MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION
Product name: ProFlot SC-A2, Aqueous
Substance or Mixture: Mixture
Synonyms: Promoter
Intended/Recommended Use: Mining Chemical

Protea Mining Chemicals
A Division of Omnia Group (Pty) Ltd
P O Box 14773 Wadeville 1422
Tel: (011) 418-3700 Fax: (011) 827-8414
Emergency Tel: 0800 172 743

2. HAZARDS IDENTIFICATION

Emergency Overview
Appearance and Odor
Color: Straw yellow – brown
Appearance: Apparent Liquid
Odor: Ester

Statement of Hazard
Caution! Causes eye burns and skin irritation
May be harmful if absorbed through skin or swallowed

Potential Health Effects
Effects / Routes of Exposure
The oral (rat) LD50 and dermal (rabbit) LD50 values are estimated to be >1000 mg/kg and >2200 mg/kg, respectively. Direct contact with this material can cause severe eye and skin irritation. Contact with acid may cause liberation of hydrogen sulfide. Repeated or prolonged contact with this product may cause allergic skin reaction.

3. COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No.</th>
<th>%(w/w)</th>
<th>OSHA(PEL)</th>
<th>ACGIH(TLV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dithiophosphate salt</td>
<td>53378-51-1</td>
<td>15-60</td>
<td>Not established</td>
<td>-</td>
</tr>
<tr>
<td>Thionocarbamate</td>
<td>-</td>
<td>10-20</td>
<td>Not established</td>
<td>-</td>
</tr>
<tr>
<td>Other non-hazardous ingredients to 100%</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Ingestion:
If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

Skin contact:
Take off immediately all contaminated clothing. Wash immediately with plenty of water and soap. Pay particular attention to skin crevices, nail folds, etc. Do not reuse contaminated clothing without laundering. Do not reuse contaminated leatherware.

Eye contact:
Rinse immediately with plenty of water for at least 15 minutes. Obtain medical attention immediately.

Inhalation:
Remove to fresh air. If breathing is difficult, give oxygen. Obtain medical advice if there are persistent symptoms.
5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Use water spray, foam, carbon dioxide or dry chemical to extinguish fires.

Protective Equipment:
Firefighter, and wear self-contained breathing apparatus. Wear full firefighting protective clothing.

Special Hazards:
Sulfur dioxide, nitrogen oxide or hydrogen sulfide may be formed if burnt. Do not flush to sewer which may contain acid or alkali. This could result in generation of toxic and explosive hydrogen sulfide gas.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:
Where exposure level is not known, wear approved, positive pressure, self-contained respirator. Where exposure level is known, wear approved respirator suitable for level of exposure. In addition to the protective clothing/equipment in Section 8, wear a two piece PVC suit with hood or PVC overalls with hood.

Methods for Cleaning up:
Cover spills with some inert absorbent. Sweep up into containers for disposal. Flush spill area with water.

7. HANDLING AND STORAGE

Handling
Precautionary Measures:
Do not get in eyes, on skin or on clothing. Wash thoroughly after handling.

Special Handling Statements:
Large quantities of undiluted products should not be mixed with acids and alkalies, since evolution of toxic and explosive hydrogen sulfide gas could result. In particular, precautions must be taken to avoid the accidental discharge of large volumes of the product in acid or strong alkaline storage tanks or any tank containing acidic or alkaline materials. This precaution does not, of course, apply to addition of this reagent to flotation pulps in amounts customarily used in flotation, were the reagent amounts are small and instantly diluted to concentrations well below the solubility limits.

Storage:
Storage Temperature: Room temperature
Reason: Integrity

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Measures:
Utilize a closed system process where feasible. Where this material is not used in a closed system, good enclosure and local exhaust ventilation should be provided to control exposure.

Respiratory Protection:
For operations where inhalation exposure can occur, use an approved respirator recommended by an industrial hygienist after an evaluation of the operation. A full facepiece respirator also provides eye and face protection.

Eye Protection:
Prevent eye and skin contact. Provide eye wash fountain and safety shower in close proximity to points of potential exposure. Wear eye/face protection such as chemical splash proof goggles or face shield.

Skin Protection:
Prevent contamination of skin or clothing when removing protective equipment. Wear impermeable gloves and suitable protective clothing.

Additional Advice:
Food, beverages, and tobacco products should not be carried, stored, or consumed where this material is in use. Before eating, drinking, or smoking, wash face and hands thoroughly with soap and water.
9. PHYSICAL AND CHEMICAL PROPERTIES

Color: straw yellow to brown
Appearance: Apparent liquid
Odor: ester
Boiling Point: Not available
Melting Point: <-20 °C
Flash Point: >61°C
Vapor Pressure: Not available
Specific Gravity/Density: Similar to water
Vapor Density: Not available
Percent Volatile (% by wt.): 5
Solubility In Water: Complete
Flammable Limits (% by vol): Not available

10. STABILITY AND REACTIVITY

Stability: stable
Conditions to Avoid: None known
Polymerization: will not occur
Conditions to Avoid: None known
Materials to Avoid: This product contains a neutralized dithioacid and ester
Avoid contact with strong alka lies, strong oxidizing agents and mineral acids
Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, hydrogen sulfide, oxides of sulfur (includes sulfur di and tri oxides), Oxides of phosphorus,

11. TOXICOLOGICAL INFORMATION

Product Toxicity Information

Acute Toxicity Data
- Oral: rat Acute LD50 >2000 mg/Kg
- Dermal: rabbit Acute LD50 >2000 mg/Kg
- Inhalation: rat Acute LC50 No data

Local Effects on Skin and Eye
- Acute Irritation: dermal corrosive
- Acute Irritation: eye causes serious damage

Allergic Sensitization
- Sensitization: dermal Not sensitizing
- Sensitization: eye Not sensitizing

Hazardous Ingredient Toxicity Data
Dithiophosphate salt has estimated acute oral (rat) and dermal (rabbit) LD50 values of greater than 5000 mg/Kg and 2000 mg/Kg, respectively. Direct contact with dithiophosphate salt can cause eye burns and skin corrosion.
Thionocarbamate has an oral (rat) LD50 value and dermal (rat) LD50 values of >700 mg/kg and >2000mg/kg, respectively. It produced mild eye and moderate skin irritation.

12. ECOLOGICAL INFORMATION

This material is not classified as dangerous for the environment.
This material is not readily biodegradable.

13. DISPOSAL CONSIDERATIONS

The Company encourages the recycle, recovery and reuse of materials, where permitted. If disposal is necessary, the company recommends that organic materials, especially when classified as hazardous waste, be disposed of by thermal treatment or incineration at approved facilities. All local and national regulations should be followed.
14. TRANSPORT INFORMATION
The section provides basic shipping classification information. Refer to appropriate transportation regulations for specific requirements.

IMO
Proper Shipping Name: Caustic liquid
Hazard Class: 8
UN Number: 1719
Packing Group: II
Transport Label Required: Corrosive
Technical Name (N.O.S.): Contains dithiophosphate salt and thionocarbamate

ICAO / IATA:
Proper Shipping Name: Caustic liquid
Hazard Class: 8
Packing Group: II
UN Number: 1719
Transport Label Required: Corrosive
Maximum Net Quantity Per Package: Cargo Aircraft: -
Technical Name (N.O.S.): Contains dithiophosphate salt and thionocarbamate

15. REGULATORY INFORMATION

Marking and Labeling
Symbol(s): C-Corrosive

Risk Phrases:
R32 – Contact with acids liberates very toxic gas.
R34 – Causes burns
R41 – Risk of serious damage to eyes

Safety Phrases:
S26 – In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S45 – In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S50A – Do not mix with acids or alkalis, since evolution of poisonous and flammable hydrogen sulfide gas could result. This precaution does not, of course, apply to addition of this material to flotation pulps in the amount normally used in flotation.
S36/37/39 – Wear suitable protective clothing, gloves and eye/face protection.

Inventory Information
China: All components of this product are not included on the Chinese inventory.

European Union (EU): All components of this product are included on the European Inventory of Existing Chemical Substances (EINECS) or are not required to be listed on EINECS.

Canada: All components of this product are included on the Domestic Substances List (DSL) or are not required to be listed on the DSL.

United States: All components of this product are included on the TSCA Chemical Inventory or are not required to be listed on the TSCA Chemical Inventory.

Australia: All components of this product are included in the Australian Inventory of Chemical Substances (AICS) or are not required to be listed on AICS.

Japan: All components of this product are included on the Korean (ECL) inventory or are not required to be listed on the Korean Inventory.

Philippines: All components of this product are included on the Philippine (PICCS) Inventory or are not required to be listed on the Philippine Inventory.

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