, IARC or regulated as a Carcinogen by OSHA	Reproductive Effects	No information found
Genetic Effects	No information found	Neurological Effects	No information found
Developmental Effects	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.	Sensitization	No information found
Target Organ Effects	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) - > 180 mg/l - 96 h Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna (Water flea) - > 5,000 mg/l - 48 h</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

	shipping name	hazard class	ID Number	packing group	EX Number	Reportable Quantities
United States	Signal Devices, Hand	1.4S	UN0373	II	EX-8604106	none
International	Signal Devices, Hand	1.4S	UN0373	II	EX-8604106	

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
Sulfur	yes	no	no	no	no	no	no	yes	no	no	no
Potassium Perchlorate	yes	no	no	no	no	no	no	no	no	no	no
Polyethylene	yes	no	no	no	no	no	no	no	no	no	no
Potassium Chlorate	yes	no	no	no	no	no	yes	no	no	yes	no
Shellac / Synosol	no	no	no	no	no	no	yes	yes	yes	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
Potassium Perchlorate	no	1577	no		C - Oxidizing material	yes		1
Polyethylene	no	no	no		Does not meet criteria	yes		not listed
Potassium Chlorate	no	1560	no		No results	yes		2
Shellac / Synosol	no	no	no		No results	yes		not listed

16. Other Information

Revision Information: December, 2011

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:

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

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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