Section I. Chemical Product and Company Identification

PRODUCT NAME/TRADE NAME: Kapuskasing Pit Run Phosphate Ore

SYNONYM: Phosphate rock, Kap Rock

CHEMICAL NAME: Fluoroapatite

CHEMICAL FAMILY: Mineral ore from the Kapuskasing area of Ontario, containing oxides of phosphorous, iron, aluminum, calcium, sodium, magnesium, silicon and small amounts of fluorides.

CHEMICAL FORMULA: Ca₁₀F₂(PO₄)₆

MATERIAL USES: Agricultural use: Raw material in the production of fertilizer.

MANUFACTURER: Agrium
North American Wholesale
13131 Lake Fraser Drive, S.E.
Calgary, Alberta, Canada, T2J 7E8

SUPPLIER: Agrium
North American Wholesale
13131 Lake Fraser Drive, S.E.
Calgary, Alberta, Canada, T2J 7E8

Agrium U.S. Inc.
Suite 1700, 4582 South Ulster St.
Denver, Colorado, U.S.A., 80237

September 12, 2001

Section II. Hazardous Ingredients

<table>
<thead>
<tr>
<th>NAME</th>
<th>CAS #</th>
<th>TLV-TWA mg/m³</th>
<th>TLV-TWA ppm</th>
<th>STEL mg/m³</th>
<th>STEL ppm</th>
<th>CEIL mg/m³</th>
<th>CEIL ppm</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluoroapatite</td>
<td>1306-05-4</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&gt; 95</td>
</tr>
<tr>
<td>Silica, crystalline (quartz)</td>
<td>14808-60-7</td>
<td>0.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1-3</td>
</tr>
<tr>
<td>Silica, crystalline (cristobalite)</td>
<td>7631-86-9</td>
<td>0.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1-3</td>
</tr>
</tbody>
</table>

TOXICOLOGICAL DATA ON INGREDIENTS: Phosphate rock
LD₅₀: > 3g/kg

Section III. Hazards Identification

POTENTIAL ACUTE HEALTH EFFECTS: A dusty material if allowed to dry out due to the fine size of the particles. This product may irritate the eyes, nose, throat and skin upon prolonged or repeated contact due to mechanical action. Non-hazardous on ingestion. The material will pass through the digestive tract unchanged and with no effect.

POTENTIAL CHRONIC HEALTH EFFECTS:

Continued on Next Page
Contains minor quantities of quartz and cristobalite. Prolonged or repeated overexposures may cause progressive and permanent lung disorders, including silicosis. Quartz is classified as a suspected human carcinogen by the American Conference of Governmental Industrial Hygienists. Prolonged or repeated exposure to acid gases or mists from the digestion of phosphate rock may cause skeletal or dental disorder (fluorosis).

Section IV. First Aid Measures

| EYE CONTACT | May cause eye irritation due to mechanical action. Rinse eyes with water to remove dust or grit. |
| MINOR SKIN CONTACT | No known toxic effect according to our database. May cause drying of the skin. Wash with soap and water. If dryness occurs, use a moisturizing lotion. |
| EXTENSIVE SKIN CONTACT | No additional information. |
| MINOR INHALATION | Inhalation of dust may produce irritation to the respiratory tract, characterized by sneezing and coughing. Allow the person to rest in a well ventilated area. If irritation persists, seek medical attention. |
| SEVERE INHALATION | No additional information. |
| SLIGHT INGESTION | The material is non-toxic on ingestion. The product will pass through the digestive tract unchanged and with no effect. No specific treatment is required. |
| EXTENSIVE INGESTION | No additional information. |

Section V. Fire and Explosion Data

| THE PRODUCT IS | Non-flammable. |
| AUTO-IGNITION TEMPERATURE | Not applicable. |
| FLASH POINT | Not applicable. |
| FLAMMABILITY LIMITS | Not applicable. |
| PRODUCTS OF COMBUSTION | Not applicable. |
| FIRE HAZARD IN THE PRESENCE OF VARIOUS SUBSTANCES | Not applicable. |
| EXPLOSION HAZARD IN THE PRESENCE OF VARIOUS SUBSTANCES | This product is non-explosive. |
| FIRE FIGHTING MEDIA AND INSTRUCTIONS | Non combustible. |
| SPECIAL REMARKS ON FIRE HAZARDS | No additional information. |
| SPECIAL REMARKS ON EXPLOSION HAZARDS | No additional information. |
**Section VI. Accidental Release Measures**

**SMALL SPILL**
Use appropriate tools or equipment to place the spilled solid in a suitable container for use or disposal. Flush or wash the contaminated surface.

**LARGE SPILL**
No additional information.

**Section VII. Handling and Storage**

**PRECAUTIONS**
If user operations generate dust, use ventilation to keep exposure to airborne contaminants below the exposure limit. Watch for accumulation in low lying or confined areas.

**STORAGE**
A dusty material if allowed to dry out. Moisture content of material (8-13%) is sufficient to reduce possibility for excessive dust levels. Protect from wind or airborne dust generation. Material displays complex handling characteristics with bridging, fluid flow, and hard set-up depending upon conditions of storage. Stockpiles of material may be unstable resulting in slumping, cliffing, and sand-like characteristics. Ensure stability of stockpiled materials.

**Section VIII. Exposure Controls/Personal Protection**

**ENGINEERING CONTROLS**
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, use adequate local exhaust or general ventilation to keep exposure to airborne contaminants below the exposure limits.

**PERSONAL PROTECTION**
The selection of personal protective equipment varies, depending upon conditions of use. Wear appropriate respiratory protection for dust when ventilation is inadequate. A filtering facepiece dust mask is recommended for most applications if respiratory protection is needed. Where skin and eye contact may occur as a result of brief periodic exposures, wear long sleeved clothing, coveralls, chemical resistant gloves, and safety glasses with side shields. A respiratory protection program that meets OSHA 29 CFR 1910.134 requirements must be followed whenever workplace conditions warrant a respirator’s use.

**PERSONAL PROTECTION IN CASE OF LARGE RELEASE**
No further information.

**EXPOSURE LIMITS**
Occupational Exposure Limits are based on the content of cristalline silica in the produced rock.

The ACGIH recommends the following Occupational Exposure Limits based on a 5% silica content:
- 8 hr TWA: 1.0 mg/m³ as respirable dust.
- 12 hr TWA: 0.5 mg/m³ as respirable dust.

Federal, State or Provincial exposure limits may vary by jurisdiction. Consult local authorities for acceptable exposure limits in your area.

**Section IX. Physical and Chemical Properties**

**PHYSICAL STATE AND APPEARANCE**
Solid.

**MOLECULAR WEIGHT**
502.32 g/mole as fluoroapatite

**pH (10% SOLN/WATER)**
Not applicable.

**BOILING POINT**
Decomposes. (1100°C or 2012°F)

**MELTING POINT**
Decomposes. (1100°C or 2012°F)

**CRITICAL TEMPERATURE**
Not applicable.

**SPECIFIC GRAVITY g/cc**
Not available

**BULK DENSITY kg/m³ ; lbs/ft³**
Not available.

**COLOR**
May range from white to tan, sandy brown to grey, or grey to black.

**ODOR**
Earthy

**ODOR THRESHOLD**
Not available.

**TASTE**
Not available.

**VOLATILITY**
8-13% (w/w) as water.

**SOLUBILITY**
Insoluble in cold water, hot water.

**DISPERSION PROPERTIES**
Is not dispersed in cold water, hot water.

*Continued on Next Page*
## Section X. Stability and Reactivity Data

<table>
<thead>
<tr>
<th>STABILITY</th>
<th>The product is stable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTABILITY TEMPERATURE</td>
<td>Not available.</td>
</tr>
<tr>
<td>CONDITIONS OF INSTABILITY</td>
<td>No additional information.</td>
</tr>
<tr>
<td>INCOMPATABILITY WITH VARIOUS SUBSTANCES</td>
<td>The product is stable.</td>
</tr>
<tr>
<td>CORROSIVITY</td>
<td>Low hazard for usual industrial or commercial handling.</td>
</tr>
<tr>
<td>SPECIAL REMARKS ON REACTIVITY</td>
<td>No additional information.</td>
</tr>
<tr>
<td>SPECIAL REMARKS ON CORROSIVITY</td>
<td>Non-corrosive.</td>
</tr>
</tbody>
</table>

## Section XI. Toxicological Information

| SIGNIFICANT ROUTES OF EXPOSURE | Inhalation. |
| TOXICITY TO ANIMALS            | LD50: > 3 g/kg. |
| SPECIAL REMARKS ON TOXICITY TO ANIMALS | Low toxicity for humans or animals under normal conditions of use. |
| OTHER EFFECTS ON HUMANS        | No additional information. |
| SPECIAL REMARKS ON CHRONIC EFFECTS ON HUMANS | No additional information. |
| SPECIAL REMARKS ON OTHER EFFECTS ON HUMANS | No additional information. |

## Section XII. Ecological Information

| ECOTOXICITY                  | Not considered to be toxic to animals. |
| BOD and COD                  | Not available. |
| PRODUCTS OF DEGRADATION      | Resistant to degradation in the natural environment. |
| TOXICITY OF THE PRODUCTS OF DEGRADATION | No additional remarks. |
| SPECIAL REMARKS ON THE PRODUCTS OF DEGRADATION | No additional information. |
Section XIII. Disposal Considerations

WASTE DISPOSAL OR RECYCLING
Recover and place material in a suitable container for intended use or disposal. Consult your environmental advisor for information on disposal alternatives.

Section XIV. Transport Information

DOT / TDG CLASSIFICATION
Not controlled under DoT (U.S.) or TDG (Canada).

PIN
Not applicable (PIN and PG).

SPECIAL PROVISIONS FOR TRANSPORT
Not regulated under TDG

DOT (U.S.A) (Pictograms)

Section XV. Other Regulatory Information and Pictograms

OTHER REGULATIONS
CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA): This product is on the Domestic Substances List (DSL), and is acceptable for use under the provisions of CEPA.


TSCA (Toxic Substance Control Act): This product is listed on the TSCA Inventory.

OTHER CLASSIFICATIONS
HCS (U.S.A.)
HCS CLASS: May be toxic for the lungs.

DSCL (EEC)
Not available.

National Fire Protection Association (U.S.A.)
Hazards presented under acute emergency conditions only:

TDG (Pictograms - Canada)

DSCL (Europe) (Pictograms)
Not Available
No Disponible
Pas Disponible

ADR (Europe) (Pictograms)
Not Available
No Disponible
Pas Disponible

Continued on Next Page
### Section XVI. Other Information

#### REFERENCES
- American Conference of Governmental Industrial Hygienists, TLVs™ an other Occupational Exposure Values, 2000.
- 29 CFR Part 1910
- 40 CFR Parts 1-799
- 49 CFR Parts 1-199

#### OTHER SPECIAL CONSIDERATIONS
No additional information.

#### FOR FURTHER SAFETY, HEALTH, OR ENVIRONMENTAL INFORMATION ON THIS PRODUCT, CONTACT

<table>
<thead>
<tr>
<th>AGRIUM</th>
<th>Environment, Health and Safety Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone (780) 998-6134 or Fax (780) 998-6143</td>
<td></td>
</tr>
</tbody>
</table>

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