1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: SODIUM PERCHLORATE MONOHYDRATE

Recommended Use of the Chemical: Explosives, rocket fuel.

Supplier: Ixom Operations Pty Ltd
Street Address: Level 8, 1 Nicholson Street
East Melbourne Victoria 3002
Australia

Telephone Number: +61 3 9906 3000
Emergency Telephone: 1 800 033 111 (ALL HOURS)

Please ensure you refer to the limitations of this Safety Data Sheet as set out in the “Other Information” section at the end of this Data Sheet.

2. HAZARDS IDENTIFICATION

This material is hazardous according to Safe Work Australia; HAZARDOUS CHEMICAL.

Classification of the chemical:
- Oxidising solids - Category 2
- Acute Oral Toxicity - Category 4

SIGNAL WORD: DANGER

Hazard Statement(s):
- H272 May intensify fire; oxidizer.
- H302 Harmful if swallowed.

Precautionary Statement(s):

Prevention:
- P210 Keep away from heat, sparks, open flames, hot surfaces. No smoking.
- P220 Keep and store away from clothing, incompatible materials, combustible materials.
- P221 Take any precaution to avoid mixing with combustibles / incompatible materials.
- P264 Wash hands thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P280 Wear protective gloves / protective clothing / eye protection / face protection.

Response:
- P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- P330 Rinse mouth.
- P370+P378 In case of fire: Use extinguishing media as outlined in Section 5 of this Safety Data Sheet to extinguish.

Storage:
No storage statements.
3. COMPOSITION AND INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS Number</th>
<th>Proportion</th>
<th>Hazard Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium perchlorate monohydrate</td>
<td>7791-07-3</td>
<td>90-100%</td>
<td>H272 H302</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

For advice, contact a Poisons Information Centre (e.g. phone Australia 131 126; New Zealand 0800 764 766) or a doctor.

**Inhalation:**
Remove victim from area of exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. Seek medical advice if effects persist.

**Skin Contact:**
If skin contact occurs, remove contaminated clothing and wash skin with running water. If irritation occurs seek medical advice.

**Eye Contact:**
If in eyes, wash out immediately with water. In all cases of eye contamination it is a sensible precaution to seek medical advice.

**Ingestion:**
Rinse mouth with water. If swallowed, do NOT induce vomiting. Give a glass of water. Seek immediate medical assistance.

**Indication of immediate medical attention and special treatment needed:**
Treat symptomatically.

5. FIRE FIGHTING MEASURES

**Suitable Extinguishing Media:**
Water spray (large quantities).

**Unsuitable Extinguishing Media:**
Dry agent (carbon dioxide, dry chemical powder).

**Hazchem or Emergency Action Code:** 1Y

**Specific hazards arising from the chemical:**
Non-combustible material. Oxidizing substance. Will support combustion of other materials. Increases intensity of a fire. Decomposes on heating emitting toxic fumes including those of chlorine oxides, chlorine, hydrogen chloride, and oxides of sodium.
Safety Data Sheet

Special protective equipment and precautions for fire-fighters:
Not combustible, however will support the combustion of other materials. Keep containers cool with water spray. Heating can cause expansion or decomposition of the material, which can lead to the containers exploding. If safe to do so, remove containers from the path of fire. Fire fighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to products of decomposition. A major fire may involve a risk of explosion.

6. ACCIDENTAL RELEASE MEASURES

Emergency procedures/Environmental precautions:
Shut off all possible sources of ignition. Isolate spill or leak area immediately. Clear area of all unprotected personnel. If contamination of sewers or waterways has occurred advise local emergency services.

Personal precautions/Protective equipment/Methods and materials for containment and cleaning up:
Wear protective equipment to prevent skin and eye contact and breathing in dust. Work up wind or increase ventilation. Cover with damp absorbent (inert material, sand or soil). Sweep or vacuum up, but avoid generating dust. Collect and seal in properly labelled containers or drums for disposal. DO NOT return spilled material to original container for re-use. Wash area down with excess water. Ensure that contaminated material (clothing, pallets) is thoroughly washed.

7. HANDLING AND STORAGE

Precautions for safe handling:
Avoid skin and eye contact and breathing in dust. Avoid handling which leads to dust formation.

Conditions for safe storage, including any incompatibilities:
Store in a cool, dry, well ventilated place. Protect from moisture. Store away from incompatible materials described in Section 10. Keep containers closed when not in use - check regularly for spills.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters: No value assigned for this specific material by Safe Work Australia. However, Workplace Exposure Standard(s) for particulates:

Dusts not otherwise classified: 8hr TWA = 10 mg/m³

As published by Safe Work Australia Workplace Exposure Standards for Airborne Contaminants.

TWA - The time-weighted average airborne concentration of a particular substance when calculated over an eight-hour working day, for a five-day working week.

These Workplace Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These workplace exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.
Appropriate engineering controls:
Ensure ventilation is adequate to maintain air concentrations below Workplace Exposure Standards. Keep containers closed when not in use.

If in the handling and application of this material, safe exposure levels could be exceeded, the use of engineering controls such as local exhaust ventilation must be considered and the results documented. If achieving safe exposure levels does not require engineering controls, then a detailed and documented risk assessment using the relevant Personal Protective Equipment (PPE) (refer to PPE section below) as a basis must be carried out to determine the minimum PPE requirements.

Individual protection measures, such as Personal Protective Equipment (PPE):
The selection of PPE is dependent on a detailed risk assessment. The risk assessment should consider the work situation, the physical form of the chemical, the handling methods, and environmental factors.

OVERALLS, SAFETY SHOES, SAFETY GLASSES, GLOVES, DUST MASK.

Wear overalls, safety glasses and impervious gloves. Avoid generating and inhaling dusts. If determined by a risk assessment an inhalation risk exists, wear a dust mask/respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state:</td>
<td>Solid</td>
</tr>
<tr>
<td>Colour:</td>
<td>White</td>
</tr>
<tr>
<td>Odour:</td>
<td>Odourless</td>
</tr>
<tr>
<td>Solubility:</td>
<td>Soluble in water</td>
</tr>
<tr>
<td>Specific Gravity:</td>
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</tr>
<tr>
<td>Relative Vapour Density (air=1):</td>
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</tr>
<tr>
<td>Vapour Pressure (20 °C):</td>
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</tr>
<tr>
<td>Flash Point (°C):</td>
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</tr>
<tr>
<td>Flammability Limits (%):</td>
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</tr>
<tr>
<td>Autoignition Temperature (°C):</td>
<td>Not available</td>
</tr>
<tr>
<td>Melting Point/Range (°C):</td>
<td>482</td>
</tr>
<tr>
<td>pH:</td>
<td>Not available</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Reactivity: Hygroscopic: absorbs moisture or water from surrounding air.

Chemical stability: Contact with combustible material may cause fire. Sodium perchlorate may form explosive mixtures with finely divided combustible materials, finely divided metals, and easily oxidisable materials.
Safety Data Sheet

Possibility of hazardous reactions:
Oxidizing agent. Supports combustion of other materials and increases intensity of a fire. Reacts with ammonium compounds, cyanides, sulphuric acid and powdered metals. Mixtures formed from reactions with these chemicals can be sensitive to friction and are liable to ignite.

Conditions to avoid:
Avoid contact with combustible chemicals. Avoid exposure to moisture. Avoid dust generation. Avoid contamination with foreign materials.

Incompatible materials:
Incompatible with ammonium nitrate, sodium nitrite, combustible materials, powdered metals, acids, reducing agents, sulfur.

Hazardous decomposition products:

11. TOXICOLOGICAL INFORMATION

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

Ingestion:
Swallowing can result in nausea, vomiting, diarrhoea, and abdominal pain.

Eye contact:
May be an eye irritant. Exposure to the dust may cause discomfort due to particulate nature. May cause physical irritation to the eyes.

Skin contact:
Contact with skin may result in irritation.

Inhalation:
Material may be irritant to the mucous membranes of the respiratory tract (airways).

Acute toxicity: No oral LD50 data available for the product.

Chronic effects: No information available for the product.

12. ECOLOGICAL INFORMATION

Ecotoxicity
Avoid contaminating waterways.

13. DISPOSAL CONSIDERATIONS

Disposal methods:
Refer to Waste Management Authority. Dispose of contents and container in accordance with local, regional, national, international regulations.

14. TRANSPORT INFORMATION

Road and Rail Transport
Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for Transport by Road and Rail; DANGEROUS GOODS.

UN No: 1502

Product Name: SODIUM PERCHLORATE MONOHYDRATE
Substance No: 000000050391
Issued: 09/06/2015
Version: 2
Safety Data Sheet

Transport Hazard Class: 5.1 Oxidizing Agent
Packing Group: II
Proper Shipping Name or Technical Name: SODIUM PERCHLORATE
Hazchem or Emergency Action Code: 1Y

Marine Transport
Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; DANGEROUS GOODS.

UN No: 1502
Transport Hazard Class: 5.1 Oxidizing Agent
Packing Group: II
Proper Shipping Name or Technical Name: SODIUM PERCHLORATE
IMDG EMS Fire: F-H
IMDG EMS Spill: S-Q

Air Transport
Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air; DANGEROUS GOODS.

UN No: 1502
Transport Hazard Class: 5.1 Oxidizing Agent
Packing Group: II
Proper Shipping Name or Technical Name: SODIUM PERCHLORATE

15. REGULATORY INFORMATION

Classification:
This material is hazardous according to Safe Work Australia; HAZARDOUS CHEMICAL.

Classification of the chemical:
Oxidising solids - Category 2
Acute Oral Toxicity - Category 4

Hazard Statement(s):
H272 May intensify fire; oxidizer.
H302 Harmful if swallowed.

Poisons Schedule (SUSMP): None allocated.

This material is listed on the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

This safety data sheet has been prepared by Ixom Operations Pty Ltd Toxicology & SDS Services.

Reason(s) for Issue:
5 Yearly Revised Primary SDS
This SDS summarises to our best knowledge at the date of issue, the chemical health and safety hazards of the material and general guidance on how to safely handle the material in the workplace. Since Ixom Operations Pty Ltd cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, assess and control the risks arising from its use of the material.

If clarification or further information is needed, the user should contact their Ixom representative or Ixom Operations Pty Ltd at the contact details on page 1.

Ixom Operations Pty Ltd's responsibility for the material as sold is subject to the terms and conditions of sale, a copy of which is available upon request.