Material Safety Data Sheet

Issue: Nov. 15, 2010
Revision: Sep. 15, 2011

I. Product Information:
   * Product Name: Pikal Metal polish (Liquid type)
   * Product Code: 11100 12100 13100 16000 17000 17110
   * Manufacturer: Nihon Maryo Kogyo Co., Ltd.
   Address: 3-23-15 Takanawa, Minato-ku, Tokyo, 108-0074, Japan
   Sales Department
   Telephone Number: 03-3441-6231
   FAX Number: 03-3441-6236
   Emergency Tel Number: Ohmori Plant/Production Dept.
   Tel: 03-3762-1666
   Fax: 03-3762-1668
   * Recommended Application: Metal Polishing

II. Hazard Identification:
   * GHS Classification:

<table>
<thead>
<tr>
<th>Hazard Item</th>
<th>Classification</th>
<th>Alarm Mark</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammable Liquid</td>
<td>Demarcation-4</td>
<td>Alarm</td>
<td>--</td>
</tr>
<tr>
<td>Skin Causticity/Sensitivity</td>
<td>Demarcation-2</td>
<td>Alarm</td>
<td>⚠</td>
</tr>
<tr>
<td>Serious Eye Damage – Eye Acridity</td>
<td>Demarcation-2B</td>
<td>Alarm</td>
<td>--</td>
</tr>
<tr>
<td>Oncogenicity</td>
<td>Demarcation-2</td>
<td>Alarm</td>
<td>⚠</td>
</tr>
<tr>
<td>Particular Target Organ•Multiple Exposure</td>
<td>Demarcation-1</td>
<td>Danger</td>
<td>⚠</td>
</tr>
</tbody>
</table>

   * Hazard Information:
     ① Flammable liquid
     ② Skin sensitivity
     ③ Eye damage
     ④ Possibility of carcinogenesis
     ⑤ Organ disorder due to prolonged or repeated exposure
III. Composition • Information on Ingredient:

* Demarcation of chemical Substance/mixture - Mixture:

<table>
<thead>
<tr>
<th>Substance Name</th>
<th>Industrial Safety and Health Act</th>
<th>Chemical Management Act</th>
<th>PRTR No.</th>
<th>CAS No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abrasive material(Al2O3)</td>
<td>#189</td>
<td>1-23</td>
<td>N/A</td>
<td>1344-28-1</td>
</tr>
<tr>
<td>Mineral oil(Kerosene)</td>
<td>#380</td>
<td>9-1702</td>
<td>N/A</td>
<td>8008-20-6</td>
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<tr>
<td>Fatty acid ammonium salt</td>
<td>N/A</td>
<td>2-609</td>
<td>N/A</td>
<td>67701-08-0</td>
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<tr>
<td></td>
<td></td>
<td>1-314</td>
<td></td>
<td>1336-21-6</td>
</tr>
<tr>
<td>Ethylene Glycol</td>
<td>#75</td>
<td>2-230</td>
<td>N/A</td>
<td>107-21-1</td>
</tr>
<tr>
<td>Water</td>
<td>N/A</td>
<td>---</td>
<td>N/A</td>
<td>7732-18-5</td>
</tr>
</tbody>
</table>

IV. First Aid:

* Inhalation: In case of falling sick due to inhalation of fume or mist, move to the other place to get a fresh air. If discomfort persists, obtain doctor’s diagnosis.

* Skin contact: After well washing by soap, rinse by water. Contaminated clothes shall be taken off immediately and be cleaned before re-use. If abnormal feeling persists, obtain doctor’s diagnosis.

* Eye contact: Don’t rub eye but rinse eyes with flushing fresh water for at least 15 minutes, through the backside of eyelid. In case of contact lens being used, remove it immediately and clean. If eye irritation persists, obtain doctor’s diagnosis.

* Ingestion: Don’t get the person to vomit forcibly but rinse mouth by water and then obtain doctor’s diagnosis.

* Expected acute symptoms or delayed symptoms: In case of accidental ingestion, mucosa of stomach becomes stimulated and certain symptoms such as vomiting, diarrheal, stomach ache, etc may be caused.

V. Measure on Fire:

* Extinguishant: Carbon dioxide, powder extinguishant, bubble extinguishant, dried sand

* Particular way for fire extinction: Remove goods away from fire area if it is not danger. Fire extinction from upwind position.

* Particular method for fire extinction: Use adequate protective equipment (glove, goggle, mask, etc)
VI. Measure on Leakage:

* Cautions on Body, Protective Equipment and Emergency Measures

Operator shall wear an adequate protective equipment (rubber gloves, goggle, apron, mask, etc)
For inner operation, take a position in upwind under well air ventilated circumstance.
Prepare extinguisher for fire protection.
Refrain from using fire around the work area.

* Cautions on Circumstance:
Take a necessary measure to prevent waste being disposed into a river, considering environmental affect.
For a small amount of waste, reclaim it in tightly sealable container after absorbing it to a waste cloth, sawdust, soil, or sand, etc.
For mass disposal, put it in a tightly sealable container and locate that container in a safety place where is banked all around to prevent the contents flowing out.

* Avoid Secondary Disaster
Remove all ignition source.
Refrain from using fire and smoking in a work area
Prevent waste being flown into a drain ditch, drain sewer, etc

VII. Caution on Handling/Storage:

* Handling:

  ** Technical Measure  
  Work area shall be well air ventilated.
  
  ** Safety Handling Note  
  Obtain an operation manual and understand every safety matters before starting operation.
  Refrain from using high temperature matter and fire around work area
  Refrain from inhaling mist or fume.
  Refrain from taking food or smoking while using this product
  Rinse hands after handling and avoid eye contact
  Use an adequate protective equipment

* Storage:

  ** Storing Condition  
  Isolate from ignition source such as heat, spark, open flame
  Refrain from storing under direct sunlight, in high temp.(≥40℃), in low temp(≤0℃), under water splash and in high humid

VIII. Anti-Exposure and Protection Measure:

* Concentration Control  
  Not specified

* Facility Measure  
  It is recommended to have a washable place(for hand, eye) near to work area

* Protective Equipment:

  ** For respiratory apparatus  
  Take a protective mask if it is needed
** For hand  
Take protective gloves if it is needed

** For eyes  
Take a protective goggle if it is needed

** For skin and body  
Take a protective suit if it is needed

* Sanitary Measure:  
Rinse hands after use

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### IX. Physical and Chemical Characteristics:

- **Physical status**: Liquid form with creamy white color
- **Odor**: Characteristic odor
- **pH**: $9 \sim 11 (20^\circ C)$
- **Freezing Point**: 0$^\circ$C
- **Flashing Point**: 80$^\circ$C
- **Specific Gravity (density)**: 1.1 (20$^\circ$C)
- **Solubility**: Disperse in water

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### X. Stability and Reactivity:

- **Stability**: Stable under normal condition
- **Dangerous hazardous reaction**: None
- **Situation to Avoid**: Heating, freezing
- **Dangerous hazardous product**: By heating, petroleum component (Kerosene) and small amount of ammonia gas are generated

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### XI. Hazardous Information:

- **Acute Toxicity (Oral)**: Out of Demarcation
- **Acute Toxicity (Percutaneous)**: Out of Demarcation
- **Acute Toxicity (Dust attraction: Dust, Mist)**: Out of Demarcation
- **Skin Causticity**: Demarcation-2
- **Serious Eye Damage, Eye Acridity**: Demarcation-2B
- **Respiratory Sensitivity**: Not Classifiable
- **Skin Sensitivity**: Not Classifiable
- **Genital Cell Mutagenicity**: Out of Demarcation
- **Oncogenicity**: Demarcation-2
- **Reproductive Toxicity**: Not Classifiable
* Particular Target Organ
  - Single exposure
  Out of Demarcation

* Particular Target Organ
  - Multiple exposure
  Demarcation-1

* Aspiration Respiratory Toxicity
  Out of Demarcation

XII. Environmental Effect Information:

* Water Environment Acute Toxicity
  Not Classifiable

* Water Environment Chronic Toxicity
  Not Classifiable

XIII. Caution on Disposal:

* Residual Wastage
  Follow relative regulations and standards of local government.
  Entrust industrial waste disposer who is authorized by prefectural governor or local public
  authority who has a disposal service.
  Such entrustment for disposal of wastage shall be done upon well explanation of hazardous nature
  and toxicity to the disposer.

* Contaminated container and packing
  Contaminated container must be cleaned for recycle or adequately disposed in accordance with the relative
  regulation and the standard of local government.
  For disposal of empty container, contents must be removed completely.

XIV. Caution on Transportation:

* International Regulation:
  UN Classification
  N/A
  Marine Pollutant
  Oil Discharge Regulation

* Domestic Regulation:
  On-land Regulation
  Follow Fire Defense Law
  Marine Regulation
  Follow Ship Safety Act
  Aviation Regulation
  Follow Aviation Law

* Special Safety Measure:
  Refrain from transporting under high temperature such as direct sun lighting, etc.
  Packing carefully to have no damage nor corrosion nor leakage nor loose packing.
  Refrain from piling up heavy cargo
XV. Applicable Law:

* Hazardous Goods under Fire Act: Not Applicable (however, designated flammable liquid under Fire Act shall be applied)

* Industrial Safety and Health Act: Article #57-2, Enforcement Order #18-2

XVI. Other Information:

* Referenced Documents:

1). JIS Z 7252 2009 [Classification method on chemical Substances per GHS]. Japanese Standard Association(JSA)
2). [Globally Harmonized System of Classification and labeling Of Chemicals (GHS)] Rev. 2, UN publication

Note: This document is issued by the information which is available at this moment, and does not cover all information. Therefore, careful handling of this product is required. Information about contained amount, physical chemical substance, hazardous toxicity, etc shall be treated as a reference but does not provide a guarantee in any aspects. Notices in this document are stated assuming normal handling. For any special or abnormal handling, follow to the relevant safety measure(s) in accordance to the actual application or purpose.