PHOS & CLEAN HS-222

STEAM & CLEAN PHOSPHATE TREATMENT

HS-222 is a HIGH SOLIDS metal cleaner and iron phosphate treatment for use in steam cleaners, pressure wash-wand units, and soak tanks. EXCELLENT GREASE, OIL AND SOIL REMOVAL.

HS-222 provides paint and coating preparation which bonds and enhances corrosion resistance of large hard to finish products. FOR USE ON ALL METALS OF STEEL, ZINC, GALVANIZE AND ALUMINUM

HS-222 meets all specifications requiring a cleaner/iron phosphate treatment. Coating weights of 40-75 mg/ft. (9/04) HS-222 MEETS REQUIREMENTS OF SPEC AMS-2480-F., MIL Spec TTC-490 TYPE II

Features & Benefits

Rapid cleaning and providing an amorphous iron phosphate coating. Easily removes difficult oils, greases, smut, light rust and films. Milder to employees and no strong odors. Liquid which is easily mixed into feeders and mixing valves. Provides superior corrosion resistance and bonding of paints. Attacks difficult smut and surface residues.

Can be used on steel, aluminum and zinc galvanize. Meets requirements of government and automotive specifications.

Typical Processing

1) Air “blow-off” unit to be cleaned and phosphate coated. (Surface Dust)
2) Apply HS-222 at: Steam Wand: 1/2-3% for 30-120 sec., 150-212 deg.F
   Soak(Steel) 3-5% for 2-5 minutes, pH 4.5-5.5 @ 115-150 deg.F
   Soak(Aluminum) 3-5% for 2-5 minutes, pH 4.0-4.5 @ 115-150 deg.F

3) Apply evenly to the surface. If items are large start at the bottom.
4) (OPTIONAL) Rinse with warm water and dry completely to prevent rusting or oxidation. Note a sealer rinse can be used such as NCS-100.
5) Dry

Waste Disposal:

NEUTRALIZE PH, REMOVE FATS, OILS, GREASE AND HEAVY METALS.

Holding Tank Materials Of Construction:

ACID RESISTANT, STAINLESS OR POLY

Specifications

| DATE: | 1/8/2005 |
| PH: | ~2.5 |
| PROD_TYPE: | LIQUID |
| SPEC.GRAV: | 1.15 |
| LBS./GAL.: | 9.59 |
| FOAM, 0=Low 9=High | 9 |
| Shelf Life Years: | 10 YEARS |
| Freeze Information: | Not Damaged by Freezing |

Packaging

| Container Type: | POLY |
| Net Units: | 528 |
| Tare Wt: | 25 LB. |
| Gross Wt: | 553 |
| DOT_Name: | Not regulated by DOT |
| DOT Hazard: | Not Regulated |
| Tariff ID: | 2835.22.00 |

Use Parameters

| Concentration Range: | .5-5% by volume |
| Temperature Range: | 120-212 F. |
| Time Range: | 30-120 seconds ~ |
| Agitation: | As necessary |

Other Information

It is important that the OSHA DATA, "Material Safety Data Sheet" be carefully read and reviewed with the users of this product. OSHA data is required to be posted in the work area by law.
Section 1: Product and Company Information

Product Name: PHOS & CLEAN HS-222

Manufacturer: Torch Surface Technologies, 10781 Plaza Dr., Whitmore Lake MI 48189
PH:(734)449-9500 Fax (734) 449-9510 email:info@torchsurfacetech.com
PERS Emergency: 800-633-8253

Section 2: Hazards Identification

Signal Word: Warning

Hazard Class:

<table>
<thead>
<tr>
<th>Hazard Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin Corrosion/Irritation 2</td>
<td>Causes skin irritation</td>
</tr>
<tr>
<td>Eye Damage/Irritation 2B</td>
<td>Causes eye irritation</td>
</tr>
</tbody>
</table>

Precautionary Statements

Prevention

Wash hands thoroughly after handling.
Wear protective gloves.
Wear eye protection and face protection.

Response

If on skin: Wash with plenty of soap and water.
If skin irritation occurs: Get medical attention.
Take off contaminated clothing and wash before reuse.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical attention

Storage: Store Locked Up.

Disposal: Dispose of contents and container in accordance with local regulations.

Section 3: Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Ingredients</th>
<th>%BWT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1341-49-7</td>
<td>Inorganic Fluoride</td>
<td>&lt;1</td>
</tr>
<tr>
<td>144-55-8</td>
<td>Inorganic Sodium Buffer</td>
<td>&lt;20</td>
</tr>
<tr>
<td>7558-80-7</td>
<td>Sodium Phosphate, Mono</td>
<td>&lt;15</td>
</tr>
<tr>
<td>127036-24-2</td>
<td>Alcohol Ethoxylate</td>
<td>&lt;10</td>
</tr>
</tbody>
</table>

The balance of the ingredients are not classified as hazardous or are below the concentration limit to be classified as hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.
Section 4: First Aid Measures

- Eyes: Flush with large amount of water 15 minutes. Obtain medical aid if irritant persists.
- Inhalation: Remove victim to fresh air.
- Skin: Flush area with large amounts of water.
- Ingestion: DO NOT INDUCE VOMIT. Drink large amounts of water. Obtain prompt medical aid.

Induce Vomit: [ ]  Do not Induce Vomit: X

Section 5: Firefighting Measures

- Flash Point: NA
- Material Is: Non-flammable
- Flammable Limits: LEL NA UEL NA
- Method Used: NA
- Extinguish Media: Water Fog, CO2, Dry Chemical, Foam

Special Fire Fighting Proc.

Fire fighters should use self-contained breathing apparatus and full protective clothing. Use water spray to cool fire exposed containers.

Section 6: Accidental Release Measures

- Spills: Should be contained and absorbed with inert material, collected & disposed of in a proper manner. Prevent spills from entering waterways, sewers and confined spaces. Keep unnecessary and unprotected people away from area of spill. Wear appropriate personal protective equipment as specified in Section 8.

- Disposal: Dispose of contents and container in accordance with local regulations.

Section 7: Handling and Storage

- Storage: Store Locked Up.
- Incompatibilities: acids [ ] alkali X oxidizers X reducers X
- Other: ACID RESISTANT, STAINLESS OR POLY

Holding Tank Materials Of Construction:

ACID RESISTANT, STAINLESS OR POLY

Freezing Information: Not Damaged by Freezing

Shelf Life: 10 Years
Section 8: Exposure Controls/Personal Protection

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Ingredients</th>
<th>TLV(mg/m3)</th>
<th>PEL(mg/m3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1341-49-7</td>
<td>Inorganic Fluoride</td>
<td>2.5</td>
<td>2.5</td>
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<tr>
<td>144-55-8</td>
<td>Inorganic Sodium Buffer</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>7558-80-7</td>
<td>Sodium Phosphate, Mono</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>127036-24-2</td>
<td>Alcohol Ethoxylate</td>
<td>ND</td>
<td>ND</td>
</tr>
</tbody>
</table>

Personal Protection: Employers must perform a Hazard Assessment of all workplaces to determine the proper protective equipment required for all tasks.

Ventilation: Use in well ventilated areas

Protective Clothing: Provide rubber gloves, chemical goggles or protective eyewear, boots, aprons & hard hat if in contact.

Respiratory: Use protection if misting of product is possible.

Eye Protection: Always use safety goggles and full face shield

Section 9: Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Physical State:</th>
<th>Flash Point:</th>
<th>Auto Ignition Temp:</th>
<th>Boiling Point (F):</th>
<th>Solids % by wt.:</th>
<th>Viscosity:</th>
<th>Partition Coefficient:</th>
<th>Flammable Limits:</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIQUID</td>
<td>NA</td>
<td>NA</td>
<td>&gt;212</td>
<td>&lt;40</td>
<td>NA</td>
<td>Octanol/Water</td>
<td>non-flammable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>LEL  NA UEL   NA</td>
</tr>
</tbody>
</table>

Specific Gravity: (H20=1): 1.15

Melting-Freeze Point: NA

Vapor Pressure (mmHg): na

pH 100%: ~2.5

Vapor Density: NA

Odor: Mild Acid

Color: ORANGE

Solubility in Water % b/w: 100

Evaporation Rate (BuAl=1): NA

VOC Content %: 0

Section 10: Stability and Reactivity

Incompatibilities
- acids
- alkali
- oxidizers
- reducers

Hazardous Polymerization: Will Not Occur

Stability: Stable

Section 11: Toxicological Information

Ingestion: Will cause irritation to mouth, esophagus, and stomach.

Eye Contact: Can cause irritation.

Skin Contact: Can cause dry skin.

Inhalation: Can cause irritation to the respiratory tract.

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Ingredients</th>
<th>Carcinogen</th>
<th>IDLH (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1341-49-7</td>
<td>Inorganic Fluoride</td>
<td>No</td>
<td>30 AS</td>
</tr>
<tr>
<td>144-55-8</td>
<td>Inorganic Sodium Buffer</td>
<td>No</td>
<td>NA</td>
</tr>
<tr>
<td>7558-80-7</td>
<td>Sodium Phosphate, Mono</td>
<td>No</td>
<td>ND</td>
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<tr>
<td>127036-24-2</td>
<td>Alcohol Ethoxylate</td>
<td>No</td>
<td>ND</td>
</tr>
</tbody>
</table>
Section 12: Ecological Information

Environmental Toxicity: This product has not been evaluated for ecotoxicity. As with any chemical, environmental exposure should be prevented and minimized as much as possible.

Section 13: Disposal Considerations

Disposal should be in accordance with applicable regional, national and local laws and regulations. Wastes should be tested and classified in accordance with 40 CFR Part 261. It is the generators responsibility to determine if waste meets the applicable guidelines of hazardous waste. Consult with an environmental professional for assistance. Use only approved transporters, treatment, storage or disposal facilities.

Section 14: Transport Information

Shipping Name: Not regulated by DOT
Hazard Class: Not Regulated

Section 15: Regulatory Information

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Ingredients</th>
<th>Sara 302 EHS TPQ</th>
<th>Sara 304 EHS-RQ</th>
<th>CERCLA RQ lbs.</th>
<th>Sara 313 Cercla Toxic</th>
<th>TSCA List</th>
<th>Canada DSL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1341-49-7</td>
<td>Inorganic Fluoride</td>
<td>NA</td>
<td>NA</td>
<td>100</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>144-55-8</td>
<td>Inorganic Sodium Buffer</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>7558-80-7</td>
<td>Sodium Phosphate, Mono</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
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<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazard Categories
- Acute Health Hazard: Yes, No
- Chronic Health Hazard: Yes, No
- Reactive Hazard: Yes, No
- Fire Hazard: Yes, No
- Sudden Release of Pressure Hazard: Yes, No

Section 16: Other Information

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Torch Surface Tech be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Torch Surface Tech has been advised of the possibility of such damages.

OSHA Date: 5/29/15