1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier
Product name: SIGNAL DISTRESS DAY AND NIGHT NO.1 MK5
Synonym(s): EXP: 08-2018 • MUNB • NSN: 1370-99-551-6344 • NSN: 4220-66-142-4510 • OBJ ID: AY438884 • PART NO: A307100 • PART NO:6RBA A351, A352, A353, A354, A355 • SIGNAL DISTRESS DAY AND NIGHT NO.1 MK5

1.2 Uses and uses advised against
Use(s): FLARES • SIMULATE SMOKE • SMOKE SIMULATION

1.3 Details of the supplier of the safety data sheet
Supplier name: CHEMRING AUSTRALIA PTY LTD
Address: 230 Staceys Rd, Lara, VIC, Australia, 3212
Telephone: +61 3 5220 8500
Fax: +61 3 5282 3545
Email: info@chemring.com.au
Website: http://www.chemring.com.au

1.4 Emergency telephone number(s)
Emergency: +61 (0)402 130005

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA
GHS Classification(s): Explosives: Division 1.4
  Acute Toxicity: Oral: Category 4
  Acute Toxicity: Skin: Category 4
  Skin Corrosion/Irritation: Category 2
  Serious Eye Damage / Eye Irritation: Category 2A
  Acute Toxicity: Inhalation: Category 4
  Specific Target Organ Systemic Toxicity (Single Exposure): Category 3

2.2 Label elements
Signal word: WARNING
Pictograms:

Hazard statement(s)
H204: Fire or projection hazard.
H302: Harmful if swallowed.
H312: Harmful in contact with skin.
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H332: Harmful if inhaled.
H335: May cause respiratory irritation.

Prevention statement(s)
P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P240: Ground/bond container and receiving equipment.
P250: Do not subject to grinding/shock/friction/rough handling.
P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
Product name: SIGNAL DISTRESS DAY AND NIGHT NO.1 MK5

Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.

Response statement(s)
- P302 + P352: IF ON SKIN: Wash with plenty of soap and water.
- P304 + P340: IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
- P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P312: Call a POISON CENTER or doctor/physician if you feel unwell.
- P321: Specific treatment is advised - see first aid instructions.
- P330: Rinse mouth.
- P332 + P337 + P313: If skin or eye irritation occurs: Get medical advice/attention.
- P362: Take off contaminated clothing and wash before re-use.
- P370 + P380: In case of fire: Evacuate area.
- P372: Explosion risk in case of fire.
- P373: DO NOT fight fire when fire reaches explosives.
- P374: Fight fire with normal precautions from a reasonable distance.

Storage statement(s)
- P401: Store in accordance with relevant site and storage provisions.
- P403 + P233: Store in a well-ventilated place. Keep container tightly closed.
- P405: Store locked up.

Disposal statement(s)
- P501: Dispose of contents/container in accordance with relevant regulations.

2.3 Other Hazards
No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

### 3.1 Substances / Mixtures

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS number</th>
<th>EC number</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>POTASSIUM NITRATE</td>
<td>7757-79-1</td>
<td>231-818-8</td>
<td>&lt;60%</td>
</tr>
<tr>
<td>DYE(S)</td>
<td>Not Available</td>
<td>Not Available</td>
<td>&lt;50%</td>
</tr>
<tr>
<td>STRONTIUM NITRATE</td>
<td>10042-76-9</td>
<td>233-131-9</td>
<td>35 - 45%</td>
</tr>
<tr>
<td>POTASSIUM CHLORATE</td>
<td>3811-04-9</td>
<td>223-289-7</td>
<td>25 - 30%</td>
</tr>
<tr>
<td>MAGNESIUM</td>
<td>7439-95-4</td>
<td>231-104-6</td>
<td>20 - 30%</td>
</tr>
<tr>
<td>POTASSIUM PERCHLORATE</td>
<td>7778-74-7</td>
<td>231-912-9</td>
<td>5 - 15%</td>
</tr>
<tr>
<td>DIBUTYL PHTHALATE</td>
<td>84-74-2</td>
<td>201-557-4</td>
<td>2 - 4%</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES
Product name: SIGNAL DISTRESS DAY AND NIGHT NO.1 MK5

4.1 Description of first aid measures

**Eye**
If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

**Inhalation**
If inhaled, remove from contaminated area. Apply artificial respiration if not breathing. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

**Skin**
If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

**Ingestion**
For advice, contact a Poison Information Centre on 13 11 26 (Australia Wide) or a doctor (at once).

**First aid facilities**
No information provided.

4.2 Most important symptoms and effects, both acute and delayed

No information provided.

4.3 Immediate medical attention and special treatment needed

Treat symptomatically.

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Use large volumes of water to control the burn and spread of flames. Once product is ignited it is very difficult to extinguish. Evacuate area and contact emergency personnel.

5.2 Special hazards arising from the substance or mixture

EXPLOSIVE. Product is designed to produce a controlled explosion when activated. May evolve smoke and toxic gases (metal/ carbon/ sulphur/ nitrogen oxides and fumes) when exploded or heated to decomposition. The flare burns with intense heat (>2000°C).

5.3 Advice for firefighters

Evacuate area and contact emergency services. Exposure to heat may result in detonation, however effects are expected to be limited to the package. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Do not attempt to fight fire if other explosives are present. Use waterfog to cool unexploded cartridges.

5.4 Hazchem code

1YE

1 Coarse Water Spray.
Y Risk of violent reaction or explosion. Wear full fire kit and breathing apparatus. Contain spill and run-off.
E Evacuation of people in and around the immediate vicinity of the incident should be considered.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Clear area of all unprotected personnel. Contact emergency services where appropriate. CAUTION: Heating, impact or static charge may cause explosion.

6.2 Environmental precautions

Prevent product from entering drains and waterways.

6.3 Methods of cleaning up

If cartridges are spilt or containers damaged, contain spillage, then collect and place in suitable containers for disposal. Eliminate all sources of ignition.

6.4 Reference to other sections

See Sections 8 and 13 for exposure controls and disposal.
7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use.

7.3 Specific end use(s)
No information provided.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

8.1 Control parameters

<table>
<thead>
<tr>
<th>Substance</th>
<th>Reference</th>
<th>TWA</th>
<th>STEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dibutyl phthalate</td>
<td>SWA (AUS)</td>
<td>--</td>
<td>5</td>
</tr>
</tbody>
</table>

Biological limits
No biological limit values have been entered for this product.

8.2 Exposure controls

Engineering Controls  Avoid inhalation. Mechanical extraction ventilation is recommended when removal of the atmospheric contaminants is required. Maintain dust / fume levels below the recommended exposure standard.

PPE  No PPE has been assigned for this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>ABS PLASTIC BODY, SEALED AT BOTH ENDS WITH A SCREW OFF PLASTIC CAP</td>
</tr>
<tr>
<td>Odour</td>
<td>SLIGHT ODOUR</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>pH</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Melting Point</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Flash Point</td>
<td>&gt; 250°C</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Flammability</td>
<td>COMBUSTIBLE</td>
</tr>
<tr>
<td>Upper Explosion Limit</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Lower Explosion Limit</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Vapour Pressure</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Vapour Density</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Solubility (water)</td>
<td>SOLUBLE</td>
</tr>
<tr>
<td>Partition Coefficient</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Viscosity</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Explosive Properties</td>
<td>Fire or projection hazard</td>
</tr>
<tr>
<td>Oxidising Properties</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>NOT AVAILABLE</td>
</tr>
</tbody>
</table>

9.2 Other information
No information provided.
**10. STABILITY AND REACTIVITY**

### 10.1 Reactivity
Carefully review all information in sections 10.2 to 10.6.

### 10.2 Chemical stability
Stable under recommended conditions of storage.

### 10.3 Possibility of hazardous reactions
Polymerization is not expected to occur.

### 10.4 Conditions to avoid
Contact with combustible materials (wood, paper, oil). Contamination with moisture.

### 10.5 Incompatible materials
Incompatible with oxidising agents (e.g. hypochlorites), acids (e.g. nitric acid), heat and ignition sources. Incompatible with alcalis (e.g. sodium hydroxide) and reducing agents (e.g. sulphites).

### 10.6 Hazardous decomposition products
May evolve potassium compounds, strontium salts, magnesium salts and volatised dyestuffs when heated to decomposition.

**11. TOXICOLOGICAL INFORMATION**

### 11.1 Information on toxicological effects

#### Health hazard summary
Enclosed Solid. The flare is not considered hazardous to health in its unfired form. When fired, a rocket propelled flare will be ejected at high velocity. Exposure to contents may be harmful and irritating to the eyes, skin and respiratory system. On initiation of the flare end a bright red flame, intense heat and smoke is produced, avoid looking directly at the burning flare.

**Eye**
Irritant. Due to product form and nature of use, the potential for exposure is reduced. However, direct contact with contents or fumes may result in irritation, lacrimation and conjunctivitis.

**Inhalation**
Irritant. Over exposure to contents may result in respiratory irritation. Persons with pre-existing respiratory disorders are more susceptible to developing adverse health effects and should avoid atmospheres contaminated with smoke/fume.

**Skin**
Irritant. Product encapsulation minimises skin contact potential, however contact with contents or smoke may cause irritation, pain and redness.

**Ingestion**
Ingestion is considered unlikely due to product form. However, ingestion of contents of the enclosed product may result in gastrointestinal irritation, nausea, headache, dizziness and diarrhoea.

#### Toxicity data

**POTASSIUM NITRATE (7757-79-1)**
- LC50 (Inhalation): > 0.527 mg/L/4h (rat)
- LD50 (Ingestion): 3015 mg/kg (rat)
- LD50 (Skin): > 5000 mg/kg (rat)
- LDLo (Intravenous): 100 mg/kg (cat)
- TDLo (Ingestion): 598 mg/kg (rat - 1-22 days pregnant)

**STRONTIUM NITRATE (10042-76-9)**
- LD50 (Ingestion): 1826 mg/kg (mouse)
- LD50 (Intraperitoneal): 540 mg/kg (rat)
- TCLo (Inhalation): 14700 ug/m³/17 weeks - intermittently (rat)
- TDLo (Ingestion): 23 g/kg/17 weeks - intermittently (rat)

**POTASSIUM CHLORATE (3811-04-9)**
- LD50 (Ingestion): 1870 mg/kg (rat)
- LDLo (Ingestion): 1200 mg/kg (dog)
- LDLo (Intraperitoneal): 1500 mg/kg (rat)

**MAGNESIUM (7439-95-4)**
- LDLo (Ingestion): 230 mg/kg (dog)
12. ECOLOGICAL INFORMATION

12.1 Toxicity
No information provided.

12.2 Persistence and degradability
No information provided.

12.3 Bioaccumulative potential
No information provided.

12.4 Mobility in soil
No information provided.

12.5 Results of PBT and vPvB assessment
No information provided.

12.6 Other adverse effects
No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Waste disposal: Collect and reuse/return to container. Contact the manufacturer/supplier for additional information (if required).
Legislation: Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

<table>
<thead>
<tr>
<th>Land Transport (ADG)</th>
<th>Sea Transport (IMDG/IMO)</th>
<th>Air Transport (IATA/ICAO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0191</td>
<td>0191</td>
<td>0191</td>
</tr>
</tbody>
</table>

14.1 UN number 0191 0191 0191
14.2 UN proper shipping name SIGNAL DEVICES, HAND
14.3 Transport hazard classes
| DG division | 1.4G | 1.4G | 1.4G |
| Subsidiary risk(s) | None Allocated | None Allocated | None Allocated |
14.4 Packing group None Allocated None Allocated None Allocated
14.5 Environmental hazards None Allocated
14.6 Special precautions for user
| Hazchem Code | 1YE | EMS | F-B, S-X |
| Special precautions for user | | | |

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Poison schedule: Classified as a Schedule 5 Poison using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).
Classifications: F - Flammable
F+ - Extremely flammable
Product name
SIGNAL DISTRESS DAY AND NIGHT NO.1 MK5

O - Oxidising
Xi - Irritant
Xn - Harmful

Risk phrases
R8: Contact with combustible material may cause fire.
R9: Explosive when mixed with combustible material.
R11: Highly flammable.
R15: Contact with water liberates highly flammable gases.
R20/21/22: Harmful by inhalation, in contact with skin and if swallowed.
R36/37/38: Irritating to eyes, respiratory system and skin.

Safety phrases
S17: Keep away from combustible material.
S23: Do not breathe gas/fumes/vapour/spray (where applicable).
S24/25: Avoid contact with skin and eyes.
S51: Use only in well ventilated areas.

WHS regulatory information

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>CAS number</th>
<th>Regulation</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>POTASSIUM NITRATE</td>
<td>7757-79-1</td>
<td>Restricted Hazardous Chemicals</td>
<td>Nitrates. For wet abrasive blasting.</td>
</tr>
<tr>
<td>STRONTIUM NITRATE</td>
<td>10042-76-9</td>
<td>Restricted Hazardous Chemicals</td>
<td>Nitrates. For wet abrasive blasting.</td>
</tr>
</tbody>
</table>

Inventory listing(s)
AUSTRALIA: AICS (Australian Inventory of Chemical Substances)
All components are listed on AICS, or are exempt.

15.2 Chemical safety assessment
No information provided.

16. OTHER INFORMATION

Additional information
RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods.
The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a ChemAlert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

Abbreviations
ACGIH American Conference of Governmental Industrial Hygienists
CAS # Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS Central Nervous System
EC No. EC No - European Community Number
EMS Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS Globally Harmonized System
GTEPG Group Text Emergency Procedure Guide
IARC International Agency for Research on Cancer
SIGNAL DISTRESS DAY AND NIGHT NO.1 MK5

LC50  Lethal Concentration, 50% / Median Lethal Concentration
LD50  Lethal Dose, 50% / Median Lethal Dose
mg/m³  Milligrams per Cubic Metre
OEL  Occupational Exposure Limit
pH  relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm  Parts Per Million
STEL  Short-Term Exposure Limit
STOT-RE  Specific target organ toxicity (repeated exposure)
STOT-SE  Specific target organ toxicity (single exposure)
SUSMP  Standard for the Uniform Scheduling of Medicines and Poisons
SWA  Safe Work Australia
TLV  Threshold Limit Value
TWA  Time Weighted Average

Report Status
This ChemAlert report has been independently compiled by RMT’s scientific department utilising the original Safety Data Sheet (‘SDS’) for the product provided to RMT by the manufacturer. The information is based on the latest chemical and toxicological research and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. It is an independent collation by RMT of information obtained from the original SDS for this product. Its content has not been authorised or verified by the manufacturer / distributor of the chemical to which it relates.

This ChemAlert report does not constitute the manufacturer’s original SDS and is not intended to be a replacement for same. It is provided to subscribers of ChemAlert as a reference tool only, is not all-inclusive and does not represent any guarantee as to the properties of the product. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer.

While RMT has taken all due care to include accurate and up-to-date information in this ChemAlert report, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this ChemAlert report.

Prepared By
Risk Management Technologies
5 Ventnor Ave, West Perth
Western Australia 6005
Phone: +61 8 9322 1711
Fax: +61 8 9322 1794
Email: info@rmt.com.au
Web: www.rmt.com.au

Last Reviewed: 08 Dec 2014
Date Printed: 20 Oct 2016
Based on SDS dated: 20 Aug 2013

End of Report