SAFETY DATA SHEET

EFFECTIVE DATE: August 25, 2017

ITEM: 50+ Miles Commercial Vessel Distress Signal Kit, SOLAS

PART #    UPC
821       077403521616

CONTENTS:
SOLAS Red Parachute Signal Rocket SDS
SOLAS Red Hand Held Flare SDS
SOLAS Orange Floating Smoke Signal SDS

SHIPPING INFORMATION
UN0403, Flares, Aerial 1.4G (ERG 114)
EX2000090117
SECTION 1: identification of the product and of the company

1.1. Product identifier

Product name: RED ROCKET PM4
Synonyms: N/A
Product code: 52162 / 52262 / 800 / 805 / 4250

1.2. Relevant identified uses of the product and uses advised against

Use of the product: Rocket parachute red flare. Visual signal for ships, lifeboats and liferafts.
Use advised against: n/a

1.3. Details of the supplier/importer of the product

Supplier: Orion Safety Products
Importer / Assembler: CIL/Explosives
28320 St. Michaels Rd
Easton, MD 21601
Tel: 800-637-7807
Fax: 410-822-7759
email:customerservice@orionsignals.com
www.orionsignals.com

Importer / Assembler: CIL/Explosives
533 Argenteuil
Lachute, QC J8H 3Y2
Tel: 450-566-0655
Fax: 450-566-0677
email:reception@cilexplosives.com
www.cilexplosives.com

1.4. Emergency telephone number

Emergency number: Canutec: 1-613-996-6666

SECTION 2: Hazards identification

2.1. Classification of the product

Explosives Category 1.4 H203
2.2. Label elements

Hazard pictograms:
- Danger

Signal word: Danger

Hazard statements:
- H203 Explosive: fire, blast or projection hazard

Precautionary statements:
- P210 Keep away from heat/sparks/open flames/hot surfaces
- P250 Do not subject to grinding/shock/friction
- P280 Wear protective gloves/protective clothing/eye protection/face protection
- P370&P380 In case of fire: Evacuate area
- P372 Explosion risk is case of fire
- P373 DO NOT fight fire when fire reaches explosives
- P401 Store in a dry place and not over 65 degrees Celsius
- P501 Dispose of contents/container as hazardous waste

2.3. Other hazards

Other hazards not contributing to the classification:
- Burn hazard if not used conforming to the product instruction
- Do not use damaged products
- Keep out of the reach of children
- Do not point (and fire) product at people or properties
- Do not ignite in confined spaces. Product is designed for outdoor use only.

SECTION 3: Composition/information on ingredients

Chemical Characteristics: Oxidizer and fuel mixture
Description: Pressed pyrotechnical powder
Active mass: 135 gr
Product total weight: 370 gr

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>EINCS #</th>
<th>%AGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lighter Composition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strontium nitrate</td>
<td>10042-76-9</td>
<td>233-131-9</td>
<td>10%</td>
</tr>
<tr>
<td>Magnesium</td>
<td>7439-95-4</td>
<td>231-104-6</td>
<td>8%</td>
</tr>
<tr>
<td>PVC - Solvin</td>
<td>9002-86-2</td>
<td>236-948-9</td>
<td>2.5%</td>
</tr>
<tr>
<td>Potassium Perchlorate</td>
<td>7778-74-7</td>
<td>231-912-9</td>
<td>2.5%</td>
</tr>
<tr>
<td>Linseed oil</td>
<td>8001-26-1</td>
<td>232-278-6</td>
<td>0.2%</td>
</tr>
<tr>
<td>Component</td>
<td>CAS</td>
<td>EINCS</td>
<td>%AGE</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-------</td>
<td>----------</td>
<td>------</td>
</tr>
<tr>
<td>Motor Composition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potassium Perchlorate</td>
<td>7778-74-7</td>
<td>231-612-9</td>
<td>7%</td>
</tr>
<tr>
<td>Phenol formaldehyde resin</td>
<td>9003-35-4</td>
<td>500-005-2</td>
<td>4%</td>
</tr>
<tr>
<td>Phenol</td>
<td>108-95-2</td>
<td>203-632-7</td>
<td>residuals</td>
</tr>
</tbody>
</table>

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.

SECTION 4: First aid measures

4.1. Description of first aid measures

It regards the substances inside the product only. In case of:

First-aid measures after inhalation: If the injured inhales combustion gases, bring him to open air and eventually a physician

First-aid measures after skin contact: Flush with water

First-aid measures after eye contact: Wash immediately with abundant water and consult a physician

First-aid measures after ingestion: Cause vomiting with warm salt water. If the injured is seriously harmed seek medical help.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms and effect: See section 2 labeling and section 11

4.3. Indication of any immediate medical attention and special treatment needed

Not defined

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media: DO NOT TRY TO EXTINGUISH THE FIRE AND STAY AT SAFE DISTANCE. For secondary fires use chemical extinguisher or sand.

 Unsuitable extinguishing media: Do not use water.

5.2. Special hazards arising from the chemical

Fire hazard: Do not keep the product at temperature over 65 degrees Celsius. Bring product out of flames.

Explosion hazard: High emission of fumes and light. Protect respiratory organs. If fire burns many products, protect eyes from ultraviolet emissions.

Reactivity: N/A
### 5.3. Advice for firefighters

**Firefighting instructions:**

DO NOT TRY TO EXTINGUISH THE FIRE AND STAY SAFETY DISTANCE.

**Protection during firefighting:**

High emission of fumes and light. Protect respiratory organs. If the fire burns many products, protect the eyes from ultraviolet emissions.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

<table>
<thead>
<tr>
<th>Protective equipment</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency procedures</td>
<td>N/A</td>
</tr>
</tbody>
</table>

#### 6.2. Environmental precautions

N/A

#### 6.3. Methods and material for containment and cleaning up

<table>
<thead>
<tr>
<th>For containment</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods for cleaning up</td>
<td>In case of breaking of the packaging and discharge of mixture, broom, pick it by dustpan (if possible plastic) and put the material in a plastic container. Keep out of flames &amp; sparks. Call immediately police or firemen in case of large spillage.</td>
</tr>
</tbody>
</table>

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

<table>
<thead>
<tr>
<th>Precautions for safe handling</th>
<th>Operating instructions are printed on the tube (product) Protect from exposure to impacts, friction, heat, fire, spark, electrostatic charges and other ignition sources. Do not use damage products Do not use in close places, outdoor use only. Do not point (and fire) the product at people or properties.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hygiene measures</td>
<td>Wash thoroughly after handling</td>
</tr>
</tbody>
</table>

#### 7.2. Conditions for safe storage, including any incompatibilities

<table>
<thead>
<tr>
<th>Storage conditions</th>
<th>Store in a dry and airy place at temperature between - 30 degrees Celsius and 65 degrees Celsius.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incompatible products</td>
<td>Store with goods of the same danger class.</td>
</tr>
<tr>
<td>Incompatible materials</td>
<td>Store only with non-dangerous materials</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>Between - 30 degrees Celsius and 65 degrees Celsius</td>
</tr>
<tr>
<td>Heat and ignition sources</td>
<td>Keep away from ignition and heat sources.</td>
</tr>
<tr>
<td>Prohibitions on mixed storage</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Storage area: Store in a dry and airy place at temperature between −30 degrees Celsius and 65 degrees Celsius. Store according to the local regulations regarding the storage of explosive materials.

Special rules on packaging: Keep the package off the ground to avoid moisture absorption.

Packaging materials: Cardboard box

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

None set

8.2. Exposure controls

If substances come out from a damage or defective product use the precautions reported below.

Appropriate engineering controls: No heat sources or ignition
Hand Protection: Handle the material accidentally leaked wearing rubber or PVC gloves.
Eye protection: Use protective glasses
Skin and body protection: Avoid contact with skin and garments
Respiratory protection: Do not inhale fumes or vapors sent forth in working. Use a mask with acid filters.
Other information: Always check applicability with you supplier of protective equipment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: N/A
Appearance: External: yellow plastic tube with superior cap (yellow) and inferior screw cap (red).
Internal: motor activated by a firing pin, illuminating flare (gray pyrotechnical composition pressed in a cardboard tube) bound to a nylon parachute.
Molecular mass: Not applicable
Colour: Not applicable
Odour: None
Odour threshold: None
PH: Not applicable
Relative evaporation rate: Not applicable
Melting point: Not applicable
Freezing point: Not applicable
Boiling point: Not applicable
Flash point: Not applicable
Critical temperature: ***ENTER TEMPERATURE HERE***
Self ignition temperature: No data available
Decomposition temperature: Not applicable
Flammability: Not applicable
Vapour pressure: Not applicable
Critical pressure: Not applicable
Relative density: Not applicable
Density: No data available
Solubility: Composition partially soluble (20 degrees Celsius in g/l)
Log Pow: Not applicable
Log Kow: Not applicable
Viscosity: Not applicable
Explosive properties: Not applicable
Oxidizing properties: Not applicable
Explosive limits: No data available
Auto ignition temperature: Not applicable

SECTION 10: Stability and reactivity

10.1 Reactivity

When the product is used in the appropriate manner no danger exists and it is not necessary to take precautions.

10.2 Chemical stability

When the product is used in the appropriate manner no danger exists and it is not necessary to take precautions.

10.3 Possibility of hazardous reactions

When the product is used in the appropriate manner no danger exists and it is not necessary to take precautions.

10.4 Conditions to avoid

Temperature < -30 degrees Celsius
Temperature > 65 degrees Celsius
Strong mechanical impacts and frictions
Near potential sparks sources.

10.5 Incompatible materials

Avoid contact of the composition with organic materials and other fuels.

10.6 Hazardous decomposition products

During the reaction of the pyrotechnical components dangerous gases and particles are produced: NOX, CO, CO2, metal oxides and acid vapors.
SECTION 11 : Toxicological information

11.1. Information on toxicological effects

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Oral LD50</th>
<th>Skin LD50</th>
<th>LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Ingredient mentioned</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Acute toxicity: Breathing in the combustion gases (air limit 6 mg/m3)
Skin corrosion/irritation: After long exposure it may cause skin irritation
Serious eye damage/irritation: No deleterious effects known
Respiratory or skin sensitisation: After long exposure it may cause mucosa irritation
Germ cell mutagenicity: No deleterious effects known
Carcinogenicity: No deleterious effects known
Reproductive toxicity: No deleterious effects known
Specific target organ toxicity (single exposure): No deleterious effects known
Specific target organ toxicity (repeated exposure): No deleterious effects known
Aspiration hazard: No deleterious effects known
Potential adverse human health effect and symptoms: No deleterious effects known
Symptoms/injuries after inhalation: No deleterious effects known
Symptoms/injuries after skin contact: No deleterious effects known
Symptoms/injuries after eye contact: No deleterious effects known
Symptoms/injuries after ingestion: No deleterious effects known
Symptoms/injuries after intravenous administration: No deleterious effects known
Chronic symptoms: No deleterious effects known

SECTION 12 : Ecological information

12.1. Toxity

Aquatic Toxicity: Not defined

12.2. Persistence and degradability

The torch itself, without its package, may slowly decompose under the effect of atmospheric agents and release oxides and nitrates. The composition inside the product is partially water soluble.

12.3. Bioaccumulative potential

Not defined

12.4. Mobility in environmental media

Avoid the product release in water (rivers, lakes, sea). It may slowly decompose and release metal oxides, nitrates and chlorine compounds easily absorbed by water and soil.
The combustion gases may contribute to the greenhouse effect if release in very high quantities.

**SECTION 13 : Disposal considerations**

**13.1. Disposal methods**

Disposal should be carried out in accordance with health, safety, waste, environmental, storage/manufacture of explosives regulations.

**Recyclability:**
Non-contaminated packages may be recycled

**Expired products:**
Depending on local regulations, not conforming, damaged or expired products could be destroyed by combustion by specialized authorities with appropriate tools in an appropriate area.

**SECTION 14 : Transport information**

**14.1. UN number**

<table>
<thead>
<tr>
<th>UN number:</th>
<th>0403</th>
</tr>
</thead>
</table>

**14.2. UN proper shipping name**

<table>
<thead>
<tr>
<th>UN proper shipping name:</th>
<th>Flares, aerial</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN hazard class:</td>
<td>1.4G</td>
</tr>
</tbody>
</table>

**UN DG Placard:**

| Packing group: | II - Medium Danger |

**SECTION 15 : Regulatory information**

**Safety, health and environmental regulations / Legislation specific for the substance or mixture:**
None specified

**Chemical safety assessment:**
A chemical safety assessment has not been carried out on this mixture.

**Other regulations:**
For handling, use, storage, transportation and disposal of this product follow the local, national and international rules and the regulations in forces.
Referring to Section 3 of this Safety Data Sheet, R-phrases and H-statements for the inner composition components are clarified below:

**R-Phrases**

- **R8**  Contact with combustible material may cause fire
- **R9**  Explosive when mixed with combustible material
- **R11**  Highly flammable
- **R15**  Contact with water liberates extremely flammable gases
- **R22**  Harmful if swallowed
- **R34**  Causes severe burns
- **R43**  May cause sensitisation by skin contact
- **R68**  Possible risk of irreversible effects
- **R20/22**  Harmful by inhalation and if swallowed
- **R20/21/22**  Harmful by inhalation, in contact with skin and if swallowed
- **R23/24/25**  Toxic by inhalation, in contact with skin and if swallowed
- **R36/37/38**  Irritating to eyes, respiratory system and skin
- **R48/20/21/22**  Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.

**H-Statements**

- **H201**  Explosive; mass explosion hazard
- **H228**  Flammable solid
- **H251**  Self-heating: match catch fire
- **H261**  In contact with water releases flammable gas
- **H271**  May cause fire or explosion: strong oxidizer
- **H272**  May intensify fire; oxidizer
- **H302/H312/H332**  May be harmful if swallowed, in contact with skin and if inhaled
- **H301**  Toxic if swallowed
- **H302**  May be harmful if swallowed
- **H311**  Toxic in contact with skin
- **H314**  Causes severe skin burns and eye damage
- **H315**  Causes skin irritation
- **H317**  May Cause an allergic skin reaction
- **H319**  Causes serious eye irritation
- **H331**  Toxic if inhaled
- **H335**  May cause respiratory irritation
- **H341**  Suspected of causing genetic defects
- **H373**  May cause damage to organs through prolonged or repeated exposure
The information reported in this Safety Data Sheet describes safety requirements that may not be valid if the product is used in combination with other products. The information is based on today knowledge of the product and its components. The company is not responsible for improper or incorrect use, different from what indicated on instruction.
SAFETY DATA SHEET
Based on Regulation (EC) No. 1907/2006 as amended

SDS PyroPol Signal Orange Smoke CF3 and variants see Section 1
Issued: October 2015_Rev.02

SECTION 1: PRODUCT AND COMPANY INFORMATION

Product Name:
PyroPol Signal Orange Smoke CF3, Art.-No. 1294200
PYROTECH NEREUS ORANGE SMOKE, Art.-No. 1294210
PANZERA ORANGE SMOKE PM5, Art.-No. N235
CIL/ORION FLOATING ORANGE SMOKE SIGNAL 3 MINUTES, Art.-No. 52251, N235CAN

Area of Usage:
Marine distress signal

Manufacturer:
Company name: PyroPol GmbH
Company address: Lippenhorstweg 29, 21514 Hornbek, Germany
E-Mail / Internet: info@pyropol.de / www.pyropol.de
Telephone No.: +49 – (0) 4158 – 89 00 73
Telefax No.: +49 – (0) 4158 – 89 00 97

24 h Emergency Contact No.: +49 – (0) 171 – 126 15 95

SECTION 2: HAZARDS IDENTIFICATION

Main health hazard: Hazards refer to contents of signal
Inhalation: Irritating to respiratory system
Skin contact: Irritating to skin. May cause sensitisation by skin contact. Contact with exhaust gases or hot casing can cause burns.
Eye contact: Irritating to eyes
Ingestion: May give rise to upset stomach, sickness, vomiting
Fire and explosion hazards: Risk of ignition by shock, fire, friction, or other sources of ignition
Environmental hazards: Toxic to aquatic organism. May cause long-term adverse effects in the aquatic environment.

CLP Classification
Explosive division 1.4 – H204
Skin irritant category 2 – H315
Skin sensitiser category 1 – H317
Eye irritant category 2 – H319
Acute toxic category 4 – H332
STOT SE category 3 – H335
Aqueous chronic category 2 – H411

DPD Classification
Explosive – R2
Harmful – R20/22/36/37/38/43
Hazardous for Environment – R51/53

For full wording of hazard statements see Section 16

Label:
Danger Symbol: 
Key Word: Warning

WARNING: Contains Potassium chlorate and Solvent Orange 86

Danger Advice Documents:
H204 Fire or projection hazard
H315 Causes skin irritation
H317 May cause an allergic skin reaction
H319 Causes serious eye irritation
H332 Harmful if inhaled
H335 May cause respiratory irritation
H411 Toxic to aquatic life with long lasting effects
P102 Keep out of reach of children
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P280 Wearing of protective gloves, clothes, glasses and face mask
P309 + P311 If exposed or you feel unwell: call a POISON CENTER or a doctor/physician
P370 + P380 During Fire, evacuate immediate area

Page 1 of 6
**SECTION 3: COMPONENT INFORMATION**

Hazardous component(s):

Under CLP EC1272/2008

<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS No</th>
<th>REACH registration No</th>
<th>%</th>
<th>Mass (g)</th>
<th>CLP Hazard Category and H statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium chlorate</td>
<td>3811-04-9</td>
<td>01-2119971261-41</td>
<td>30%</td>
<td>60</td>
<td>Oxidizing solid Cat. 1 – H271</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td>Acute toxic Cat. 4 – H302/332</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Aquatic chronic Cat. 2 – H411</td>
</tr>
<tr>
<td>Solvent Orange 86</td>
<td>81-64-1</td>
<td>01-2119494917-18</td>
<td>35%</td>
<td>70</td>
<td>Skin irritant Cat. 2 – H315</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Skin sensitizer Cat. 1 – H317</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Eye irritant Cat. 2 – H319</td>
</tr>
</tbody>
</table>

Under DPD EC1999/45

<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS number</th>
<th>EC number</th>
<th>%</th>
<th>Mass (g)</th>
<th>Symbol and Risk phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium chlorate</td>
<td>3811-04-9</td>
<td>223-289-7</td>
<td>30%</td>
<td>60</td>
<td>O, Xn, N: R9/20/22/51/53</td>
</tr>
<tr>
<td>Solvent Orange 86</td>
<td>81-64-1</td>
<td>201-368-7</td>
<td>35%</td>
<td>70</td>
<td>Xi: R36/37/38/43</td>
</tr>
</tbody>
</table>

**SECTION 4: FIRST AID MEASURES**

General Advice: Not defined

After Inhalation (Combustion Gases): Having problems after inhaling smoke, consult a physician.

After Skin Contact: Wash with lots of water

After Contact with Eyes: Wash with lots of water, contact a physician

After Swallowing: Not possible to swallow product

Advice for doctors

Symptoms: Not defined

Dangers: Not defined

Actions to be taken: Not defined

**SECTION 5: FIRE FIGHTING MEASURES**

Extinguishing media

Suitable extinguishing media: Use any extinguishing media at early stages of fire. Once the product has ignited, it cannot be extinguished.

Not to be used: No restriction

Special hazards arising from the substance or mixture: Product emits dense orange smoke that can be ignited in a confined space

Advice for fire fighters: The usual protective gear in case of fire

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

Personal precautions, protective equipment and emergency procedures

Personal precautions: Normal industrial hygiene. Use protective gloves.

Environmental Precautions: Do not let waste reach drains, sewers and bodies of water, or leak into ground

Methods and material for containment and cleanup: Collect using non sparking tools, reuse if undamaged. Otherwise, keep for disposal by experts.
SECTION 7: HANDLING AND STORAGE

Handling
Advice on Safe Handling:
Conforming instructions printed on the signal.
Protect from exposure to impacts, friction, heat, fire, sparks, electrostatic charges and other ignition sources.
Avoid dropping the signal on hard surfaces.
Do not use damaged product.

Conditions for safe storage, including any incompatibilities
Storage: Temperature should not exceed 75°C

Specific end use(s):
Marine distress signal

Storage Requirements of Storage Facility and Container:
Store in a cool and dry place.
Store only in the original packaging and according to the local regulations regarding the storage of explosive materials.

SECTION 8: PERSONAL PROTECTION/EXPOSURE CONTROLS

Control parameters:
None set

Exposure controls
Recommended engineering controls:
No fire, sparks or welding close to the items. If cleaning up spillage, use tools which cannot strike sparks.

Personal protective equipment:
Normally not needed. But in case of spillage:
Respiratory protection: In case of dust use particle filter mask such as EN143 Type P or EN149 Type FFP-S

Hand protection: Leather or similar protective gloves
Eye protection: Shatter proof glasses or goggles
Skin protection: Normal industrial hygiene
Specific hygiene measures: No smoking
Further information:
Always check applicability with your supplier of protective equipment

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties
Appearance: Colored metal body with red cap
Odor: None
Odor threshold value: Not applicable
pH (concentrated product): Not applicable
Melting point (°C): Not determined
Boiling point/ range (°C): Not applicable
Flash point (°C): Not applicable
Evaporation rate: Not applicable
Flammability: Contents are flammable
Explosive properties: Pyrotechnic smoke generator
Vapor pressure (mbar at 25°C): Not applicable
Vapor density: Not applicable
Density at 20°C (g/cm³): Not determined
Solubility in water (% by weight): Insoluble
Solubility in solvents: Not determined
Partition coefficient (log Pow): Not applicable
Autoignition temperature (°C): > 190
Decomposition temperature (°C): Not determined
Viscosity: Not applicable
Oxidizing properties: Contents have oxidizing properties

Other information
Note: These are typical values and do not constitute a specification
## SECTION 10: STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactivity</td>
<td>Stable product under recommended handling and storage conditions</td>
</tr>
<tr>
<td>Chemical stability</td>
<td>Stable product under recommended handling and storage conditions</td>
</tr>
<tr>
<td>Possibility of hazardous reactions</td>
<td>Stable product under recommended handling and storage conditions</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>High temperatures, above 100°C</td>
</tr>
<tr>
<td>Incompatible materials</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Hazardous decomposition products</td>
<td>Product will emit dense orange smoke and become hot</td>
</tr>
</tbody>
</table>

## SECTION 11: TOXICOLOGICAL INFORMATION

### Information on toxicological effects

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity</td>
<td>Potassium chlorate: LD&lt;sub&gt;50&lt;/sub&gt; oral rat 1870 mg/kg, harmful by ingestion</td>
</tr>
<tr>
<td></td>
<td>Calculated product ATE ingestion = 17474 mg/kg, not classified as hazardous by ingestion</td>
</tr>
<tr>
<td></td>
<td>Potassium chlorate: ATE inhalation 1.5 mg/l</td>
</tr>
<tr>
<td></td>
<td>Calculated product ATE inhalation = 3.9 mg/l, harmful by inhalation</td>
</tr>
<tr>
<td>Skin corrosion / irritation</td>
<td>Solvent Orange 86: Skin irritant category 2 under CLP</td>
</tr>
<tr>
<td>Serious eye damage / irritation</td>
<td>Solvent Orange 86: Eye irritant category 2 under CLP</td>
</tr>
<tr>
<td>Respiratory or skin sensitisation</td>
<td>Solvent Orange 86: Skin sensitis category 1 under CLP</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>No deleterious effects known</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>No deleterious effects known</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>No deleterious effects known</td>
</tr>
<tr>
<td>STOT-single exposure</td>
<td>Solvent Orange 86: Respiratory irritant category 3 under CLP</td>
</tr>
<tr>
<td>STOT-repeated exposure</td>
<td>No deleterious effects known</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>No deleterious effects known</td>
</tr>
<tr>
<td>Likely routes of exposure</td>
<td>Contact with skin</td>
</tr>
<tr>
<td>Symptoms related to the physical,</td>
<td>Powders may be mildly irritating to the skin, eyes and respiratory tract.</td>
</tr>
<tr>
<td>chemical and toxicological</td>
<td>May cause sensitisation by skin contact.</td>
</tr>
<tr>
<td>characteristics</td>
<td>May cause gastric irritation, nausea and vomiting.</td>
</tr>
<tr>
<td>Delayed and immediate effects as well</td>
<td>No deleterious effects known</td>
</tr>
<tr>
<td>as chronic effects from short and</td>
<td></td>
</tr>
<tr>
<td>long-term exposure</td>
<td></td>
</tr>
<tr>
<td>Other information</td>
<td>None</td>
</tr>
</tbody>
</table>

## SECTION 12: ECOLOGICAL INFORMATION

### Toxicity

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium chlorate</td>
<td>EC&lt;sub&gt;50&lt;/sub&gt; Daphnia magna 24h: 1.093 mg/l Toxic</td>
</tr>
<tr>
<td>Persistence and degradability</td>
<td>Not applicable. Contains inorganic materials and is in form of solid article.</td>
</tr>
</tbody>
</table>

### Bioaccumulative potential

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobility</td>
<td>No test data on product</td>
</tr>
<tr>
<td>Mobility in soil</td>
<td>None. Product in form of solid article.</td>
</tr>
</tbody>
</table>

### Results of PBT and vPvB assessment

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not fulfill the criteria</td>
<td>for classification as PBT or vPvB</td>
</tr>
</tbody>
</table>

### Other adverse effects

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not a marine pollutant (IMDG code)</td>
<td></td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET
Based on Regulation (EC) No. 1907/2006 as amended
SDS PyroPol Signal Orange Smoke CF3 and variants see Section 1
Issued: October 2015 Rev.02

SECTION 13: DISPOSAL
Waste treatment methods
Disposal of waste materials: Disposal should be carried out in accordance with local health and safety, waste, environmental and storage / manufacture of explosives regulations.
DO NOT TRY TO DISMANTLE THE PRODUCT!

SECTION 14: TRANSPORT INFORMATION
Land transport (ADR/RID, GGVSEB)
UN No.: 0507
Proper Shipping Name: SIGNALS, SMOKE
Transport Class / Label: 1.4S
Packing Instruction: P135

Sea Transport (IMO-IMDG Code, GGVSee)
UN No.: 0507
Proper Shipping Name: SIGNALS, SMOKE
Transport Class / Label: 1.4S
Packing Instruction: P135
EMS Code: F - B, S - X
Comment: Not classified as Marine Pollutants

Air Transport (ICAO/IATA DGR)
UN No.: 0507
Proper Shipping Name: Signals, smoke
Transport Class / Label: 1.4S
Packing Instruction: P135
Additional information: Passenger and Cargo Aircraft
EX Number (DOT/USA): EX2008070055

SECTION 15: REGULATORY INFORMATION
Safety, health and environmental regulations / legislation specific for the substance or mixture: None specified
Chemical safety assessment: A chemical safety assessment has not been carried out on this mixture
Other Regulations: Work Protection Law, Health Protection Law, Explosives Regulations and Explosive Law must be conformed to. The item is not subject to safety evaluations.

SECTION 16: OTHER INFORMATION
R-phrases used in this document
R2 Risk of explosion by shock, friction, fire, or other sources of ignition
R9 Explosive if mixed with combustible material
R20/22 Harmful by inhalation and if swallowed
R36/37/38 Irritating to eyes / respiratory system and skin
R43 May cause sensitisation by skin contact
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

H-statements used in this document
H204 Fire or projection hazard
H271 May cause fire or explosion, strong oxidizer
H302 Harmful if swallowed
H315 Causes skin irritation
H317 May cause an allergic skin reaction
H319 Causes serious eye irritation
H332 Harmful if inhaled
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H335</td>
<td>May cause respiratory irritation</td>
</tr>
<tr>
<td>H411</td>
<td>Toxic to aquatic life with long lasting effects</td>
</tr>
</tbody>
</table>

**Abbreviations and Acronyms:**

- **GHS**: Globally Harmonized System of Classification and Labelling of Chemicals
- **CAS-No.**: Registration Number of the Chemical Abstract Service
- **EG-No.**: Registration Number of the European Inventory of Existing Chemical Substances (EINECS)
- **EG-Index-No.**: ID Code for a particular dangerous material
- **AGW-value**: Work Place Safety/Limit Value
- **BGW-value**: Biological Work Place Safety/Limit Value
- **CMR-Substance**: Cancersgen, Mutagen, Fertility Damaging

The information in the safety data sheet is based on our present knowledge. It is intended to describe our products with regard to safety requirements and is not intended to guarantee any particular properties.

This is a voluntary product information.

There is no legal obligation to issue a safety data sheet according to Regulation (EC) No 1907/2006 as amended.
RED HAND HELD FLARE SOLAS
Safety Data Sheet
Date of Issue : 21/07/2017
Version : 1.1

SECTION 1 : identification of the product and of the company

1.1. Product identifier

Product name : RED FLARE PM5 SOLAS
Synonyms : N/A
Product code : 802 / 807 / 52186 / 52286

1.2. Relevant identified uses of the product and uses advised against

Use advised against : For outdoor daytime use only

1.3. Details of the supplier/importer of the product

Supplier : Panzera Sas (manufactured FDF)
Regione Olmi 78
10041 Carignano (TO)
ITALY
Tel : +39 011 9697308 / 9690317
Fax : 410-822-7759
email: info@panzera.it
www.panzera.it

Importer / Assembler : CIL/Explosives
533 Argenteuil
Lachute, QC
J8H 3Y2
Tel : 450-566-0655
Fax : 450-566-0677
email: reception@cilexplosives.com
www.cilexplosives.com

1.4. Emergency telephone number

Emergency number : Canutec : 1-613-996-6666

SECTION 2 : Hazards identification

2.1. Classification of the product

Explosives Category 1.4 H204
2.2. Label elements

Hazard pictograms:

Signal word: Warning

Hazard statements:
- H204 Fire or Projection hazard

Precautionary statements:
- P201 Keep away from heat/open flames/hot surface
- P250 Do not subject to grinding/shock/friction
- P370&P380 In case of fire: Evacuate area
- P401 Store in a dry place and not over 50 C
- P501 Dispose of contents/container as hazardous waste in accordance with local regulations

2.3. Other hazards

Other hazards not contributing to the classification:
- P102 Keep out reach of children
- P309&P311 If exposed or if you feel unwell: Call a POISON CENTER or Doctor/Physician
- P301&P310 If SWALLOWED: immediately call a POISON CENTER or Doctor/Physician

When fired, a hot red flame is emitted from this product
Do not point and/or fire the product at people or properties
For outdoor distress signaling use only. Do not ignite in confined spaces.
Do not inhale
Product becomes hot during operation
Do not use if damaged or dented
SECTION 3 : Composition/information on ingredients

Gross Weight: 240 gr
Chemical characteristic: Oxidizer and fuel mixture
Description: Pressed pyrotechnical powder sealed inside the product

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>EINCS #</th>
<th>%AGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strontium nitrate</td>
<td>10042-76-9</td>
<td>233-131-9</td>
<td>17%</td>
</tr>
<tr>
<td>Magnesium</td>
<td>7439-95-4</td>
<td>231-104-6</td>
<td>n/a</td>
</tr>
</tbody>
</table>

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.

SECTION 4 : First aid measures

4.1. Description of first aid measures

It regards the substances inside the product only. In case of:
First-aid measures after inhalation: Having problems after inhaling smoke, consult a physician
First-aid measures after skin contact: Wash with abundant water and soap
First-aid measures after eye contact: Flush with water at least 10 minutes. If symptoms persist, seek medical advice
First-aid measures after ingestion: Do not induce vomiting. Seek medical attention at once.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms and effect: See section 2 labeling and section 11

4.3. Indication of any immediate medical attention and special treatment needed

Not defined

SECTION 5 : Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media: Use any extinguishing media for initial fire.
Once ignited units cannot be extinguished until all composition has been consumed.

Unsuitable extinguishing media: N/A

5.2. Special hazards arising from the chemical

Fire hazard: Do not keep the product at temperature over 71 degrees Celsius. Keep product away from flames.

Explosion hazard: If exposed to flame, units will burn and release large volumes of
5.3. Advice for firefighters

<table>
<thead>
<tr>
<th>Firefighting instructions :</th>
<th>Once ignited units cannot be extinguished until all composition has consumed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection during firefighting :</td>
<td>For fire in enclosed areas must use self-contained breathing apparatus (SCBA)</td>
</tr>
</tbody>
</table>

SECTION 6 : Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

<table>
<thead>
<tr>
<th>Protective equipment :</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency procedures :</td>
<td>N/A</td>
</tr>
</tbody>
</table>

6.2. Environmental precautions

Avoid losses to be released in water, ground or drainage system

6.3. Methods and material for containment and cleaning up

<table>
<thead>
<tr>
<th>For containment :</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods for cleaning up :</td>
<td>In case of breaking of the product, collect all the composition lost with a plastic broom. Waiting for disposal, keep away from ignition sources.</td>
</tr>
</tbody>
</table>

SECTION 7 : Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Follow printed instructions on this product at all time. Avoid the product to hit solid surfaces. Avoid shocks and handle with care. Don not attempt to dismantle this product

Hygiene measures : Wash Thoroughly after handling

7.2. Conditions for safe storage, including any incompatibilities

<table>
<thead>
<tr>
<th>Storage conditions :</th>
<th>Temperature of storage has to be under 75 degrees Celsius</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incompatible products :</td>
<td>Store away from flammable material</td>
</tr>
<tr>
<td>Incompatible materials :</td>
<td>Direct sunlight, sources of heat</td>
</tr>
<tr>
<td>Storage temperature :</td>
<td>Under 75 degrees Celsius</td>
</tr>
<tr>
<td>Heat and ignition sources :</td>
<td>KEEP PRODUCT AWAY FROM : heat sources, ignition sources</td>
</tr>
</tbody>
</table>
Prohibitions on mixed storage: N/A
Storage area: Store in well ventilated area, away from children
Special rules on packaging: Store in manufactures approved packaging
Packaging materials: Cardboard box

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
None set

8.2. Exposure controls
Appropriate engineering controls: No fire, sparks close to the item
Hand Protection: If substances are released from the product, handle with rubber or PVC gloves.
Eye protection: Shatter proof glasses or goggles
Skin and body protection: Normal industrial hygiene
Respiratory protection: If necessary use an acid filter mask (EN143 Type P,EN149 Type FFP-S)
Other information: Always check applicability with your supplier of protective equipment

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties
Physical state: N/A
Appearance: Metallic tube with yellow plastic handle. Superior red plastic cap and yellow label.
Molecular mass: Not applicable
Colour: Not applicable
Odour: Not applicable
Odour threshold: Not applicable
PH: Not applicable
Relative evaporation rate: Not applicable
Melting point: Not applicable
Freezing point: Not applicable
Boiling point: Not applicable
Flash point: Not applicable
Critical temperature: Not applicable
Self ignition temperature: > 250 Degrees Celsius
Decomposition temperature: Not applicable
Flammability: Not applicable
Vapour pressure: Not applicable
Critical pressure: Not applicable
Relative density: Not applicable
Density: Not applicable
Solubility: Composition partially soluble but product is waterproof
Log Pow: Not applicable
Log Kow: Not applicable
Viscosity: Not applicable
Explosive properties: No data available
Oxidising properties: Not applicable
Explosive limits: No data available
Auto ignition temperature: > 200 Degrees Celsius

SECTION 10: Stability and reactivity

10.1 Reactivity
Product is stable under normal conditions

10.2 Chemical stability
Product is stable under normal conditions

10.3 Possibility of hazardous reactions
Product is stable under normal conditions

10.4 Conditions to avoid
Avoid Temperature > 75 degrees Celsius
Keep away from sources of ignition

10.5 Incompatible materials
Solvents, hydrocarbon, petroleum based products

10.6 Hazardous decomposition products
Emits a large quantity of gases and a strong heat

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Under normal operating circumstances, there are no known acute toxic hazards resulting from single exposure to the product of combustion from the signal. However, abuse or misuse of the product could result in situations where exposure to the combustion of the product could reach harmful levels for vulnerable individuals.

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Oral LD50</th>
<th>Skin LD50</th>
<th>LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strontium Nitrate</td>
<td>Rat is 1892 mg/Kg</td>
<td>Not stated</td>
<td>No information found</td>
</tr>
</tbody>
</table>
Acute toxicity: Harmful if swallowed. ATE calculation: 901 mg/kg
Skin corrosion/irritation: Composition may irritate
Serious eye damage/irritation: Composition may irritate
Respiratory or skin sensitisation: Composition may irritate
Germ cell mutagenicity: No deleterious effects known
Carcinogenicity: No deleterious effects known
Reproductive toxicity: No deleterious effects known
Specific target organ toxicity (single exposure): No deleterious effects known
Specific target organ toxicity (repeated exposure): No deleterious effects known
Aspiration hazard: No deleterious effects known
Potential adverse human health effect and symptoms: No deleterious effects known
Symptoms/injuries after inhalation: Composition may irritate
Symptoms/injuries after skin contact: Composition may irritate
Symptoms/injuries after eye contact: Composition may irritate
Symptoms/injuries after ingestion: No deleterious effects known
Symptoms/injuries after intravenous administration: Not applicable
Chronic symptoms: No deleterious effects known

SECTION 12: Ecological information

12.1. Toxicity

Aquatic Toxicity: Not defined

12.2. Persistence and degradability

The composition inside the product is partially water soluble.

12.3. Bioaccumulative potential

Not Defined

12.4. Mobility in environmental media

12.5. Other adverse effects

Avoid the product release in water (rivers, lakes, sea). It may slowly decompose and release compounds easily absorbed by water and soil.

The combustion gases may contribute to the greenhouse effect if release in a very high quantities.
SECTION 13 : Disposal considerations

13.1. Disposal methods

Disposal should be carried out in accordance with local health, safety, waste, environmental, storage/manufacture of explosives regulations.

Fired products: Subject to local authority arrangements

Expired products: Return to authorized distributor where/as permitted by local regulation for disposal or recycling.

Damaged Products: Repack in original packaging and treat as expired products

SECTION 14 : Transport information

14.1. UN number

UN number : 0191

14.2. UN proper shipping name

UN proper shipping name : Signal devices, hand

UN hazard class : 1.4G

UN DG Placard : Packing group : II - Medium Danger

SECTION 15 : Regulatory information

Safety, health and environmental regulations / Legislation specific for the substance or mixture : None specified

Chemical safety assessment : A chemical safety assessment has not been carried out on this mixture

Other regulations : For handling, use, storage, transportation and disposal of this product follow local, national and international rules and the regulations in forces.
Referring to Section 3 of this Safety Data Sheet, R-phrases and H-Statements for the inner composition components are clarified below:

**R-Phrases**
- R8: Contact with combustible material may cause fire
- R11: Highly flammable
- R15: Contact with water liberates extremely flammable gases
- R22: Harmful if swallowed
- R36/37/38: Irritating to eyes, respiratory system and skin

**H-Statements**
- H228: Flammable solid
- H251: Self-heating, may catch fire
- H261: In contact with water releases flammable gases
- H272: May intensify fire: oxidizer
- H302: Harmful if swallowed
- H315: Causes skin irritation
- H319: Causes serious eye irritation
- H335: May cause respiratory irritation

It is recommended not to ignite the product indoor. Use only as emergency and distress signal. Every other use is dangerous and condemned by the law.

The information reported in this Safety Data Sheet is referred to the indicated product and may not be valid if the product is used with other products.

The manufactured company and the supplier are not responsible for the improper use of this product, different from the indication reported in this SDS or printed on the label.

The information is based on today knowledge on the product (and its components).

The operator responsibility includes:
- To apply the safety measures on the product utilization.
- To report the other users the safety measures and the appropriate precautions while using the product.
- To be aware of risks that may happen while using the product improperly.