SAFETY DATA SHEET

Effective Date: JULY 2019

ITEM: Coastal Alert / Locate Signaling Kit

PART # 575 (in soft bag) **UPC** 077403105755

PART # 544 (in hard case) **UPC** 077403105441

CONTENTS

12 Ga HP Red Aerial Signal SDS

Marine Hand Held Red Flare (HHRF) SDS

Marine Hand Held Orange Smoke Signal (HHOS) SDS

SHIPPING INFORMATION

UN0353, Articles, explosive, n.o.s., 1.4G (ERG 114)
(contains strontium nitrate and magnesium)
EX2004110274

SAFETY DATA SHEET

1. Product and Company Identification

12 Ga HP (High Performance) Red Aerial Signal

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

GHS Classifications

Explosive	Category 1.4
Skin Irritation	Category 2
Eye Irritation	Category 1
Carcinogenicity	Category 2
STOT-Single Exposure	Category 3

GHS Label Elements

Hazard Statements

H204	Fire or projection hazard
H315	Causes skin irritation
H318	Causes serious eye damage
H351	Suspected of causing cancer
H335	May cause respiratory irritation

Pictograms

Signal Word **Danger**

Precautionary Statements

P102	Keep out of reach of children.
P103	Read carefully and follow all instructions.
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking
P232	Protect from moisture
P261	Avoid breathing dust/fumes.
P264	Wash hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors.
P280	Wear protective eye protection.
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.
P305/351/338	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.
P370	In case of fire: use water deluge

Hazards Not Otherwise Classified (HNOC): none

3. Composition / Information on Ingredients

Component	CAS #	EINCS #	Percentage
High Density Polyethylene	9002-88-4	Polymer	<60%
Talc	14807-96-6	238-877-9	<20%
Strontium Nitrate	10042-76-9	233-131-9	<20%
Magnesium	7439-95-4	231-104-6	<20%
Strontium Peroxide	1314-18-7	215-224-6	<10%
Aluminum	7429-90-5	231-072-3	<5%
Polyvinyl Chloride	9002-86-2	None	<5%
Dextrin	9004-53-9	232-675-4	<1%
Potassium Nitrate	7757-79-1	231-818-8	<4%
Charcoal	16291-96-6	240-383-3	<1%
Sulfur	7704-34-9	231-722-6	<2%
Iron	1309-37-1	231-096-4	<5%
Copper	7440-50-8	231-159-6	<3%

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

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 if irritation occurs.

Eyes 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.

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 No data available

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 Only use outdoors. Use copious amounts of water to extinguish fire. Using small quantity of water on contents / broken shells can cause auto / re-ignition as contents contain magnesium. Use of water on a magnesium fire will generate hydrogen gas that may cause an explosion. Irritating fumes. Flaming projectiles may be ejected during a fire. Trace amounts of lead vapor may be produced (from ignition primer) in a fire situation.

Further Information 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 of disposal and place in an approved container. Wash away remainder with plenty of water. Collect wash water for approved disposal. Be very careful – magnesium powder may spontaneously ignite in presence of moisture. Magnesium powder reacts with water, producing flammable hydrogen gas.

7. Handling and Storage

Precautions for Safe Handling

Use product only in designated launcher – do not attempt to use in 12 gauge shotgun. Point launcher away from body, other people, animals or combustible products when firing. Wear appropriate eye protection during use. Turn face from launcher when firing. Follow instructions on package. Avoid contact with clothing and other combustible materials. Use outdoors only! Do not ignite or launch product inside a vehicle or building. Avoid ingestion of smoke and inhalation of contents. Wash thoroughly after handling. Avoid contact with heat sparks, and flame. Do no disassemble signals.

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 flammable materials, sources of heat, flame and sparks. Store at ambient temperature.

8. Exposure Controls / Personal Protection

Control Parameters

Exposure Limits	**OSHA PEL**	**ACGIH TLV**
High Density Polyethylene	5mg/ml for respirable portion and 15mg/ml' for total dust	3mg/ml for respirable portion and 10mg/ml' for total dust
Talc	2.0 mg/m^3	2.0 mg/m^3
Strontium Nitrate	Not Established	Not Established
Magnesium	Not Established	Not Established
Strontium Peroxide	Nuisance dust 15mg/m^3	Nuisance dust 15mg/m^3
Aluminum	TWA: 15 mg/m^3	TWA: 1 mg/m^3
Polyvinyl Chloride	5mg/ml for respirable portion and 15mg/ml' for total dust	5 and 10 mg/ml, respectively
Dextrin	15 mg/m^3	15 mg/m^3
Charcoal	3.5 mg/m^3	3 mg/m^3
Sulfur	20 ppm	Not Established
Potassium Nitrate	15 mg/m^3	10 mg/m^3
Iron	TWA: 10 mg/m^3	Not Established
Copper	0.1 mg/m^3(fume) 1 mg/m^3(dusts and mists)	0.2 mg/m^3(fume), 1 mg/m^3 (dusts and mists)

Exposure Controls

Engineering Controls	Use product outdoors only! When cleaning up contents, use local and/or general exhaust.
Personal Protective Equipment	
Eye / Face Protection	Turn face from launcher when firing. Wear safety glasses or goggles during use and when cleaning up spilled contents.
Skin Protection	None under normal conditions when using product unless prolonged handling is anticipated. When cleaning up spilled contents, wear impervious protective clothing, including gloves, boots, and a lab coat, apron or coveralls as appropriate. 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 N195 or better filters) may be worn during the cleanup of spilled contents.
General Hygiene	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

Appearance (color, physical form, shape): Grey powder

pH:	No data available	**Melting Point:**	No data available	**Solubility:**	No data 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:**	No data 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:	No data available			**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	Incompatible Materials	Hazardous Decomposition Products
Excessive temperatures, moisture, acids, and ignition sources	Reducing Agents, Organic Materials, Finely Powdered Metals, Acids, Water, Halogens	Strontium Oxides, Carbon Monoxide and Dioxide, Nitrous Oxides, Magnesium Hydroxides and Oxides.

11. Toxicology Information

Ingredient acute toxicity information

Toxicology	Oral LD50	Skin LD50	LC50
High Density Polyethylene	4000mg/kg	not available	12,000 mg/m^3/30min
Talc	not available	not available	not available
Strontium Nitrate	Rat 2750 mg/kg	not available	not available
Magnesium	Rat 230 mg/kg	not available	not available
Strontium Peroxide	Rat 980 mg/kg	not available	not available
Aluminum	Rat: >2000 mg/kg	Rat – 4h - >888 mg/l	not available
Polyvinyl Chloride	Rat: >5000 mg/kg	not available	not available
Dextrin	None Known	Not Sensitizing	None Known
Potassium Nitrate	Rat 3015 mg/kg	not available	not available
Charcoal	Rat 10000 mg/kg	Rabbit >3000 mg/kg	not available
Sulfur	Rat 175 mg/kg	Rabbit >2000 mg/kg	Rat 9.23 mg/l/4hr
Iron	Rat: 30000 mg/kg	not available	not available
Copper	Rat: 5800 mg/kg	not available	not available

Product toxicological information

Acute Toxicity	Not classified – *Acute Toxicity Estimate yields oral LD_{50} over 5000 mg/kg bw 17% unknown*
Skin Irritation / Corrosion	Category 2 – *over 0.1% of ingredients classified as a Category 2 skin irritant*
Serious Eye Damage / Irritation	Category 1 – *over .01% of ingredients classified as a Category 1 eye irritant*
Respiratory / Skin Sensitization	No information found
Germ Cell Mutagen	No information found
Carcinogen	Category 2 – *over 0.1% of ingredients classified as a Category 2 carcinogens*
Reproductive Toxicity	No information found
STOT – single exposure	Category 3 – respiratory *over 20% of ingredients classified as a Category 3 respiratory STOT hazard*
STOT – repeated exposure	No information found
Aspiration Hazard	No information found
Likely routes of exposure	Skin, ingestion, inhalation
Symptoms related to the physical, chemical and toxicological characteristics	Irritation to the eyes will cause watering and redness. Reddening, scaling, and itching are characteristics of skin inflammation. Ingestion of contents may cause gastrointestinal irritation with nausea, vomiting and diarrhea. Inhalation will cause irritation to the lungs and mucus membrane.
Delayed and immediate effects and chronic effects from short and long term exposure	Absorption of strontium peroxide into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer. 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 Magnesium: LC50 1355 mg/l fish
Persistence / Degradability	No information found
Bioaccumulation / Accumulation	No information found
Mobility in Environmental Media	Strontium Nitrate: *Water:: considerable solubility and mobility; Soil/sediments non-significant adsorption*
Other adverse effects	No information found

13. Disposal Considerations (for spills and leakage)

Dispose of contaminated product and materials used in cleaning up spills or leaks in the manner approved for pyrotechnic material. Consult appropriate federal, state, and local regulatory agencies to ascertain proper disposal procedures. Open burning is preferred method of disposal for pyrotechnic materials.

14. Transportation Information

	ID Number	Proper Shipping Name	Hazard Class	Packing Group	EX Number	Reportable Quantities
Domestic & International	UN0403	Flares, aerial	1.4G	n/a	EX2004110275	none

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
HD Polyethylene	yes	no	no	no	no	no	no	no	no	no	no
Talc	yes	no	no	no	no	no	no	no	no	no	no
Strontium Nitrate	yes	no	no	no	yes	no	yes	no	no	yes	no
Magnesium	yes	no	no	no	no	no	no	no	yes	yes	no
Strontium Peroxide	yes	no	no	no	no	no	yes	no	yes	yes	no
Aluminum	yes	no	no	no	yes	no	no	no	no	no	no
Polyvinyl Chloride	yes	no	no	no	no	no	yes	no	no	no	no
Dextrin	yes	no	no	no	no	no	no	no	no	no	no
Potassium Nitrate	Yes	no	no	no	yes	no	no	no	yes	no	no
Charcoal	yes	no	no	no	no	no	yes	yes	yes	no	no
Sulfur	yes	no	no	no	no	no	yes	yes	yes	no	no
Iron	yes	no	no	no	no	no	no	no	yes	no	no
Copper	yes	yes	yes	no	yes	no	yes	no	yes	no	no

US States	Prop 65	NJ	PA	Canada	WHMIS	DSL	Europe	wgk
HD Polyethylene	no	yes	yes		Not Controlled	yes		not listed
Talc	yes	yes	yes	yes	Class D2A – Very toxic material	yes		not listed
Strontium Nitrate	no	yes	no		C Oxidizing materials D1B Toxic materials D2B Toxic materials	yes		2
Magnesium	no	yes	yes		B6 Reactive flammable material; B4 Flammable solid; F Dangerously reactive material	yes		nwg
Strontium Peroxide	no	yes	no		C oxidizing material	yes		not listed
Aluminum	no	yes	yes		Not controlled	yes		nwg
Polyvinyl Chloride	no	yes	no		Not controlled	yes		not listed
Dextrin	no	no	no		Not controlled			
Potassium Nitrate	no	no	no	yes	No information found	yes		nwg
Charcoal	yes	yes	yes		No information found	yes		nwg
Sulfur		yes	yes	yes	No information found	yes		nwg
Iron	no	yes	yes		B4 flammable solid	yes		nwg
Copper	no	yes	yes		B4 Flammable solid D2B Toxic materials	yes		nwg

16. Other Information

Revision Information: July 2019

NFPA Rating		HMIS Rating	
Flammability	2	Flammability	1
Health	2	Health	3
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

SAFETY DATA SHEET

1. Product and Company Identification

Marine Handheld Red Flare (HHRF)

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

GHS Classifications

Explosive	Category 1.4
Skin Irritation	Category 2
Eye Irritation	Category 2A
STOT-Single Exposure	Category 3

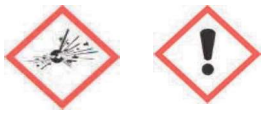
Perchlorate Material–special handling may apply, see www.dtsc.ca.gov/hazardouswaste/perchlorate.

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.	P370	In case of fire; use water deluge.
P103	Read carefully and follow all instructions	P301/315	IF SWALLOWED: Get immediate medical advice /attention.
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking	P302/352	IF ON SKIN: Wash with plenty of soap and water.
P232	Protect from moisture	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.
P261	Avoid breathing dust/fumes.	P305/338/351	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P264	Wash hands thoroughly after handling.		
P270	Do not eat, drink or smoke when using this product.	P332/313	If skin irritation or rash occurs, get medical advice/attention.
P271	Use only outdoors.	P501	Dispose of contents / container in accordance with local and national Regulations.
P280	Wear protective eye protection.		

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	<50%
Sulfur	7704-34-9	231-722-6	<25%
Potassium Perchlorate	7778-74-7	231-912-9	<20%
Polyethylene	9002-88-4	none	<5%
Potassium Chlorate	3811-04-9	231-100-4	<5%

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

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 if irritation occurs.

Eyes 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.

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 No data available

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	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.		
Further Information	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. When cleaning up contents, use local and/or general exhaust. Clean up avoiding dust generation and place in a well identified container. Do not absorb in sawdust or other combustible absorbents. Wash away remainder with plenty of water. Collect wash water for approved disposal.

7. Handling and Storage

Precautions for Safe Handling

Hold and point signal away from body when igniting. Hold signal downwind when burning. Avoid breathing smoke. Avoid contact with clothing and other combustible materials. Use outdoors only! Do not ignite or burn product inside a vehicle, boat cabin or building. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Avoid contact with skin and eyes. Avoid contact with heat, sparks, and flame. Signals should be allowed to burn to completion. Unburned and partially burned signals 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/hazardouswaster/perchlorate.

Conditions for Safe Storage, Including Any Incompatibilities

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 signals in a vehicle, boat, closed container, warehouse, or any other building.

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 Perchlorate	Nuisance dust, 15 mg/m^3	Nuisance dust, 15 mg/m^3
Polyethylene	15 mg/m^3 TWA	10 mg/m^3 TWA
Potassium Chlorate	Not established	Not established

Exposure Controls

Engineering Controls	Use product outdoors only! When cleaning up contents, 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 contents.
General Hygiene	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

Appearance (color, physical form, shape): Grey powder

pH:	No data available	**Melting Point:**	No data available	**Solubility:**	No data 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:**	No data 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:	No data available			**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	Incompatible Materials	Hazardous Decomposition Products
Combustible materials, heat, flames, sparks and other sources of ignition. Moisture.	Strong acids, strong fuels, ammonia salts and strong bases.	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: 1892 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	Rat: 4000 mg/kg	Not stated	Not stated
Potassium Chlorate	Rat: 4000 mg/kg	2000 mg/kg (Rabbit)	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 skin irritant*
Serious Eye Damage / Irritation	Category 2A – *over 10% of ingredients classified as a Category 2A eye irritant*
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	Not classified (Based on available data, the classification criteria are not met)
STOT – repeated exposure	Category 3 - *respiratory-over 10% of ingredients classified as a Category 3 respiratory STOT hazard*
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	Potassium Chlorate: *fish: LC50 oncorhynchus mykiss (rainbow trout) 1750 mg/l – 96 hr, EC50 daphnia magna (water flea) 1093 mg/l 24 hr* 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 dapnia and other aquatic invertebrates: EC50 – Daphnia magna (Water flea) - > 5,000 mg/l – 48 h*
Persistence / Degradability	No information found
Bioaccumulation / Accumulation	No information found
Mobility in Environmental Media	Strontium Nitrate: *Water:: considerable solubility and mobility; Soil/sediments non-significant adsorption*
Other adverse effects	No information found

13. Disposal Considerations (for spills and leakage)

Dispose of contaminated product and materials used in cleaning up spills or leaks in the manner approved for pyrotechnic material. Consult appropriate federal, state and local regulatory agencies to ascertain proper disposal procedures. Open burning is the preferred method of disposal for pyrotechnic materials. Allow flares to burn to completion. 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

	ID Number	Proper Shipping Name	Hazard Class	Packing Group	EX Number	Reportable Quantities
Domestic & International	UN0373	Signal devices, hand	1.4S	n/a	EX1986040106	none

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	yes	no	yes	no	no	yes	no
Sulfur	yes	no	no	no	no	no	yes	no	yes	no	no
Potassium Perchlorate	yes	no	no	no	no	no	yes	no	no	yes	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

US States	Prop 65	NJ	PA	Canada	WHMIS	DLS	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 Perchlorate	no	1577	yes		C Oxidizing mateerials D1B Toxic materials	yes		1
Polyethylene	no	no	no		Not controlled	yes		Not listed
Potassium Chlorate	no	1560	yes		C Oxidizing materials D1B Toxic materials	yes		2

16. Other Information

Revision Information: March 2019

NFPA Rating		HMIS Rating	
Flammability	2	Flammability	1
Health	2	Health	3
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

SAFETY DATA SHEET

1. Product and Company Identification

Marine Hand Held Orange Smoke Signal (HHOS)

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

Manufacturers 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

GHS Classifications

Explosive	Category 1.4	H204
Skin Irritation	Category 2	H315
Eye Irritation	Category 2A	H319
Skin Sensitization	Category 1	H317
STOT-Repeated Exposure	Category 1	H372

GHS Label Elements

Pictograms

Hazard Statements

H204	Fire or projection hazard
H315	Causes skin irritation
H319	Causes serious eye irritation
H317	May cause an allergic skin reaction
H372	Causes damage to lungs through prolonged or repeated exposure

Signal Word **Danger**

Precautionary Statements

P102	Keep out of reach of children.
P103	Read carefully and follow all instructions.
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking
P232	Protect from moisture
P261	Avoid breathing dust/fumes.
P264	Wash hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors.
P280	Wear protective eye protection.
P370	In case of fire: use water deluge.
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.
P501	Dispose of contents / container in accordance with local and national Regulations.

Hazards Not Otherwise Classified (HNOC): produces hot flame and copious amount of smoke

3. Composition / Information on Ingredients

Component	CAS #	EINCS #	Percentage
Solvent Yellow Dye	842-07-9	212-668-2	<40%
Lactose	63-42-3	200-559-2	<40%
Potassium Chlorate	3811-04-9	231-100-4	<25%
Solvent Orange 7 Dye	3118-97-6	221-490-4	<20%
Strontium Carbonate	1633-05-2	216-643-7	<1%
Calcium Carbonate	1317-65-3	215-279-6	<1%
Charcoal	7440-44-0	231-153-3	<1%
Umber	12713-03-0	235-784-5	<1%
Strontium Nitrate	10042-76-9	233-131-9	<1%
Shellac	9000-59-3	232-549-9	<1%
Potassium Nitrate	7757-79-1	231-818-8	<1%
Sawdust (cellulose)	9004-34-6	232-674-9	<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

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 if irritation occurs.
Eyes	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.
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 — No data available

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 — Only use outdoors. Contents / dust may form explosive mixtures. Flame and copious amounts of smoke are ejected out the open end of the signal when it functions. Do not point signal at any part of the body or flammable material.

Further Information — 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. Contains strong dyes which will color all exposed areas.

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. When cleaning up contents, use local and/or general exhaust. Clean up avoiding dust generation and place in a well identified container. Do not absorb in sawdust or other combustible absorbents. Mop up exposed area with bleach to destroy color. Wash away remainder with plenty of water. Collect wash water for approved disposal.

7. Handling and Storage

Precautions for Safe Handling

Hold and point signal away from body when igniting. Hold signal downwind when burning. Avoid breathing smoke. Avoid contact with clothing and other combustible materials. Use outdoors only! Do not ignite or burn product inside a vehicle, boat cabin or building. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Avoid contact with skin and eyes. Avoid contact with heat, sparks, and flame. Contains strong dyes which will color all exposed areas. Signals should be allowed to burn to completion. Unburned and partially burned signals should not be allowed to come into contact with surface and ground water.

Conditions for Safe Storage, Including Any Incompatibilities

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 signals in a vehicle, boat, closed container, warehouse, or any other building.

8. Exposure Controls / Personal Protection

Control Parameters

Exposure Limits	OSHA PEL	ACGIH TLV
Solvent Yellow Dye	no information found	none
Lactose	Nuisance particulate, 15 mg/m^3 of total dust	Nuisance particulate 10 mg/m^3 of total dust
Potassium Chlorate	No Airborne Exposure Limits established	No Airborne Exposure Limits established
Solvent Orange 7 Dye	No information found	No information found
Strontium Carbonate	15 mg/m^3	10 mg/m^3
Calcium Carbonate	15 mg/m^3	10 mg/m^3
Charcoal	Nuisance dust 15 mg/m^3.	Nuisance dust 15 mg/m^3.
Umber	30 mg/m^3	No information found
Strontium Nitrate	Not Established	Not Established
Shellac	1000 ppm	1000 ppm
Potassium Nitrate	Nuisance dust 15 mg/m^3.	Nuisance dust 15 mg/m^3.
Sawdust (cellulose)	5 mg/m^3	10 mg/m^3

Exposure Controls

Engineering Controls	Use product outdoors only! When cleaning up contents, 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. Contains strong dyes which will color all exposed areas. When cleaning up spilled contents, wear full length impervious protective clothing, including gloves, boots, and a lab coat, apron or coveralls, as appropriate. 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 contents.
General Hygiene	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

Appearance (color, physical form, shape): orange powder

pH:	No data available	**Melting Point:**	No data available	**Solubility:**	No data 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:**	No data 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:	>167°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	Incompatible Materials	Hazardous Decomposition Products
Excessive temperatures, moisture, water, acids and ignition sources.	Strong oxidizers, strong acids, oxidizing or reducing agents. Liquid acids of any kind. Hydrogen Fluoride, Ammonia Salts.	Carbon monoxide, carbon dioxide, nitrogen oxides.

11. Toxicology Information

Ingredient acute toxicity information

Toxicology	Oral LD50	Skin LD50	LC50
Solvent Yellow Dye	Rat: 5000 mg/kg	No information found	No information found
Lactose	Rat: 10000 mg/kg	No information found	No information found
Potassium Chlorate	Rat: 1870 mg/kg	2000 mg/kg (Rabbit)	No information found
Solvent Orange 7 Dye	Rat: 5000 mg/kg	No information found	No information found
Strontium Carbonate	No information found	No information found	No information found
Calcium Carbonate	Rat 6450 mg/kg	Rabbit 500 mg/kg	No information found
Charcoal	Rat: > 15400 mg/kg	Rabbit: 3 g/kg	No information found
Umber	No information found	No information found	No information found
Strontium Nitrate	Rat: 2750 mg/kg	No information found	No information found
Shellac	Rat: 5000 mg/kg	No information found	No information found
Potassium Nitrate	Rat: 3750 mg/kg	No information found	No information found
Sawdust (cellulose)	Rat: > 5000 mg/kg	Rabbit: >2000 mg/kg	Rat 758 mg/m³

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 skin irritant*
Serious Eye Damage / Irritation	Category 2A – *over 10% of ingredients classified as a Category 2A eye irritant*
Respiratory / Skin Sensitization	Category 1 Skin – *over 0.1% of ingredients are classified as a Category 1 skin sensitizer*
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	Not classified (Based on available data, the classification criteria are not met)
STOT – repeated exposure	Category 1 – lungs *over 1% of ingredients classified as a Category 1 STOT hazard*
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	Irritation to the eyes will cause watering and redness. Reddening, scaling, and itching are characteristics of skin inflammation. Ingestion of contents may cause gastrointestinal irritation with nausea, vomiting and diarrhea. Inhalation will cause irritation to the lungs and mucus membrane.
Delayed and immediate effects and chronic effects from short and long term exposure	Both the solvent yellow and orange dyes may cause dermatitis in sensitive individuals.
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 Potassium Chlorate: fish: LC50 oncorhynchus mykiss (rainbow trout) 1750 mg/l – 96 hr, EC50 daphnia magna (water flea) 1093 mg/l 24 hr 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

13. Disposal Considerations (for spills and leakage)

Flares should be allowed to burn to completion. Dispose of partially burned flares, ash, spilled contents, contaminated product and materials used in cleaning up spills or leaks in the manner approved for pyrotechnic material in accordance with federal, state and local requirements. Open burning is preferred method of disposal for pyrotechnic materials.

14. Transportation Information

	ID Number	Proper Shipping Name	Hazard Class	Packing Group	EX Number	Reportable Quantities
Domestic & International	UN0373	Signal devices, hand	1.4S	n/a	EX1997080126	none

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
Solvent Yellow Dye	yes	no	no	no	yes	no	yes	yes	no	no	no
Lactose	yes	no	no	no	no	no	no	no	no	no	no
Potassium Chlorate	yes	no	no	no	no	no	yes	no	no	yes	no
Solvent Orange 7 Dye	yes	no	no	no	yes	no	no	yes	no	no	no
Strontium Carbonate	yes				no	no	no	no	no	yes	no
Calcium Carbonate	yes	no			no		no	no	no	yes	no
Charcoal	yes	no	no	no	no	no	no	no	no	no	no
Umber	yes	no			yes		no	no	no	no	no
Strontium Nitrate	yes	no	no	no	no	no	yes	no	no	yes	no
Shellac	yes	no	no	no	no	no	no	no	no	no	no
Potassium Nitrate	yes	no	no	no	yes	no	no	no	no	yes	no
Sawdust (cellulose)	yes	no	no	no	no	no	no	no	no	no	no

US States	Prop 65	NJ	PA	Canada	WHMIS	DLS	Europe	Wgk
Solvent Yellow Dye	yes	0509	yes		D2A Very toxic materials D2B Toxic materials	yes		not listed
Lactose	no	no	no		Non controlled	yes		not listed
Potassium Chlorate	no	1560	yes		C Oxidizing materials D1B Toxic materials	yes		2
Solvent Orange 7 Dye	no	0506	yes		D2B Toxic materials	yes		3
Strontium Carbonate	no	no		yes	No information found			nwg
Calcium Carbonate	no		yes	yes	No information found			nwg
Charcoal	yes	yes	yes		D2A Very toxic materials D2B Toxic materials	yes		nwg
Umber		yes	yes	yes	No information found			not listed
Strontium Nitrate	no	1743	no		C Oxidizing materials D1B Toxic materials D2B Toxic materials	yes		2
Shellac	no	0844	yes		No information found			not listed
Potassium Nitrate	no	1574	yes		C Oxidizing materials	yes		1
Sawdust (cellulose)	yes	no	no		No results	yes		not listed

16. Other Information

Revision Information: March 2019

NFPA Rating		HMIS Rating	
Flammability	2	Flammability	1
Health	2	Health	3
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