

## RED HANDFLARE

### Wescom Signal and Rescue Germany GmbH

Wescom Group: 63-8488

Version No: 3.1.1.1

Safety Data Sheet (Conforms to Regulation (EU) No 2015/830)

Issue Date: 24/09/2021

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L.REACH.GBR.EN

## SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

### 1.1. Product Identifier

Product name	RED HANDFLARE
Synonyms	Comet Red Handflare, Art.-No. 9162800,9162801,9162803,9162806, 9162807, 9162850, Pains Wessex Red Handflare MK8, Art.-No.: 9529000, 9529007, 9529050, Aurora Red Handflare, Art.-No. 9162900, 9528500, 9528550, Oroquieta Handflare, Red, Chimi2, Art.-No. 9162400
Proper shipping name	SIGNAL DEVICES, HAND
Other means of identification	Not Available

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	Use according to manufacturer's directions. Sea distress signal. For use day or night Red Handflare is a short range distress signal used to pinpoint position. May be carried on ships bridge and six are required to be fitted in ships lifeboats and lifer afts. The handflare is suitable for use on other commercial and recreational boats.
Uses advised against	Not Applicable

### 1.3. Details of the supplier of the safety data sheet

Registered company name	Wescom Signal and Rescue Germany GmbH
Address	Vieländer Weg 147 Bremerhaven 27574 Germany
Telephone	+49 471 3930
Fax	+49 471 3932 10
Website	www.wescom-group.com
Email	info@wescom-group.com

### 1.4. Emergency telephone number

Association / Organisation	Consultant Lutz Harder GmbH
Emergency telephone numbers	+49 178 433 7434
Other emergency telephone numbers	Not Available

## SECTION 2 HAZARDS IDENTIFICATION

### 2.1. Classification of the substance or mixture

Classification according to regulation (EC) No 1272/2008 [CLP] [1]	H204 - Explosive Division 1.4
Legend:	1. Classified by Wescom Group; 2. Classification drawn from EC Directive 67/548/EEC - Annex I; 3. Classification drawn from EC Directive 1272/2008 - Annex VI

### 2.2. Label elements

Hazard pictogram(s)	
SIGNAL WORD	WARNING

### Hazard statement(s)

H204	Fire or projection hazard.
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### Precautionary statement(s) Prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P250	Do not subject to grinding/shock/sources of friction.

P280	Wear protective gloves/protective clothing/eye protection/face protection.
P240	Ground/bond container and receiving equipment.

**Precautionary statement(s) Response**

P370+P380	In case of fire: Evacuate area.
P372	Explosion risk in case of fire.
P374	Fight fire with normal precautions from a reasonable distance.
P373	DO NOT fight fire when fire reaches explosives.

**Precautionary statement(s) Storage**

P401	Store according to local regulations for explosives.
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**Precautionary statement(s) Disposal**

P501	Dispose of contents/container in accordance with local regulations.
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RECh - Art.57-59: The mixture does not contain Substances of Very High Concern (SVHC) at the SDS print date.

**SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS****3.1.Substances**

See 'Composition on ingredients' in Section 3.2

**3.2.Mixtures**

1.CAS No 2.EC No 3.Index No 4.REACH No	%[weight]	Name	Classification according to regulation (EC) No 1272/2008 [CLP]
		device contains	
		lighter composition, delay composition and ignition composition	
		Pyrotechnic materials of;	
1.7757-79-1 2.231-818-8 3.Not Available 4.01-2119488224-35-XXXX 01-2120104950-66-XXXX	>60	<u>potassium nitrate</u>	Oxidizing Solid Category 3, Acute Toxicity (Oral) Category 4, Eye Irritation Category 2; H272, H302, H319 <sup>[1]</sup>
1.7439-95-4 2.231-104-6 3.012-001-00-3 012-002-00-9 4.01-2119537203-49-XXXX 01-2119940954-29-XXXX 01-2120113187-64-XXXX	30-60	<u>magnesium</u>	Flammable Solid Category 1, Emit Flammable Gases with Water Category 2; H228, H261 <sup>[1]</sup>
1.10042-76-9 2.233-131-9 3.Not Available 4.01-2119615605-42-XXXX 01-2120105844-60-XXXX	30-60	<u>strontium nitrate</u>	Oxidizing Solid Category 3, Skin Corrosion/Irritation Category 2, Eye Irritation Category 2, Specific target organ toxicity - single exposure Category 3 (respiratory tract irritation); H272, H315, H319, H335 <sup>[1]</sup>
1.9002-86-2 2.Not Available 3.Not Available 4.Not Available	10-30	<u>polyvinyl chloride</u>	Skin Corrosion/Irritation Category 2, Eye Irritation Category 2, Specific target organ toxicity - single exposure Category 3 (respiratory tract irritation); H315, H319, H335 <sup>[1]</sup>
1.10022-31-8 2.233-020-5 3.056-002-00-7 4.01-2119986880-22-XXXX	30-60	<u>barium nitrate</u>	Acute Toxicity (Inhalation) Category 4, Acute Toxicity (Oral) Category 4; H332, H302 <sup>[3]</sup>
1.7429-90-5 2.231-072-3 3.013-001-00-6 013-002-00-1 4.01-2119529243-45-XXXX	5-10	<u>aluminium</u>	Emit Flammable Gases with Water Category 3, Pyrophoric Solid Category 1; H261, H250 <sup>[3]</sup>
<b>Legend:</b>	1. Classified by Wescom Group; 2. Classification drawn from EC Directive 67/548/EEC - Annex I; 3. Classification drawn from EC Directive 1272/2008 - Annex VI 4. Classification drawn from C&L		

**SECTION 4 FIRST AID MEASURES****4.1. 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>
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<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>■ If swallowed do <b>NOT</b> induce vomiting.</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>

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

See Section 11

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

Treat symptomatically.

## SECTION 5 FIREFIGHTING MEASURES

### 5.1. 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. Fight all fires from a remote and explosion resistant site.

### 5.2. Special hazards arising from the substrate or mixture

<b>Fire Incompatibility</b>	Avoid contact with other chemicals.
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### 5.3. Advice for firefighters

<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> <p>Compatibility Group G explosives are pyrotechnic substances, or article containing a pyrotechnic substances, or article containing both an explosive substance and an illuminating, incendiary, tear- or smoke-producing substance (other than a water-activated article or one containing white phosphorus, phosphides, a pyrophoric substance, a flammable liquid or gel, or hypergolic liquids).</p> <p>Combustible. Will burn if ignited.</p> <p>Combustion products include:</p> <ul style="list-style-type: none"> <li>· carbon monoxide (CO)</li> <li>· carbon dioxide (CO<sub>2</sub>)</li> <li>· other pyrolysis products typical of burning organic material.</li> </ul>

## SECTION 6 ACCIDENTAL RELEASE MEASURES

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

See section 8

### 6.2. Environmental precautions

See section 12

### 6.3. 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> </ul>
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	<ul style="list-style-type: none"> <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>

#### 6.4. Reference to other sections

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

### SECTION 7 HANDLING AND STORAGE

#### 7.1. 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>Fire and explosion protection</b>	See section 5
<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>

#### 7.2. 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>

#### 7.3. Specific end use(s)

See section 1.2

### SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

#### 8.1. Control parameters

##### DERIVED NO EFFECT LEVEL (DNEL)

Not Available

##### PREDICTED NO EFFECT LEVEL (PNEC)

Not Available

##### OCCUPATIONAL EXPOSURE LIMITS (OEL)

##### INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
UK Workplace Exposure Limits (WELs)	polyvinyl chloride	Polyvinyl chloride inhalable dust	10 mg/m3	Not Available	Not Available	Not Available

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UK Workplace Exposure Limits (WELs)	polyvinyl chloride	Polyvinyl chloride respirable dust	4 mg/m3	Not Available	Not Available	Not Available
European Union (EU) Commission Directive 2006/15/EC establishing a second list of indicative occupational exposure limit values (IOELVs)	barium nitrate	Barium (soluble compounds as Ba)	0,5 mg/m3	Not Available	Not Available	Not Available
EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)	barium nitrate	Barium (soluble compounds as Ba)	0.5 mg/m3	Not Available	Not Available	Not Available
UK Workplace Exposure Limits (WELs)	aluminium	Aluminium metal inhalable dust	10 mg/m3	Not Available	Not Available	Not Available
UK Workplace Exposure Limits (WELs)	aluminium	Aluminium metal respirable dust	4 mg/m3	Not Available	Not Available	Not Available


### EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
potassium nitrate	Potassium nitrate	9 mg/m3	100 mg/m3	600 mg/m3
magnesium	Magnesium	18 mg/m3	200 mg/m3	1,200 mg/m3
strontium nitrate	Strontium nitrate	5.7 mg/m3	62 mg/m3	370 mg/m3
polyvinyl chloride	Polyvinyl chloride	3 mg/m3	33 mg/m3	200 mg/m3
barium nitrate	Barium nitrate	2.9 mg/m3	350 mg/m3	2,100 mg/m3

Ingredient	Original IDLH	Revised IDLH
potassium nitrate	Not Available	Not Available
magnesium	Not Available	Not Available
strontium nitrate	Not Available	Not Available
polyvinyl chloride	Not Available	Not Available
barium nitrate	50 mg/m3	Not Available
aluminium	Not Available	Not Available

### MATERIAL DATA

#### 8.2. Exposure controls

<b>8.2.1. 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>8.2.2. 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
<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> <p>Hard hat  Ear Protection.</p>
<b>Thermal hazards</b>	Not Available

#### Respiratory protection

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

#### 8.2.3. Environmental exposure controls

See section 12

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

<b>Appearance</b>	Steel tube with orange/yellow/green outer casing pressed with black/grey Pyrotechnical ingredients, contains ignitor and a grip.
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## RED HANDFLARE

Physical state	Manufactured	Relative density (Water = 1)	Not Applicable
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Applicable
pH (as supplied)	Not Applicable	Decomposition temperature	>71
Melting point / freezing point (°C)	Not Applicable	Viscosity (cSt)	Not Applicable
Initial boiling point and boiling range (°C)	Not Applicable	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	160	Taste	Not Available
Evaporation rate	Not Applicable	Explosive properties	Not Available
Flammability	Not Applicable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Applicable
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Applicable
Vapour pressure (kPa)	Not Applicable	Gas group	Not Available
Solubility in water (g/L)	Immiscible	pH as a solution (1%)	Not Applicable
Vapour density (Air = 1)	Not Applicable	VOC g/L	Not Available

## 9.2. Other information

Not Available

## SECTION 10 STABILITY AND REACTIVITY

10.1. Reactivity	See section 7.2
10.2. Chemical stability	<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.
10.3. Possibility of hazardous reactions	See section 7.2
10.4. Conditions to avoid	See section 7.2
10.5. Incompatible materials	See section 7.2
10.6. Hazardous decomposition products	See section 5.3

## SECTION 11 TOXICOLOGICAL INFORMATION

## 11.1. Information on toxicological effects

Inhaled	Not normally a hazard due to physical form of product. Inhalation of vapour is more likely at higher than normal temperatures. The vapour is discomforting
Ingestion	Not normally a hazard due to physical form of product.
Skin Contact	Not normally a hazard due to physical form of product. The vapour is discomforting
Eye	Not normally a hazard due to physical form of product. The vapour is discomforting
Chronic	<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. Over exposure to fumes from firing is harmful.

RED HANDFLARE	TOXICITY	IRRITATION
	Not Available	Not Available
potassium nitrate	TOXICITY	IRRITATION
	dermal (rat) LD50: >5000 mg/kg <sup>[1]</sup> Oral (rat) LD50: >2000 mg/kg <sup>[1]</sup>	Not Available
magnesium	TOXICITY	IRRITATION
	Oral (rat) LD50: >2000 mg/kg <sup>[1]</sup>	Not Available
strontium nitrate	TOXICITY	IRRITATION
	Oral (rat) LD50: 1892 mg/kg <sup>[2]</sup>	Not Available

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polyvinyl chloride	<b>TOXICITY</b>	<b>IRRITATION</b>
	Not Available	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
		Skin (rabbit): 500 mg/24h - mild
aluminium	<b>TOXICITY</b>	<b>IRRITATION</b>
	Oral (rat) LD50: >2000 mg/kg <sup>[1]</sup>	Not Available

**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>POLYVINYL CHLORIDE</b>	The substance is classified by IARC as Group 3: <b>NOT</b> classifiable as to its carcinogenicity to humans. Evidence of carcinogenicity may be inadequate or limited in animal testing.
<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.
<b>STRONTIUM NITRATE &amp; POLYVINYL CHLORIDE</b>	Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.
<b>POLYVINYL CHLORIDE &amp; ALUMINIUM</b>	No significant acute toxicological data identified in literature search.

Acute Toxicity	<input type="checkbox"/>	Carcinogenicity	<input type="checkbox"/>
Skin Irritation/Corrosion	<input type="checkbox"/>	Reproductivity	<input type="checkbox"/>
Serious Eye Damage/Irritation	<input type="checkbox"/>	STOT - Single Exposure	<input type="checkbox"/>
Respiratory or Skin sensitisation	<input type="checkbox"/>	STOT - Repeated Exposure	<input type="checkbox"/>
Mutagenicity	<input type="checkbox"/>	Aspiration Hazard	<input type="checkbox"/>

**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

## 12.1. Toxicity

RED HANDFLARE	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
potassium nitrate	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	22.5mg/L	4
magnesium	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	541mg/L	2
	EC50	72	Algae or other aquatic plants	>20mg/L	2
strontium nitrate	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	>40.3mg/L	2
	EC50	72	Algae or other aquatic plants	>43.3mg/L	2
polyvinyl chloride	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
	NOEC	96	Fish	>=40.3mg/L	2

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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

aluminium	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	0.078-0.108mg/L	2
	EC50	48	Crustacea	0.7364mg/L	2
	EC50	96	Algae or other aquatic plants	0.0054mg/L	2
	BCF	360	Algae or other aquatic plants	9mg/L	4
	NOEC	72	Algae or other aquatic plants	>=0.004mg/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

## 12.2. Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
potassium nitrate	LOW	LOW
polyvinyl chloride	LOW	LOW

## 12.3. Bioaccumulative potential

Ingredient	Bioaccumulation
potassium nitrate	LOW (LogKOW = 0.209)
polyvinyl chloride	LOW (LogKOW = 1.6233)

## 12.4. Mobility in soil

Ingredient	Mobility
potassium nitrate	LOW (KOC = 14.3)
polyvinyl chloride	LOW (KOC = 23.74)

## 12.5. Results of PBT and vPvB assessment

	P	B	T
Relevant available data	Not Available	Not Available	Not Available
PBT Criteria fulfilled?	Not Available	Not Available	Not Available

## 12.6. Other adverse effects

No data available

## SECTION 13 DISPOSAL CONSIDERATIONS

## 13.1. Waste treatment methods

Product / Packaging disposal	<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>
Waste treatment options	Not Available
Sewage disposal options	Not Available

## SECTION 14 TRANSPORT INFORMATION

## Labels Required

	
Marine Pollutant	NO
HAZCHEM	1YE

## Land transport (ADR)



## RED HANDFLARE

14.1.UN number	0191	
14.2.UN proper shipping name	SIGNAL DEVICES, HAND	
14.3. Transport hazard class(es)	Class	1.4G
	Subrisk	Not Applicable
14.4.Packing group	Not Applicable	
14.5.Environmental hazard	Not Applicable	
14.6. Special precautions for user	Hazard identification (Kemler)	Not Applicable
	Classification code	1.4G
	Hazard Label	1.4
	Special provisions	Not Applicable
	Limited quantity	0

## Air transport (ICAO-IATA / DGR)

14.1. UN number	0191	
14.2. UN proper shipping name	Signal devices, hand	
14.3. Transport hazard class(es)	ICAO/IATA Class	1.4G
	ICAO / IATA Subrisk	Not Applicable
	ERG Code	1L
14.4. Packing group	Not Applicable	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	Special provisions	Not Applicable
	Cargo Only Packing Instructions	135
	Cargo Only Maximum Qty / Pack	75 kg
	Passenger and Cargo Packing Instructions	Forbidden
	Passenger and Cargo Maximum Qty / Pack	Forbidden
	Passenger and Cargo Limited Quantity Packing Instructions	Forbidden
	Passenger and Cargo Limited Maximum Qty / Pack	Forbidden

## Sea transport (IMDG-Code / GGVSee)

14.1. UN number	0191	
14.2. UN proper shipping name	SIGNAL DEVICES, HAND	
14.3. Transport hazard class(es)	IMDG Class	1.4G
	IMDG Subrisk	Not Applicable
14.4. Packing group	Not Applicable	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	EMS Number	F-B , S-X
	Special provisions	Not Applicable
	Limited Quantities	0

## Inland waterways transport (ADN)

14.1. UN number	0191	
14.2. UN proper shipping name	SIGNAL DEVICES, HAND	
14.3. Transport hazard class(es)	1.4G   Not Applicable	
14.4. Packing group	Not Applicable	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	Classification code	1.4G
	Special provisions	Not Applicable
	Limited quantity	0
	Equipment required	PP
	Fire cones number	1

## 14.7. Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

## SECTION 15 REGULATORY INFORMATION

## 15.1. Safety, health and environmental regulations / legislation specific for the substance or mixture

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

European Customs Inventory of Chemical Substances ECICS (English)

European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)

## MAGNESIUM(7439-95-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS

EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)

European Customs Inventory of Chemical Substances ECICS (English)

European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI

## STRONTIUM NITRATE(10042-76-9) IS FOUND ON THE FOLLOWING REGULATORY LISTS

European Customs Inventory of Chemical Substances ECICS (English)

European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)

## POLYVINYL CHLORIDE(9002-86-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

European Customs Inventory of Chemical Substances ECICS (English)

UK Workplace Exposure Limits (WELs)

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

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

EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)

European Union (EU) Commission Directive 2006/15/EC establishing a second list of indicative occupational exposure limit values (IOELVs) (Spanish)

European Customs Inventory of Chemical Substances ECICS (English)

European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI

European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)

UK Workplace Exposure Limits (WELs)

## ALUMINIUM(7429-90-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)

European Customs Inventory of Chemical Substances ECICS (English)

European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI

European Trade Union Confederation (ETUC) Priority List for REACH Authorisation

UK Workplace Exposure Limits (WELs)

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable - : 98/24/EC, 92/85/EC, 94/33/EC, 91/689/EEC, 1999/13/EC, Commission Regulation (EU) 2015/830, Regulation (EC) No 1272/2008 and their amendments

## 15.2. Chemical safety assessment

For further information please look at the Chemical Safety Assessment and Exposure Scenarios prepared by your Supply Chain if available.

## ECHA SUMMARY

Ingredient	CAS number	Index No	ECHA Dossier
potassium nitrate	7757-79-1	Not Available	01-2119488224-35-XXXX, 01-2120104950-66-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Ox. Sol. 2, Skin Irrit. 2, Eye Irrit. 2, STOT SE 3	GHS03, GHS07, Dgr	H272, H315, H319, H335
2	Ox. Sol. 3, Ox. Sol. 2, Skin Irrit. 2, Eye Irrit. 2, STOT SE 3, Ox. Sol. 1, Aquatic Chronic 3, Ox. Liq. 3, Acute Tox. 4, Repr. 2, STOT SE 2, STOT RE 2, Ox. Liq. 2, Ox. Liq. 1	GHS03, Dgr, GHS08	H315, H319, H335, H271, H412, H302, H361, H371, H373

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
magnesium	7439-95-4	012-001-00-3, 012-002-00-9	01-2119537203-49-XXXX, 01-2119940954-29-XXXX, 01-2120113187-64-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Pyr. Sol. 1, Water-react. 1	GHS02, Dgr	H250, H260
2	Pyr. Sol. 1, Water-react. 1, Flam. Sol. 1, Self-heat. 1, Water-react. 2, Water-react. 3, Flam. Sol. 2, Skin Irrit. 2, Eye Irrit. 2, STOT SE 3, Aquatic Chronic 4, Self-heat. 2	GHS02, Dgr, GHS07	H250, H260, H228, H251, H315, H319, H335, H413
1	Pyr. Sol. 1, Water-react. 1	GHS02, Dgr	H250, H260
2	Pyr. Sol. 1, Water-react. 1, Flam. Sol. 1, Self-heat. 1, Water-react. 2, Water-react. 3, Flam. Sol. 2, Skin Irrit. 2, Eye Irrit. 2, STOT SE 3, Aquatic Chronic 4, Self-heat. 2	GHS02, Dgr, GHS07	H250, H260, H228, H251, H315, H319, H335, H413

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
strontium nitrate	10042-76-9	Not Available	01-2119615605-42-XXXX, 01-2120105844-60-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Ox. Sol. 1, Eye Dam. 1	GHS03, GHS05, Dgr	H271, H318

## RED HANDFLARE

2	Ox. Sol. 1, Eye Dam. 1, Ox. Sol. 3, Acute Tox. 4, Skin Irrit. 2, Eye Irrit. 2, STOT SE 3, Ox. Sol. 2, Ox. Liq. 3	GHS03, GHS05, Dgr, GHS02	H271, H318, H302, H315, H335
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Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
polyvinyl chloride	9002-86-2	Not Available	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Not Classified	Not Available	Not Available
2	Skin Irrit. 2, Eye Irrit. 2, STOT SE 3, Lact., Aquatic Acute 1, Aquatic Chronic 1, Aquatic Chronic 3	GHS07, Wng, GHS09	H315, H319, H335, H362, H400, H410

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
barium nitrate	10022-31-8	056-002-00-7	01-2119986880-22-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Ox. Sol. 2, Acute Tox. 4	GHS03, GHS07, Dgr	H272, H302, H332
2	Ox. Sol. 2, Acute Tox. 3, Eye Irrit. 2, Acute Tox. 4, Ox. Liq. 2	GHS03, GHS06, Dgr	H272, H301, H319, H332, H312

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
aluminium	7429-90-5	013-001-00-6, 013-002-00-1	01-2119529243-45-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Flam. Sol. 1, Water-react. 2	GHS02, Dgr	H228, H261
2	Flam. Sol. 1, Water-react. 2, Pyr. Sol. 1, Acute Tox. 3, Flam. Sol. 2, Aquatic Chronic 4, STOT RE 2, Aquatic Acute 1, Pyr. Liq. 1, STOT RE 1, Skin Sens. 1, Water-react. 1	Dgr, GHS01, GHS09, GHS05, GHS06, GHS08	H228, H261, H250, H413, H302, H311, H315, H331, H400, H372, H317
1	Flam. Sol. 1, Water-react. 2	GHS02, Dgr	H228, H261
2	Flam. Sol. 1, Water-react. 2, Pyr. Sol. 1, Acute Tox. 3, Flam. Sol. 2, Aquatic Chronic 4, STOT RE 2, Aquatic Acute 1, Pyr. Liq. 1, STOT RE 1, Skin Sens. 1, Water-react. 1	Dgr, GHS01, GHS09, GHS05, GHS06, GHS08	H228, H261, H250, H413, H302, H311, H315, H331, H400, H372, H317
1	Skin Irrit. 2, Eye Irrit. 2, Aquatic Acute 1, Aquatic Chronic 2	GHS09, GHS07, Wng	H315, H319, H400, H411
2	Skin Irrit. 2, Eye Irrit. 2, Aquatic Acute 1, Aquatic Chronic 2	GHS09, GHS07, Wng	H315, H319, H400, H411
1	Not Classified	Not Available	Not Available
2	Not Classified	Not Available	Not Available

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

National Inventory	Status
Australia - AICS	Y
Canada - DSL	Y
Canada - NDSL	N (strontium nitrate; barium nitrate; magnesium; polyvinyl chloride; aluminium; potassium nitrate)
China - IECSC	Y
Europe - EINEC / ELINCS / NLP	N (polyvinyl chloride)
Japan - ENCS	N (magnesium; aluminium)
Korea - KECI	Y
New Zealand - NZIoC	Y
Philippines - PICCS	Y
USA - TSCA	Y

**Legend:**

Y = All ingredients are on the inventory

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****Full text Risk and Hazard codes**

<b>H228</b>	Flammable solid.
<b>H250</b>	Catches fire spontaneously if exposed to air.
<b>H251</b>	Self-heating; may catch fire.
<b>H260</b>	In contact with water releases flammable gases which may ignite spontaneously.
<b>H261</b>	In contact with water releases flammable gases.
<b>H271</b>	May cause fire or explosion; strong oxidiser.
<b>H272</b>	May intensify fire; oxidiser.

H301	Toxic if swallowed.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H361	Suspected of damaging fertility or the unborn child.
H362	May cause harm to breast-fed children.
H371	May cause damage to organs.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
H413	May cause long lasting harmful effects to aquatic life.

#### Other information

#### Ingredients with multiple cas numbers

Name	CAS No
strontium nitrate	10042-76-9, 13470-05-8
barium nitrate	10022-31-8, 34053-87-7
aluminium	7429-90-5, 91728-14-2

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Wescom Group 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.

For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:

EN 166 Personal eye-protection  
 EN 340 Protective clothing  
 EN 374 Protective gloves against chemicals and micro-organisms  
 EN 13832 Footwear protecting against chemicals  
 EN 133 Respiratory protective devices

#### 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