Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
PHOSLOCK GRANULES / POWDER

SYNONYMS
"Rare earth modified bentonite", "Rare earth modified clay"

PRODUCT USE
Used to remove prescribed oxyanions in a variety of natural environments such as lakes, rivers, estuaries, dams, ornamental ponds and natural wetlands. Also in artificial environments including waste effluents such as sewage and industrial effluents and as a barrier within containment cells for leachable wastes.

SUPPLIER
Company: Phoslock Pty Ltd
Address:
Suite 3, Level 3, 110 Pacific Highway
St Leonards
NSW, 2065
Australia
Telephone: +61 2 9439 7715
Fax: +61 2 9460 8973

Section 2 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS. According to NOHSC Criteria, and ADG Code.

RISK
• None under normal operating conditions.

SAFETY

<table>
<thead>
<tr>
<th>Safety Codes</th>
<th>Safety Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>S02</td>
<td>Keep out of reach of children.</td>
</tr>
<tr>
<td>S22</td>
<td>Do not breathe dust.</td>
</tr>
<tr>
<td>S24</td>
<td>Avoid contact with skin.</td>
</tr>
</tbody>
</table>

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>NAME</th>
<th>CAS RN</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>bentonite, lanthanum modified</td>
<td>302346-65-2</td>
<td>100</td>
</tr>
</tbody>
</table>

Section 4 - FIRST AID MEASURES

SWALLOWED
• If swallowed do NOT induce vomiting.
• If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
• Observe the patient carefully.
• Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.

EYE
• If this product comes in contact with the eyes:
  • Wash out immediately with fresh running water.
  • Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
  • Seek medical attention without delay; if pain persists or recurs seek medical attention.
  • Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
PHOSLOCK GRANULES / POWDER

Section 4 - FIRST AID MEASURES

SKIN
■ If skin or hair contact occurs:
  • Flush skin and hair with running water (and soap if available).
  • Seek medical attention in event of irritation.

INHALED
• If fumes, aerosols or combustion products are inhaled remove from contaminated area.
• Other measures are usually unnecessary.

NOTES TO PHYSICIAN
■ Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA
• There is no restriction on the type of extinguisher which may be used.
• Use extinguishing media suitable for surrounding area.

FIRE FIGHTING
• Alert Fire Brigade and tell them location and nature of hazard.
• Wear breathing apparatus plus protective gloves for fire only.
• Prevent, by any means available, spillage from entering drains or water courses.
• Use fire fighting procedures suitable for surrounding area.

FIRE/EXPLOSION HAZARD
• Non combustible.
• Not considered a significant fire risk, however containers may burn.
  Decomposition may produce toxic fumes of: silicon dioxide (SiO2), metal oxides.
  May emit poisonous fumes.
  May emit corrosive fumes.

FIRE INCOMPATIBILITY
■ None known.

HAZCHEM
None

PERSONAL PROTECTION
Glasses: Chemical goggles.
Respirator: Particulate

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS
• Remove all ignition sources.
• Clean up all spills immediately.
• Avoid contact with skin and eyes.
• Control personal contact by using protective equipment.

MAJOR SPILLS
■ Moderate hazard.
  • CAUTION: Advise personnel in area.
  • Alert Emergency Services and tell them location and nature of hazard.
  • Control personal contact by wearing protective clothing.
  • Prevent, by any means available, spillage from entering drains or water courses.

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

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING
• Avoid all personal contact, including inhalation.
• Wear protective clothing when risk of exposure occurs.
• Use in a well-ventilated area.

continued...
Section 7 - HANDLING AND STORAGE

- Prevent concentration in hollows and sumps.

**SUITABLE CONTAINER**
- Polyethylene or polypropylene container.
- Check all containers are clearly labelled and free from leaks.

**STORAGE INCOMPATIBILITY**
- Metals and their oxides or salts may react violently with chlorine trifluoride and bromine trifluoride.
- These trifluorides are hypergolic oxidisers. They ignite on contact (without external source of heat or ignition) with recognised fuels - contact with these materials, following an ambient or slightly elevated temperature, is often violent and may produce ignition.
- The state of subdivision may affect the results.

**STORAGE REQUIREMENTS**
- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry area protected from environmental extremes.
- Store away from incompatible materials and foodstuff containers.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

**EXPOSURE CONTROLS**

The following materials had no OELs on our records
- bentonite, lanthanum modified: CAS:302346- 65-2

**PERSONAL PROTECTION**

**RESPIRATOR**

**EYE**
- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent].

**HANDS/FEET**
- Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:
  - frequency and duration of contact,
  - chemical resistance of glove material,
  - glove thickness and
  - dexterity.
- Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.
  - polychloroprene
  - nitrile rubber
  - butyl rubber
  - fluorocautchouc.

**OTHER**
- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.

**ENGINEERING CONTROLS**
- Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.
- The basic types of engineering controls are:
  - Process controls which involve changing the way a job activity or process is done to reduce the risk.
  - Enclosure and/or isolation of emission source which keeps a selected hazard “physically” away from the worker and ventilation that strategically “adds” and “removes” air in the work environment.

continued...
PHOSLOCK GRANULES / POWDER

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

APPEARANCE
Light brown free-flowing granules; insoluble in water.

PHYSICAL PROPERTIES
Does not mix with water.

<table>
<thead>
<tr>
<th>Property</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
<td>Divided Solid</td>
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<tr>
<td>Melting Range (°C)</td>
<td>&gt;1000</td>
</tr>
<tr>
<td>Boiling Range (°C)</td>
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</tr>
<tr>
<td>Flash Point (°C)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Decomposition Temp (°C)</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Autoignition Temp (°C)</td>
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</tr>
<tr>
<td>Upper Explosive Limit (%)</td>
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</tr>
<tr>
<td>Lower Explosive Limit (%)</td>
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</tr>
<tr>
<td>Volatile Component (%vol)</td>
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</tr>
<tr>
<td>Molecular Weight</td>
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<tr>
<td>Viscosity</td>
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<tr>
<td>Solubility in water (g/L)</td>
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<tr>
<td>pH (1% solution)</td>
<td>7-7.5 (2%)</td>
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<tr>
<td>pH (as supplied)</td>
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<tr>
<td>Vapour Pressure (kPa)</td>
<td>Not Applicable</td>
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<tr>
<td>Specific Gravity (water=1)</td>
<td>1100-1200 kg/m3</td>
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<tr>
<td>Relative Vapour Density (air=1)</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

Section 10 - STABILITY AND REACTIVITY

CONDITIONS CONTRIBUTING TO INSTABILITY
• Presence of incompatible materials.
• Product is considered stable.
• Hazardous polymerisation will not occur.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS
ACUTE HEALTH EFFECTS
• Generally not applicable.

CHRONIC HEALTH EFFECTS
• Generally not applicable.

TOXICITY AND IRRITATION
PHOSLOCK GRANULES / POWDER:
■ Not available. Refer to individual constituents.

Section 12 - ECOLOGICAL INFORMATION

No data

<table>
<thead>
<tr>
<th>Ecotoxicity</th>
<th>Persistence: Water/Soil</th>
<th>Persistence: Air</th>
<th>Bioaccumulation</th>
<th>Mobility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phoslock Granules / Powder</td>
<td>No Data</td>
<td>No Data</td>
<td>No Data</td>
<td>Available</td>
</tr>
</tbody>
</table>

Section 13 - DISPOSAL CONSIDERATIONS

■ Legislation addressing waste disposal requirements may differ by country, state and/or territory. Each user must refer to laws operating in their area.

A Hierarchy of Controls seems to be common - the user should investigate:
• Reduction.
• DO NOT allow wash water from cleaning or process equipment to enter drains.
• It may be necessary to collect all wash water for treatment before disposal.
• In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.

continued...
Section 13 - DISPOSAL CONSIDERATIONS

- Where in doubt contact the responsible authority.
- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Management Authority for disposal.
- Bury residue in an authorised landfill.
- Recycle containers if possible, or dispose of in an authorised landfill.

Section 14 - TRANSPORTATION INFORMATION

HAZCHEM:
None (ADG7)

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: ADG7, UN, IATA, IMDG

Section 15 - REGULATORY INFORMATION

POISONS SCHEDULE None

REGULATIONS

No data for Phoslock Granules / Powder (CW: 4621-39)

Section 16 - OTHER INFORMATION

- 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. A list of reference resources used to assist the committee may be found at: www.chemwatch.net/references.
- The (M)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.

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This is the end of the MSDS.