

## ORANGE SMOKE SIGNAL 15 MINUTE

WesCom Signal and Rescue Germany GmbH

Chemwatch: 65-6258

Version No: 3.1.1.1

Safety Data Sheet

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L.GHS.CAN.EN

### SECTION 1 IDENTIFICATION

#### Product Identifier

|                                      |  |
|--------------------------------------|--|
| <b>Product name</b>                  | ORANGE SMOKE SIGNAL 15 MINUTE  |
| <b>Synonyms</b>                      | Comet Smoke Signal: Art.-No. 9181700, Pains Wessex BuoySmoke MK9: Art.-No. 9538350 |
| <b>Proper shipping name</b>          | SIGNALS, SMOKE   |
| <b>Other means of identification</b> | Not Available  |

#### Recommended use of the chemical and restrictions on use

|                                 |   |
|---------------------------------|---|
| <b>Relevant identified uses</b> | Use according to manufacturer's directions.<br>Sea distress signal. Compact Lifebuoy marker which produces dense orange smoke for 15 minutes. The signal is used to mark the position of a man overboard in the water during daylight. It can be automatically deployed by releasing the lifebuoy, or manually activated. |
|---------------------------------|---|

#### Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

|                                |   |
|--------------------------------|---|
| <b>Registered company name</b> | WesCom Signal and Rescue Germany GmbH       |
| <b>Address</b>                 | Vieländer Weg 147 Bremerhaven 27574 Germany |
| <b>Telephone</b>               | +49 471 3930                                |
| <b>Fax</b>                     | +49 471 3932 10                             |
| <b>Website</b>                 | www.wescosignal.com                         |
| <b>Email</b>                   | info@wescosignal.com                        |

#### Emergency phone number


|  |                             |
|--|-----------------------------|
| <b>Association / Organisation</b>        | Consultant Lutz Harder GmbH |
| <b>Emergency telephone numbers</b>       | +49 178 433 7434            |
| <b>Other emergency telephone numbers</b> | Not Available               |

### SECTION 2 HAZARD(S) IDENTIFICATION

#### Classification of the substance or mixture

|                       |  |
|-----------------------|--|
| <b>Classification</b> | Explosive Division 1.4, Eye Irritation Category 2B |
|-----------------------|--|

#### Label elements

|                            |   |
|----------------------------|---|
| <b>Hazard pictogram(s)</b> |  |
|----------------------------|---|

|                    |                |
|--------------------|----------------|
| <b>SIGNAL WORD</b> | <b>WARNING</b> |
|--------------------|----------------|

#### Hazard statement(s)

|             |                            |
|-------------|----------------------------|
| <b>H204</b> | Fire or projection hazard. |
| <b>H320</b> | Causes eye irritation.     |

#### Hazard(s) not otherwise specified

Not Applicable

#### Precautionary statement(s) Prevention

|             |  |
|-------------|--|
| <b>P210</b> | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| <b>P234</b> | Keep only in original packaging.   |
| <b>P250</b> | Do not subject to grinding/shock/sources of friction.  |
| <b>P280</b> | Wear protective gloves/protective clothing/eye protection/face protection.                     |

|      |  |
|------|--|
| P240 | Ground and bond container and receiving equipment. |
|------|--|

**Precautionary statement(s) Response**

|                     |  |
|---------------------|--|
| P370+P372+P380+P373 | In case of fire: Explosion risk. Evacuate area. DO NOT fight fire when fire reaches explosives.                                  |
| P370+P380+P375      | In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.  |
| P305+P351+P338      | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P337+P313           | If eye irritation persists: Get medical advice/attention.  |

**Precautionary statement(s) Storage**

|      |  |
|------|--|
| P401 | Store in accordance with local regulations for explosives. |
|------|--|

**Precautionary statement(s) Disposal**

|      |   |
|------|---|
| P501 | Dispose of contents/container in accordance with local regulations. |
|------|---|

**SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS****Substances**

See section below for composition of Mixtures

**Mixtures**

| CAS No     | %[weight] | Name                      |
|------------|-----------|---------------------------|
|            |           | device contains           |
|            |           | polytechnic materials of; |
| 3811-04-9  |           | <u>potassium chlorate</u> |
| 7757-79-1  |           | <u>potassium nitrate</u>  |
| 10022-31-8 |           | <u>barium nitrate</u>     |

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

**SECTION 4 FIRST-AID MEASURES****Description of first aid measures**

|                     |   |
|---------------------|---|
| <b>Eye Contact</b>  | <p>If this product comes in contact with eyes:</p> <ul style="list-style-type: none"> <li>▶ Wash out immediately with water.</li> <li>▶ If irritation continues, seek medical attention.</li> <li>▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul>  |
| <b>Skin Contact</b> | <p>If skin contact occurs:</p> <ul style="list-style-type: none"> <li>▶ Immediately remove all contaminated clothing, including footwear.</li> <li>▶ Flush skin and hair with running water (and soap if available).</li> <li>▶ Seek medical attention in event of irritation.</li> </ul>   |
| <b>Inhalation</b>   | <ul style="list-style-type: none"> <li>▶ If fumes or combustion products are inhaled remove from contaminated area.</li> <li>▶ Lay patient down. Keep warm and rested.</li> <li>▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</li> <li>▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.</li> <li>▶ Transport to hospital, or doctor, without delay.</li> </ul>  |
| <b>Ingestion</b>    | <ul style="list-style-type: none"> <li>▶ Not considered a normal route of entry.</li> <li>▶ <b>If swallowed do NOT induce vomiting.</b></li> <li>▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.</li> <li>▶ Observe the patient carefully.</li> <li>▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.</li> <li>▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.</li> <li>▶ Seek medical advice.</li> </ul> |

**Indication of any immediate medical attention and special treatment needed**

Treat symptomatically.

**SECTION 5 FIRE-FIGHTING MEASURES****Extinguishing media**

**DANGER:** Deliver media remotely.

- ▶ For minor fires: Flooding quantities only.
  - ▶ For large fires: **Do not attempt to extinguish.**
- Apply by mechanical means only.

**Special hazards arising from the substrate or mixture**

|                             |                                     |
|-----------------------------|-------------------------------------|
| <b>Fire Incompatibility</b> | Avoid contact with other chemicals. |
|-----------------------------|-------------------------------------|

**Special protective equipment and precautions for fire-fighters**

|                              |  |
|------------------------------|--|
| <b>Fire Fighting</b>         | <p><b>WARNING: EXPLOSIVE MATERIALS / ARTICLES PRESENT!</b></p> <ul style="list-style-type: none"> <li>▶ Evacuate all personnel and move upwind.</li> <li>▶ Prevent re-entry.</li> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ May detonate and burning material may be propelled from fire.</li> <li>▶ Wear full-body protective clothing with breathing apparatus.</li> <li>▶ Prevent, by any means available, spillage and fire effluent from entering drains and water courses.</li> <li>▶ Fight fire from safe distances and from protected locations.</li> <li>▶ Use flooding quantities of water.</li> <li>▶ <b>DO NOT</b> approach containers or packages suspected to be hot.</li> <li>▶ Cool any exposed containers not involved in fire from a protected location.</li> <li>▶ Equipment should be thoroughly decontaminated after use.</li> </ul> <p>Slight hazard when exposed to heat, flame and oxidisers.</p> |
| <b>Fire/Explosion Hazard</b> | <p>Division 1.4 Substances, mixtures and articles which present no significant hazard: substances, mixtures and articles which present only a small hazard in the event of ignition or initiation. The effects are largely confined to the package and no projection of fragments of appreciable size or range is to be expected. An external fire shall not cause virtually instantaneous explosion of almost the entire contents of the package.</p>   |

## SECTION 6 ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

See section 8

### Environmental precautions

See section 12

### Methods and material for containment and cleaning up

|                     |   |
|---------------------|---|
| <b>Minor Spills</b> | <p><b>WARNING: EXPLOSIVE.</b></p> <p>BLAST and/or PROJECTION and/or FIRE HAZARD</p> <ul style="list-style-type: none"> <li>▶ Clean up all spills immediately.</li> <li>▶ Avoid inhalation of the material and avoid contact with eyes and skin.</li> <li>▶ Wear impervious gloves and safety glasses.</li> <li>▶ Remove all ignition sources.</li> <li>▶ Use spark-free tools when handling.</li> <li>▶ Sweep into non-sparking containers or barrels and moisten with water.</li> <li>▶ Place spilled material in clean, sealable, labelled container for disposal.</li> <li>▶ Flush area with large amounts of water.</li> </ul>  |
| <b>Major Spills</b> | <p><b>WARNING: EXPLOSIVE.</b></p> <ul style="list-style-type: none"> <li>▶ Clear area of personnel and move upwind.</li> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ May be violently or explosively reactive.</li> <li>▶ Wear full body protective clothing with breathing apparatus.</li> <li>▶ Consider evacuation (or protect in place).</li> <li>▶ In case of transport accident notify Police, Emergency Authority, Competent Explosives Authority or Manufacturer.</li> <li>▶ No smoking, naked lights, heat or ignition sources.</li> <li>▶ Increase ventilation.</li> <li>▶ Use extreme caution to prevent physical shock.</li> <li>▶ Use only spark-free shovels and explosion-proof equipment.</li> <li>▶ Collect recoverable material and segregate from spilled material.</li> <li>▶ Wash spill area with large quantities of water.</li> </ul> |

Personal Protective Equipment advice is contained in Section 8 of the SDS.

## SECTION 7 HANDLING AND STORAGE

### Precautions for safe handling

|                          |  |
|--------------------------|--|
| <b>Safe handling</b>     | <ul style="list-style-type: none"> <li>▶ Handle gently. Use good occupational work practice.</li> <li>▶ Observe manufacturer's storage and handling recommendations contained within this SDS.</li> <li>▶ Avoid all personal contact, including inhalation.</li> <li>▶ Avoid smoking, naked lights, heat or ignition sources.</li> <li>▶ Explosives must not be struck with metal implements.</li> <li>▶ Avoid mechanical and thermal shock and friction.</li> <li>▶ Use in a well ventilated area.</li> <li>▶ Avoid contact with incompatible materials.</li> <li>▶ <b>When handling DO NOT eat, drink or smoke.</b></li> <li>▶ Avoid physical damage to containers.</li> <li>▶ Always wash hands with soap and water after handling.</li> <li>▶ Work clothes should be laundered separately.</li> </ul>  |
| <b>Other information</b> | <ul style="list-style-type: none"> <li>▶ Store cases in a well ventilated magazine licensed for the appropriate Class, Division and Compatibility Group.</li> <li>▶ Rotate stock to prevent ageing. Use on FIFO (first in-first out) basis.</li> <li>▶ Observe manufacturer's storage and handling recommendations contained within this SDS.</li> <li>▶ Store in a cool place in original containers.</li> <li>▶ Keep containers securely sealed.</li> <li>▶ No smoking, naked lights, heat or ignition sources.</li> <li>▶ Store in an isolated area away from other materials.</li> <li>▶ Keep storage area free of debris, waste and combustibles.</li> <li>▶ Protect containers against physical damage.</li> <li>▶ Check regularly for spills and leaks</li> </ul> <p><b>NOTE:</b> If explosives need to be destroyed contact the Competent Authority.</p> <ul style="list-style-type: none"> <li>▶ Store away from incompatible materials.</li> </ul> <p>Keep out of reach of children.</p> |

**Conditions for safe storage, including any incompatibilities**

|                                |   |
|--------------------------------|---|
| <b>Suitable container</b>      | <ul style="list-style-type: none"> <li>▶ All packaging for Class 1 Goods shall be in accordance with the requirements of the relevant Code for the transport of Dangerous Goods.</li> <li>▶ Class 1 is unique in that the type of packaging used frequently has a very decisive effect on the hazard and therefore on the assignment to a particular division</li> </ul>                |
| <b>Storage incompatibility</b> | <ul style="list-style-type: none"> <li>▶ Avoid contact with other explosives, pyrotechnics, solvents, adhesives, paints, cleaners and unauthorized metals, plastics, packing equipment and materials.</li> <li>▶ Avoid contamination with acids, alkalis, reducing agents, amines and phosphorus.</li> <li>▶ Explosion hazard may follow contact with incompatible materials</li> </ul> |

**SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION****Control parameters****OCCUPATIONAL EXPOSURE LIMITS (OEL)****INGREDIENT DATA**


| Source  | Ingredient     | Material name                             | TWA       | STEL          | Peak          | Notes  |
|---|----------------|---|-----------|---------------|---------------|--|
| Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances           | barium nitrate | Barium (soluble compounds) (as Ba)        | 0.5 mg/m3 | 0.5 mg/m3     | Not Available | Not Available  |
| Canada - Nova Scotia Occupational Exposure Limits                                       | barium nitrate | Barium - Soluble compounds (as Ba)        | 0.5 mg/m3 | Not Available | Not Available | TLV Basis: eye, skin & gastrointestinal irritation; muscular stimulation |
| Canada - Alberta Occupational Exposure Limits   | barium nitrate | Barium and soluble compounds, as Ba       | 0.5 mg/m3 | Not Available | Not Available | Not Available  |
| Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits | barium nitrate | Barium and soluble compounds, (as Ba)     | 0.5 mg/m3 | 1.5 mg/m3     | Not Available | Not Available  |
| Canada - Manitoba Occupational Exposure Limits  | barium nitrate | Not Available                             | 0.5 mg/m3 | Not Available | Not Available | Not Available  |
| Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)         | barium nitrate | Barium soluble compounds (as Ba)          | 0.5 mg/m3 | Not Available | Not Available | Not Available  |
| Canada - Northwest Territories Occupational Exposure Limits (English)                   | barium nitrate | Barium and soluble compounds, (as Ba)     | 0.5 mg/m3 | 1.5 mg/m3     | Not Available | Not Available  |
| Canada - British Columbia Occupational Exposure Limits                                  | barium nitrate | Barium and soluble compounds, as Ba       | 0.5 mg/m3 | Not Available | Not Available | Not Available  |
| Canada - Prince Edward Island Occupational Exposure Limits                              | barium nitrate | Barium and soluble compounds, as Ba(1990) | 0.5 mg/m3 | Not Available | Not Available | TLV® Basis: Eye, skin, & GI irr; muscular stim                           |

**EMERGENCY LIMITS**

| Ingredient         | Material name      | TEEL-1    | TEEL-2    | TEEL-3      |
|--------------------|--------------------|-----------|-----------|-------------|
| potassium chlorate | Potassium chlorate | 5.6 mg/m3 | 62 mg/m3  | 370 mg/m3   |
| potassium nitrate  | Potassium nitrate  | 9 mg/m3   | 100 mg/m3 | 600 mg/m3   |
| barium nitrate     | Barium nitrate     | 2.9 mg/m3 | 350 mg/m3 | 2,100 mg/m3 |

| Ingredient         | Original IDLH | Revised IDLH  |
|--------------------|---------------|---------------|
| potassium chlorate | Not Available | Not Available |
| potassium nitrate  | Not Available | Not Available |
| barium nitrate     | 50 mg/m3      | Not Available |

**MATERIAL DATA****Exposure controls**

|   |  |
|---|--|
| <b>Appropriate engineering controls</b> | <p>Engineering controls for explosive articles are designed to reduce or eliminate fragmentation and/or blast effects either by suppression of the source of detonation or by protection at the exposed location, or both. Barricades, shields, contained detonation chambers, and "zero quantity-distance (Q-D)" magazines are examples of engineering controls.</p> <p>Engineering controls are designed and tested in a rigorous fashion. The construction of the engineering control must be carefully duplicated in field applications to assure it will function properly.</p> <p>It is thus imperative that engineering controls be built exactly in accordance with the design package, and that they be used only for the articles (e.g.munitions) for which they are authorised.</p> |
| <b>Personal protection</b>              |   |
| <b>Eye and face protection</b>          | <ul style="list-style-type: none"> <li>▶ Safety glasses with side shields</li> <li>▶ Chemical goggles</li> </ul>   |
| <b>Skin protection</b>                  | See Hand protection below  |
| <b>Hands/feet protection</b>            | <ul style="list-style-type: none"> <li>▶ Wear chemical protective gloves, e.g. PVC.</li> <li>▶ Wear safety footwear or safety gumboots, e.g. Rubber</li> </ul>   |
| <b>Body protection</b>                  | See Other protection below   |

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|                         |  |
|-------------------------|--|
| <b>Other protection</b> | <ul style="list-style-type: none"> <li>▶ Fire resistant/ heat resistant gloves where practical, otherwise</li> <li>▶ Heavy-duty chemically resistant gloves capable of providing short-term protection against spontaneous ignition.</li> <li>▶ Safety footwear</li> </ul> Hard hat<br>Ear Protection. |
| <b>Thermal hazards</b>  | Not Available  |

**Respiratory protection**

Respiratory protection not normally required due to the physical form of the product.

**SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES****Information on basic physical and chemical properties**

|   |   |  |                |
|---|---|--|----------------|
| <b>Appearance</b>                                   | Orange/yellow outer casing pressed with black/grey polytechnical ingredients. |  |                |
| <b>Physical state</b>                               | Manufactured  | <b>Relative density (Water = 1)</b>            | Not Applicable |
| <b>Odour</b>  | Not Available   | <b>Partition coefficient n-octanol / water</b> | Not Available  |
| <b>Odour threshold</b>                              | Not Available   | <b>Auto-ignition temperature (°C)</b>          | 170            |
| <b>pH (as supplied)</b>                             | Not Applicable  | <b>Decomposition temperature</b>               | >160           |
| <b>Melting point / freezing point (°C)</b>          | Not Applicable  | <b>Viscosity (cSt)</b>                         | Not Applicable |
| <b>Initial boiling point and boiling range (°C)</b> | Not Applicable  | <b>Molecular weight (g/mol)</b>                | Not Applicable |
| <b>Flash point (°C)</b>                             | Not Available   | <b>Taste</b>                                   | Not Available  |
| <b>Evaporation rate</b>                             | Not Applicable  | <b>Explosive properties</b>                    | Not Available  |
| <b>Flammability</b>                                 | Not Available   | <b>Oxidising properties</b>                    | Not Available  |
| <b>Upper Explosive Limit (%)</b>                    | Not Available   | <b>Surface Tension (dyn/cm or mN/m)</b>        | Not Applicable |
| <b>Lower Explosive Limit (%)</b>                    | Not Available   | <b>Volatile Component (%vol)</b>               | Not Applicable |
| <b>Vapour pressure (kPa)</b>                        | Not Applicable  | <b>Gas group</b>                               | Not Available  |
| <b>Solubility in water (g/L)</b>                    | Immiscible  | <b>pH as a solution (1%)</b>                   | Not Applicable |
| <b>Vapour density (Air = 1)</b>                     | Not Applicable  | <b>VOC g/L</b>                                 | Not Available  |

**SECTION 10 STABILITY AND REACTIVITY**

|   |  |
|---|--|
| <b>Reactivity</b>                         | See section 7  |
| <b>Chemical stability</b>                 | <ul style="list-style-type: none"> <li>▶ Presence of shock and friction</li> <li>▶ Presence of heat source and ignition source</li> <li>▶ Product is considered stable under normal handling conditions.</li> <li>▶ Stable under normal storage conditions.</li> <li>▶ Hazardous polymerization will not occur.</li> </ul> Avoid contact with other chemicals. |
| <b>Possibility of hazardous reactions</b> | See section 7  |
| <b>Conditions to avoid</b>                | See section 7  |
| <b>Incompatible materials</b>             | See section 7  |
| <b>Hazardous decomposition products</b>   | See section 5  |

**SECTION 11 TOXICOLOGICAL INFORMATION****Information on toxicological effects**

|                                      |   |                   |
|--------------------------------------|---|-------------------|
| <b>Inhaled</b>                       | Not normally a hazard due to physical form of product.<br>Inhalation of vapour is more likely at higher than normal temperatures.<br>The vapour is discomforting  |                   |
| <b>Ingestion</b>                     | Not normally a hazard due to physical form of product.<br>Considered an unlikely route of entry in commercial/industrial environments   |                   |
| <b>Skin Contact</b>                  | Not normally a hazard due to physical form of product.<br>The vapour is discomforting   |                   |
| <b>Eye</b>                           | Not normally a hazard due to physical form of product.<br>The vapour is discomforting   |                   |
| <b>Chronic</b>                       | <ul style="list-style-type: none"> <li>▶ Generally not applicable.</li> </ul> Principal hazards are related to the explosive/ decomposition by products of the cartridge, if inadvertently discharged or launched without adequate control and safety measures in place. Normal exposure to the article by all route is considered to be practically non-harmful. |                   |
| <b>ORANGE SMOKE SIGNAL 15 MINUTE</b> | <b>TOXICITY</b>   | <b>IRRITATION</b> |
|                                      | Not Available   | Not Available     |

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|                    |  |   |
|--------------------|--|---|
| potassium chlorate | <b>TOXICITY</b>  | <b>IRRITATION</b>   |
|                    | dermal (rat) LD50: >2000 mg/kg <sup>[1]</sup><br>Oral (rat) LD50: 1870 mg/kg <sup>[2]</sup>  | Not Available   |
| potassium nitrate  | <b>TOXICITY</b>  | <b>IRRITATION</b>   |
|                    | dermal (rat) LD50: >5000 mg/kg <sup>[1]</sup><br>Oral (rat) LD50: >2000 mg/kg <sup>[1]</sup> | Not Available   |
| barium nitrate     | <b>TOXICITY</b>  | <b>IRRITATION</b>   |
|                    | Oral (rat) LD50: 355 mg/kg <sup>[2]</sup>  | Eye (rabbit): 100 mg/24h - moderate<br>Skin (rabbit): 500 mg/24h - mild |

**Legend:** 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. \* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

|                       |  |
|-----------------------|--|
| <b>BARIUM NITRATE</b> | The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis. |
|-----------------------|--|

|                                   |   |                          |   |
|-----------------------------------|---|--------------------------|---|
| Acute Toxicity                    | ☐ | Carcinogenicity          | ☐ |
| Skin Irritation/Corrosion         | ☐ | Reproductivity           | ☐ |
| Serious Eye Damage/Irritation     | ✓ | STOT - Single Exposure   | ☐ |
| Respiratory or Skin sensitisation | ☐ | STOT - Repeated Exposure | ☐ |
| Mutagenicity                      | ☐ | Aspiration Hazard        | ☐ |

**Legend:** ✗ - Data available but does not fill the criteria for classification  
 ✓ - Data available to make classification  
 ☐ - Data Not Available to make classification

## SECTION 12 ECOLOGICAL INFORMATION

## Toxicity

| ORANGE SMOKE SIGNAL 15 MINUTE | ENDPOINT      | TEST DURATION (HR)            | SPECIES                       | VALUE         | SOURCE        |
|-------------------------------|---------------|-------------------------------|-------------------------------|---------------|---------------|
|                               | Not Available | Not Available                 | Not Available                 | Not Available | Not Available |
| potassium chlorate            | ENDPOINT      | TEST DURATION (HR)            | SPECIES                       | VALUE         | SOURCE        |
|                               | LC50          | 96                            | Fish                          | =13000mg/L    | 1             |
|                               | EC50          | 72                            | Algae or other aquatic plants | 1.9mg/L       | 4             |
| NOEC                          | 72            | Algae or other aquatic plants | <0.5mg/L                      | 4             |               |
| potassium nitrate             | ENDPOINT      | TEST DURATION (HR)            | SPECIES                       | VALUE         | SOURCE        |
|                               | LC50          | 96                            | Fish                          | 22.5mg/L      | 4             |
| barium nitrate                | ENDPOINT      | TEST DURATION (HR)            | SPECIES                       | VALUE         | SOURCE        |
|                               | LC50          | 96                            | Fish                          | >3.5mg/L      | 2             |
|                               | EC50          | 72                            | Algae or other aquatic plants | >1.92mg/L     | 2             |
| NOEC                          | 72            | Algae or other aquatic plants | >=1.92mg/L                    | 2             |               |

**Legend:** Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

## Persistence and degradability

| Ingredient         | Persistence: Water/Soil | Persistence: Air |
|--------------------|-------------------------|------------------|
| potassium chlorate | HIGH                    | HIGH             |
| potassium nitrate  | LOW                     | LOW              |

## Bioaccumulative potential

| Ingredient         | Bioaccumulation        |
|--------------------|------------------------|
| potassium chlorate | LOW (LogKOW = -4.6296) |
| potassium nitrate  | LOW (LogKOW = 0.209)   |


**Mobility in soil**

| Ingredient         | Mobility          |
|--------------------|-------------------|
| potassium chlorate | LOW (KOC = 35.04) |
| potassium nitrate  | LOW (KOC = 14.3)  |

**SECTION 13 DISPOSAL CONSIDERATIONS****Waste treatment methods**

|                                     |   |
|-------------------------------------|---|
| <b>Product / Packaging disposal</b> | <ul style="list-style-type: none"> <li>▶ Explosives must not be thrown away, buried, discarded or placed with garbage.</li> <li>▶ Explosives which are surplus, deteriorated or considered unsafe for transport, storage or use shall be destroyed and the statutory authorities shall be notified.</li> <li>▶ This material may be disposed of by burning or detonation but the operation may only be performed under the control of a person trained in the safe destruction of explosives.</li> </ul> <p>Refer to local Waste Disposal Authority and supplier for suitable disposal procedure.</p> |
|-------------------------------------|---|

**SECTION 14 TRANSPORT INFORMATION****Labels Required**

|                         |   |
|-------------------------|---|
|                         |  |
| <b>Marine Pollutant</b> | NO  |

**Land transport (TDG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS****Air transport (ICAO-IATA / DGR)**

|                                     |   |                |
|-------------------------------------|---|----------------|
| <b>UN number</b>                    | 0507  |                |
| <b>UN proper shipping name</b>      | Signals, smoke  |                |
| <b>Transport hazard class(es)</b>   | ICAO/IATA Class   | 1.4S           |
|                                     | ICAO / IATA Subrisk                                       | Not Applicable |
|                                     | ERG Code  | 3L             |
| <b>Packing group</b>                | Not Applicable  |                |
| <b>Environmental hazard</b>         | Not Applicable  |                |
| <b>Special precautions for user</b> | Special provisions  | Not Applicable |
|                                     | Cargo Only Packing Instructions                           | 135            |
|                                     | Cargo Only Maximum Qty / Pack                             | 100 kg         |
|                                     | Passenger and Cargo Packing Instructions                  | 135            |
|                                     | Passenger and Cargo Maximum Qty / Pack                    | 25 kg          |
|                                     | Passenger and Cargo Limited Quantity Packing Instructions | Forbidden      |
|                                     | Passenger and Cargo Limited Maximum Qty / Pack            | Forbidden      |

**Sea transport (IMDG-Code / GGVSee)**

|                                     |                    |                |
|-------------------------------------|--------------------|----------------|
| <b>UN number</b>                    | 0507               |                |
| <b>UN proper shipping name</b>      | SIGNALS, SMOKE     |                |
| <b>Transport hazard class(es)</b>   | IMDG Class         | 1.4S           |
|                                     | IMDG Subrisk       | Not Applicable |
| <b>Packing group</b>                | Not Applicable     |                |
| <b>Environmental hazard</b>         | Not Applicable     |                |
| <b>Special precautions for user</b> | EMS Number         | F-B, S-X       |
|                                     | Special provisions | Not Applicable |
|                                     | Limited Quantities | 0              |

**Transport in bulk according to Annex II of MARPOL and the IBC code**

Not Applicable

**SECTION 15 REGULATORY INFORMATION****Safety, health and environmental regulations / legislation specific for the substance or mixture**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

#### POTASSIUM CHLORATE(3811-04-9) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Canada Categorization decisions for all DSL substances

Canada Domestic Substances List (DSL)

#### POTASSIUM NITRATE(7757-79-1) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Canada Categorization decisions for all DSL substances

Canada Domestic Substances List (DSL)

#### BARIUM NITRATE(10022-31-8) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Canada - Northwest Territories Occupational Exposure Limits (English)

Canada - Alberta Occupational Exposure Limits

Canada - British Columbia Occupational Exposure Limits

Canada - Nova Scotia Occupational Exposure Limits

Canada - Prince Edward Island Occupational Exposure Limits

Canada - Quebec Permissible Exposure Values for Airborne Contaminants (French)

Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits

Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances

Canada Categorization decisions for all DSL substances

Canada Domestic Substances List (DSL)

| National Inventory            | Status   |
|-------------------------------|--|
| Australia - AICS              | Y  |
| Canada - DSL                  | Y  |
| Canada - NDSL                 | N (barium nitrate; potassium chlorate; potassium nitrate)  |
| China - IECSC                 | Y  |
| Europe - EINEC / ELINCS / NLP | Y  |
| Japan - ENCS                  | Y  |
| Korea - KECI                  | Y  |
| New Zealand - NZIoC           | Y  |
| Philippines - PICCS           | Y  |
| USA - TSCA                    | Y  |
| <b>Legend:</b>                | Y = All ingredients are on the inventory<br>N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets) |

## SECTION 16 OTHER INFORMATION

### Other information

### Ingredients with multiple cas numbers

| Name           | CAS No                 |
|----------------|------------------------|
| barium nitrate | 10022-31-8, 34053-87-7 |

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

### Definitions and abbreviations

PC – TWA: Permissible Concentration-Time Weighted Average  
 PC – STEL: Permissible Concentration-Short Term Exposure Limit  
 IARC: International Agency for Research on Cancer  
 ACGIH: American Conference of Governmental Industrial Hygienists  
 STEL: Short Term Exposure Limit  
 TEEL: Temporary Emergency Exposure Limit,  
 IDLH: Immediately Dangerous to Life or Health Concentrations  
 OSF: Odour Safety Factor  
 NOAEL :No Observed Adverse Effect Level  
 LOAEL: Lowest Observed Adverse Effect Level  
 TLV: Threshold Limit Value  
 LOD: Limit Of Detection  
 OTV: Odour Threshold Value  
 BCF: BioConcentration Factors  
 BEI: Biological Exposure Index