Material Safety Data Sheet

Okemcoat® F-2

Version 1.7
Revision Date 10/09/2012

Print Date 11/21/2014

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Okemcoat® F-2
MSDS Number : REL_4662
Company : Chemetall US, Inc.
675 Central Avenue
New Providence, NJ 07974
Telephone : +18005264473
Telefax : +19084644658
Emergency telephone no : CHEMTREC - 800-424-9300

SECTION 2. HAZARDOUS COMPONENTS INFORMATION

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Weight percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade Secret Registry</td>
<td>735517-5038P</td>
<td>1.00 - 5.00</td>
</tr>
<tr>
<td>Chromic (VI) Acid</td>
<td>1333-82-0</td>
<td>3.00 - 7.00</td>
</tr>
<tr>
<td>Nitric acid</td>
<td>7697-37-2</td>
<td>1.00 - 5.00</td>
</tr>
<tr>
<td>Chromium (III) phosphate</td>
<td>7789-04-0</td>
<td>5.00 - 10.00</td>
</tr>
</tbody>
</table>


SECTION 3. HAZARDS IDENTIFICATION

Emergency Overview
Form : liquid
Colour : greenish-blue
Odour : Acidic
Hazard Summary : Causes severe burns. Also harmful by inhalation and if swallowed. May cause cancer.

<table>
<thead>
<tr>
<th>Route(s) of Entry</th>
<th>Inhalation</th>
<th>Skin</th>
<th>Ingestion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
</tbody>
</table>

Carcinogenicity:
NTP : Chromic (VI) Acid  This substance is listed by NTP as a Carcinogen.
IARC : Chromic (VI) Acid  This substance is listed by IARC as a Carcinogen.
OSHA : No substance in this product is regulated by OSHA as a carcinogen

SECTION 4. FIRST AID MEASURES

Inhalation : Move to fresh air. If symptoms persist, call a physician. If
breathing is irregular or stopped, administer artificial respiration.

Skin contact : Wash off immediately with plenty of water for at least 15 minutes. Take off contaminated clothing and shoes immediately. Call a physician if irritation develops or persists.

Eye contact : Rinse immediately with plenty of water for at least 15 minutes. Keep eye wide open while rinsing. Get medical attention immediately.

Ingestion : Rinse mouth. Drink 1 or 2 glasses of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

SECTION 5. FIRE-FIGHTING MEASURES

Flash point : > 93.4 °C (> 200.1 °F)

Lower explosion limit : Note: no data available

Upper explosion limit : Note: no data available

TDG Flammability Class : NONE

Suitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.

Further information : Use water spray to cool unopened containers.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions : Ensure adequate ventilation.

Methods for cleaning up : Ventilate area. Neutralize with lime milk or soda and flush with plenty of water. Clean up with inert absorbant material. Keep in suitable, closed containers for disposal. Flush with plenty of water.

Additional advice : Never return spills in original containers for re-use.
SECTION 7. HANDLING AND STORAGE

Handling
Handling : Unscrew closure slowly. Allow all pressure to escape through threads before removing closure. Add this product to surface of solution slowly to avoid spattering. Do not add large amounts of product to solution at any one time. Never add liquids to product. Use only with adequate ventilation.

Storage
Requirements for storage areas and containers : Keep containers dry and tightly closed to avoid moisture absorption and contamination. Store indoors in a cool, well-ventilated place. Keep container out of sun and away from heat. Keep container closed to prevent drying out.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV (TWA)</th>
<th>OSHA PEL (TWA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade Secret Registry</td>
<td>NONE</td>
<td>80 mg/m³</td>
</tr>
<tr>
<td>Chromic (VI) Acid</td>
<td>0.05 mg/m³ Cr</td>
<td>0.005 mg/m³ Cr</td>
</tr>
<tr>
<td>Nitric acid</td>
<td>5.2 mg/m³</td>
<td>5 mg/m³</td>
</tr>
<tr>
<td>Chromium (III) phosphate</td>
<td>0.5 mg/m³ Cr</td>
<td>0.5 mg/m³ Cr</td>
</tr>
</tbody>
</table>

Eye protection : Chemical resistant goggles must be worn. Face-shield

Hand protection : Impervious gloves

Skin and body protection : Complete suit protecting against chemicals

Respiratory protection : If the occupational exposure limits cannot be met, suitable respirator equipment shall be worn.

Hygiene measures : Avoid contact with skin, eyes and clothing. Wear suitable gloves and eye/face protection. Wear suitable protective clothing. Wash hands before breaks and immediately after handling the
Provide adequate ventilation.  
Do not inhale fumes.  
Keep away from food and drink.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>&lt; 2.5</td>
</tr>
<tr>
<td>Freezing point</td>
<td>-8.3 °C (17.1 °F)</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>Note: no data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>Note: no data available</td>
</tr>
<tr>
<td>Bulk density</td>
<td>9.46 lb/gal</td>
</tr>
<tr>
<td>Water solubility</td>
<td>Note: completely soluble</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Note: no data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.134</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Note: (Water =1) Less than 1</td>
</tr>
</tbody>
</table>

SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid: Avoid letting the product become dry.  
freezing  
Direct sources of heat.

Materials to avoid: Bases  
Reducing agents  
Combustible material  
Organic materials  
Warning! Do not use together with other products, which may release dangerous gases (chlorine).

Hazardous decomposition products: Chromium oxides  
nitrogen oxides (NOx)  
Oxides of phosphorus

SECTION 11. TOXICOLOGICAL INFORMATION
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<table>
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<td>10/09/2012</td>
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</table>

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**Toxicity:**  Mixture; Not Determined.

**Acute oral toxicity**
- **Chromic (VI) Acid**
  - LD50, rat
  - Dose: 52 mg/kg

**SECTION 12. ECOLOGICAL INFORMATION**

No data available

**SECTION 13. DISPOSAL CONSIDERATIONS**

Advice on Disposal: Refer to all federal, provincial, state and local regulation prior to disposition of container and unused contents by reuse, recycle or disposal.

**SECTION 14. TRANSPORT INFORMATION**

Refer to Bill of Lading.

**SECTION 15. REGULATORY INFORMATION**

<table>
<thead>
<tr>
<th>TSCA Status</th>
<th>All components of this material comply with US TSCA requirements.</th>
</tr>
</thead>
</table>
| SARA 313 Components | Chromic (VI) Acid CAS-No. 1333-82-0  
| | Nitric acid CAS-No. 7697-37-2  
| | Chromium (III) phosphate CAS-No. 7789-04-0 |
| CERCLA Reportable Quantity | Chromic (VI) Acid 10 Pounds  
| | Nitric acid 1,000 Pounds  
| | Chromium (III) phosphate 10 Pounds |
| California Prop. 65 | N.D |
| NFPA | 3 0 1 Corrosive Acid |
| HMIS | 3 0 1 J |

N.D. - Not Determined  5/6  N.A. - Not Applicable
SECTION 16. OTHER INFORMATION

Further information

Chemetall US, Inc. warrants that the products described herein will conform with its published specifications. The products supplied by Chemetall and information related to them are intended for use by buyers having necessary industrial skill and knowledge. Buyers should undertake sufficient verification and testing to determine the suitability of the Chemetall materials for their own particular purpose. Since buyer's conditions of use of products are beyond Chemetall's control, Chemetall does not warrant any recommendations and information for the use of such products. CHEMETALL DISCLAIMS ALL OTHER WARRANTIES INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE IN CONNECTION WITH THE USE OF ITS PRODUCTS.