1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Product Name: Ruflux® P Potassium Titanate

Other Names: Potassium Titanate

2. HAZARDS IDENTIFICATION

Emergency Overview

Caution

Avoid dust formation. May cause physical irritation.

Potential Health Effects

Principle routes of exposure: Inhalation, ingestion, skin and eye contact.

Eye contact: May cause slight irritation. Resin particles, like other inert materials, are mechanically irritating to eyes.

Skin contact: Prolonged skin contact may cause skin irritation and/or dermatitis.

Inhalation: Product dust may be irritating to eyes, skin and respiratory system. Over-exposure by inhalation may cause respiratory irritation.

Ingestion: May irritate digestive tract.

HMIS
Health: *1
Fire: 0
Physical hazard: 0
PPE: E

Date of Issue: May, 2012
3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>OSHA</th>
<th>ACGIH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium Titanate</td>
<td>12030-97-6</td>
<td>100%</td>
<td>Not established</td>
<td>Not established</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

**Eye contact:** Rinse immediately with plenty of water, also under the eyelids. Get medical attention if irritation develops.

**Skin contact:** Wash off immediately with soap and plenty of water. Remove and wash contaminated clothing before re-use. If symptoms persist, call a physician.

**Inhalation:** Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. If symptoms persist, call a physician.

**Ingestion:** Drink plenty of water. Consult a physician if necessary. Do not induce vomiting without medical advice.

**Notes to physician:** Treat symptomatically.

5. FIRE-FIGHTING MEASURES

**Flash point:** No data available

**Suitable extinguishing media:** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Hazardous decomposition products:** Thermal decomposition can lead to release of irritating gases and vapors.

**Special protective equipment for firefighters:** As in any fire, wear self-contained breathing apparatus pressure-demand, NIOSH (approved or equivalent) and full protective gear.

**Unusual hazards:** Dust may form explosive mixture in air.

6. ACCIDENTAL RELEASE MEASURES

**Personal precautions:** Avoid dust formation. Evacuate area of all unnecessary personnel. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Fine dust dispersed in air may ignite.

**Environmental precautions:** Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Do not flush into surface water or sanitary sewer system.

**Methods for cleaning up:** Use approved industrial vacuum cleaner for removal. Wear personal protective equipment. Dispose of promptly.

7. HANDLING AND STORAGE

**Handling:** Handle in accordance with good industrial hygiene and safety practice. Avoid dust formation. Avoid contact with skin, eyes and clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Provide appropriate exhaust ventilation at places where dust is formed. Remove all sources of ignition. Wash hands thoroughly before eating, drinking or smoking.

**Storage:** Keep container tightly closed in a dry and well-ventilated place.
8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures: Ensure adequate ventilation, especially in confined areas.

Respiratory protection: Use NIOSH approved respirator when ventilation is inadequate.

Hand protection: Impervious gloves.

Skin and body protection: Lightweight protective clothing.

Eye protection: Safety glasses with side-shields.

Exposure limits: See Section 2.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>White</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Boiling point/range (°C)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point/range (°C)</td>
<td>1560 - 1840</td>
</tr>
<tr>
<td>Water solubility (mg/l)</td>
<td>Insoluble</td>
</tr>
<tr>
<td>Physical state</td>
<td>Powder</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Specific gravity (Water =1)</td>
<td>3.800 - 4.300</td>
</tr>
<tr>
<td>Evaporation rate (Water =1)</td>
<td>No data available</td>
</tr>
<tr>
<td>VOC content (%)</td>
<td>No data available</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Stability: Stable at normal conditions.

Polymerization: Will not occur.

Hazardous decomposition products: None under normal use.

Materials to avoid: None known.

Conditions to avoid: Avoid dust formation.

11. TOXICOLOGICAL INFORMATION

Acute toxicity: To the best of our knowledge the acute and chronic toxicity of the substance is not fully known. Skin contact: May cause allergic skin reaction.

Chronic toxicity: To the best of our knowledge the acute and chronic toxicity of the substance is not fully known. Inhalation: This product contains one or more non-asbestos fibers or other manmade fibers. Although relatively little is known about the long term health effects from exposure to dust from friction materials, studies of respirable fibers, which are physically similar to asbestos, suggest the potential for chronic lung disease, including fibrosis, with overexposure.

Carcinogenic effects: Titanium Dioxide is listed by IARC as possibly carcinogenic to humans (Group 2B). This listing is based on inadequate evidence of carcinogenicity in humans and sufficient evidence in experimental animals.

12. ECOLOGICAL INFORMATION

Aquatic toxicity: No information available

Persistence and degradability: No information available

12. DISPOSAL CONSIDERATIONS

Waste from residues / unused products: Waste must be disposed of in accordance with federal, state and local environmental control regulations. Where possible, recycling is preferred to disposal or incineration.

Date of Issue: May, 2011
14. TRANSPORT INFORMATION

DOT:
   Proper shipping name: Not regulated.

TDG (Canada):
   Proper shipping name: Not regulated.

15. REGULATORY INFORMATION

U.S. Regulations:
Not subject to the provisions of SARA 313 Title III
Not subject to TSCA 12(b) Export Notification

State Regulations
This product or its ingredients have been evaluated for New Jersey, Pennsylvania, and California Prop 65 supplier notification requirements. Substances that are subject to notification requirements, if any, are listed below.

Titanium Dioxide
NJRTK: sn 1861
PARTK: Listed (NJRTK)

Canadian WHMIS
WHMIS hazard class for this product or ingredients: D2A Very toxic materials.

International Inventories
TSCA 8(b): All the ingredients are on the TSCA list.
Canadian DSL: All the ingredients are on the DSL.
EINECS: All the ingredients are on the EINECS list.
Philippines (PICCS): Listed.
Japan (ENCS): Listed.
Korea (KECL): Listed.
China (IECS): Listed.
Australia (AICS): Listed.

16. OTHER INFORMATION

For Industrial Use Only

Prepared by: Product Manufacturer, TAM Ceramics, LLC

The information and recommendations contained in this Material Safety Data Sheet have been compiled from sources believed to be reliable and to represent the most reasonable current opinion on the subject when the MSDS was prepared. No warranty, guaranty or representation is made as to the correctness or sufficiency of the information. The user of this product must decide what safety measures are necessary to safely use this product, either alone or in combination with other products, and determine its environmental regulatory compliance obligations under any applicable federal or state laws.

End of Safety Data Sheet

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