I. PRODUCT IDENTIFICATION

HMIS HAZARD RATINGS

<table>
<thead>
<tr>
<th>HEALTH HAZARD</th>
<th>FIRE HAZARD</th>
<th>REACTIVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE3</td>
<td>FE3</td>
<td>RE0</td>
</tr>
</tbody>
</table>

Based on the National Paint & Coatings Association HMIS rating system.

SARA/TITLE III HAZARD CATEGORIES (See Section X)

- Immediate (ACUTE) Health: YES
- Reactive Hazard: NO
- Delayed (Chronic) Health: YES
- Sudden Release of Pressure: NO
- Fire Hazard: YES

MANUFACTURER'S: IsleChem, LLC
NAME AND ADDRESS: 2801 Long Road, Grand Island, NY 14072
TELEPHONE: (716) 773-8100

CHEMICAL NAME: Dimethyl acid pyrophosphate (solution in isobutanol)
CAS NUMBER: 26644-00-8
SYNONYMS/COMMON NAMES: Pyrophosphoric acid, dimethyl ester

CHEMICAL FORMULA: C₈H₈O₇P₂
PRODUCT USE: Industrial chemical

DOT PROPER SHIPPING NAME: Corrosive Liquids Flammable NOS (dimethyl acid pyrophosphate, isobutanol)
DOT HAZARD CLASS: 8, (3)
DOT IDENTIFICATION NUMBER: UN 2920
DOT PACKING GROUP: II
DOT HAZARDOUS SUBSTANCE: Isobutanol, RQ 5000 lbs.
DOT MARINE POLLUTANT: Not applicable
ADDITIONAL DESCRIPTION REQUIREMENT: Not applicable
II. HEALTH HAZARD INFORMATION

EMERGENCY AND FIRST AID PROCEDURES

EYES:
OBJECT IS TO FLUSH MATERIAL OUT IMMEDIATELY THEN SEEK MEDICAL ATTENTION. IMMEDIATELY flush eyes with large amounts of water for at least 15 minutes forcibly holding lids apart to ensure complete irrigation of all eye and lid tissue. Washing eyes within one (1) minute is essential to achieve maximum effectiveness. SEEK MEDICAL ATTENTION IMMEDIATELY.

SKIN:
SEEK MEDICAL ATTENTION IMMEDIATELY. Flush thoroughly with cool water under shower while removing contaminated clothing and shoes. CONTINUE TO FLUSH UNTIL MEDICAL ATTENTION ARRIVES. Discard non-rubber shoes. Wash clothing before reuse.

INHALATION:
Remove to fresh air. If breathing is difficult, have trained person administer oxygen. If respiration stops, administer artificial resuscitation. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION:
DO NOT INDUCE VOMITING. This material is not soluble. DO NOT GIVE FLUIDS. If spontaneous vomiting is inevitable, PREVENT ASPIRATION by keeping the victims head below the knees. GET IMMEDIATE MEDICAL ATTENTION. A qualified physician can perform gastric lavage only when the airway (trachea) has been secured to prevent aspiration.

ROUTES OF EXPOSURE

INHALATION:
Inhalation of vapors, mist or liquid may cause irritation to the mucous membranes of the nose and throat and can produce serious chemical burns and also dizziness, loss of balance headache and drowsiness.

SKIN:
Exposure to vapor, mist or liquid may irritate skin and can produce serious burns, allergic skin rash and drying, and cracking of the skin.

EYE CONTACT:
May irritate eyes and can produce chemical burns.

INGESTION:
Can cause irritation and burning of the mouth, throat and gastrointestinal tract. May cause headache, dizziness, and drowsiness.

EFFECTS OF OVEREXPOSURE

ACUTE:
Irritating and corrosive to the eyes, skin, respiratory and digestive tracts.

CHRONIC:
Prolonged skin contact with isobutanol may cause drying and cracking of skin.
TOXICOLOGY DATA:
Not an IARC, NTP or OSHA carcinogen

isobutanol: Oral rat LD50: 2460 mg/kg

SYNERGISTIC MATERIALS: Not Applicable.

III. IMPORTANT COMPONENTS

<table>
<thead>
<tr>
<th>CAS NUMBER / NAME</th>
<th>EXPOSURE LIMITS</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>26644-00-8</td>
<td>PEL: Not established</td>
<td>VOL</td>
</tr>
<tr>
<td></td>
<td>TLV: Not established</td>
<td>WT</td>
</tr>
</tbody>
</table>

**COMMON NAMES:**
Dimethyl acid pyrophosphate

Listed On (List Legend Below):
00 22

<table>
<thead>
<tr>
<th>CAS NUMBER / NAME</th>
<th>EXPOSURE LIMITS</th>
<th>PERCENTAGE</th>
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</thead>
<tbody>
<tr>
<td>78--83-1</td>
<td>PEL: 100 ppm IDLH: 1600 ppm</td>
<td>VOL</td>
</tr>
<tr>
<td></td>
<td>TLV: 50</td>
<td>WT</td>
</tr>
</tbody>
</table>

**COMMON NAMES:**
Isobutyl alcohol, 2- methyl propanol

Listed On (List Legend Below):
00 01 03 23 51 56 57 58 60 62 64

<table>
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<th>CAS NUMBER / NAME</th>
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<tr>
<td>56399-35-0</td>
<td>PEL: Not established</td>
<td>VOL</td>
</tr>
<tr>
<td></td>
<td>TLV: Not established</td>
<td>WT</td>
</tr>
</tbody>
</table>

**COMMON NAMES:**
Monomethyl acid phopshate

Listed On (List Legend Below):
00 22
PRODUCT NAME: DIMETHYL ACID PYROPHOSPHATE IN ISOBUTANOL

CAS NUMBER / NAME
812-00-0  Phosphoric acid, monomethyl ester

EXPOSURE LIMITS
PEL: Not established
TLV: Not established

COMMON NAMES:
Monomethyl phosphate

Listed On (List Legend Below):
00 19 22 23 51

813-78-5  Phosphoric acid, dimethyl ester

EXPOSURE LIMITS
PEL: Not Established
TLV: Not Established

COMMON NAMES:
Dimethyl phosphate

Listed On (List Legend Below):
00 19 23 36 51

7664-38-2  Phosphoric acid

EXPOSURE LIMITS
PEL: 1 mg/m3, TWA
STEL: 3 mg/m3
TLV: 1 mg/m3, TWA
STEL: 3 mg/m3

COMMON NAMES:
Orthophosphoric acid

Listed On (List Legend Below):
00 03 12 13 21 22 24 50 51 56 57 58 60 62 64 70 71 72 75 76 77

All components of this product that are required to be on the TSCA Inventory are listed on the inventory.

Not listed as carcinogen - IARC, NTP, OSHA

LIST LEGEND
00  TSCA INVENTORY
01  TSCA 12B 1 TIME EXPORT NOTIFICATION
02  SARA TITLE III Section 313 TOXIC CHEM.
03  HAS A CERCLA REPORTABLE QTY
12  PA HAZARDOUS SUBSTANCE
13  PA ENVIRONMENTAL HAZ SUBSTANCE
19  PA REQUIREMENT 23%
21  NJ SPECIAL HEALTH HAZ SUB
22  CANADIAN DOMESTIC SUB LIST
23  NJ REQUIREMENT >1%
24  NJ DISCHARGE OF HAZ SUBSTANCES
36  CANADIAN NDSL
50  PHILIPPINES INVENTORY (PICCS)
51  EINECS
01  TSCA 12B 1 TIME EXPORT NOTIFICATION
56  OSHA PERMISSIBLE EXPOSURE LIMIT
57  ACGIH THRESHOLD LIMIT VALUES
58  MASSACHUSETTS RIGHT TO KNOW
60  CLEAN WATER ACT, SEC 111 VOC
62  WHMIS
64  NIOSH RECOMMENDED EXPOS LIMITS
70  EUR AGRMT - CARRIAG DANG GOODS
71  REGS - CARRIAGE OF GOODS/RAIL
72  ANNEX I
75  AUSTRALIAN INVENTORY (AICS)
76  JAPANESE CHEMICAL INVENTORY
77  KOREAN EXIST. CHEMICALS (ECL)
IV.  FIRE AND EXPLOSION DATA

FLASH POINT: (Tag Closed Cup) 92 F    AUTOIGNITION TEMPERATURE: Not Applicable
FLAMMABLE LIMITS IN AIR, % BY VOLUME -
    UPPER: 10.6%
    LOWER: 1.7%

EXTINGUISHING MEDIA:
Use dry chemical, foam, carbon dioxide or water spray.

SPECIAL FIRE FIGHTING PROCEDURES:
In fire conditions wear NIOSH/MSHA approved positive pressure self-contained breathing apparatus and full protective clothing. Remove sources of ignition.

UNUSUAL FIRE AND EXPLOSION HAZARD:
Under fire conditions, will liberate toxic and corrosive oxides of phosphorus. Gives off ignitable vapors which are heavier than air that may collect and concentrate in low lying areas such as sewers and ditches.

SENSITIVITY TO MECHANICAL IMPACT: Not Available.

SENSITIVITY TO STATIC DISCHARGE: Could provide source of ignition for flammable vapors.

V.  SPECIAL PROTECTION

VENTILATION REQUIREMENTS:
Provide good general room ventilation plus local exhaust at points of emission to keep exposure below allowable limits and the LEL.

SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY:
NIOSH/MSHA approved respirator, following manufacturer's recommendations, should be used as a precautionary measure where airborne contaminants may exceed allowable limits.

EYE:
Wear chemical safety goggles plus full face shield to protect against splashing when appropriate.

GLOVES:
Wear chemical resistant gloves such as neoprene or nitrile.

OTHER CLOTHING AND EQUIPMENT:
Eyewash facility and emergency shower should be in close proximity. Impervious clothing and rubber boots should be worn for splash protection.
VI. PHYSICAL DATA

BOILING POINT @ 760 mm Hg: NA
POUR POINT: NA
VAPOR PRESSURE: No Data
SPECIFIC GRAVITY (H₂O=1): 1.05
SOLUBILITY IN H₂O % BY WT: Moderate in water
VAPOR DENSITY (Air=1): Heavier than air

APPEARANCE AND ODOR: Colorless to faint yellow liquid

ODOR THRESHOLD (ppm): NA
pH: <2
DENSITY: 8.76 lb/gal
EVAPORATION RATE: NA
COEFFICIENT WATER/OIL DISTRIBUTION: NA

VII. REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY:
Avoid exposure to heat or to most metals or plastics, especially at elevated temperatures. Thermal degradation occurs above 255°F.

INCOMPATIBILITY:

HAZARDOUS DECOMPOSITION PRODUCTS:
Thermal degradation occurs above 255°F, producing oxides of phosphorus.

CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION:
Material is not known to polymerize.
HANDLING AND STORAGE PRECAUTIONS:
For industrial use only. Store away from heat and separate from alkalies, aluminum, zinc and other metals. Use with adequate ventilation. Keep away from sources of ignition. Ground all equipment. Protect from atmospheric moisture.

Storage areas for drummed material should have adequate drainage. Storage tanks should be vented and diked. Wash thoroughly after handling. Do not pressurize, heat, cut, weld or drill near on or empty containers. Dispose of empty containers properly. Keep container closed when not in use.

IX. ENVIRONMENTAL PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:
Remove all ignition sources and non-essential personnel. A trained spill team wearing appropriate ppe should stop the release and contain the spill with absorbent material while attempting to stay upwind. Notify appropriate government agencies.

WASTE DISPOSAL METHOD:
Product should be completely removed from container. Material that cannot be used or chemically reprocessed should be disposed of in accordance with all local, state and federal regulations. Incinerate in properly permitted equipment designed to handle oxides of phosphorus as combustion products or send to a waste disposal firm. Empty containers should be disposed of in a manner meeting government regulations.

X. ADDITIONAL INFORMATION

OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, material safety data sheets, training and access to written records. We request that you, and it is your legal duty to, make all information in this Material Safety Data Sheet available to your employees.

To aid our customers in complying with regulatory requirements, SARA Title III hazard categories for this product are indicated in Section I. If the word “YES” appears next to any category, this product may be reportable by you under the requirements of 40 CFR Part 370. Please consult those regulations for details.

This product contains a toxic chemical or chemicals subject to the reporting requirements of SECTION 313 of TITLE III of the SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 and 40 CFR PART 372. (See Section III, List Legend 02).
XI. PREPARATION INFORMATION

For additional Non-Emergency health, safety or environmental information telephone (716) 773-8438, or write to:

IsleChem, LLC
2801 Long Road
Grand Island, NY 14072

For Emergencies: 24 HOUR EMERGENCY PHONE: 1-800-424-9300

To request an MSDS: 716-773-8438

WARNING LABEL INFORMATION

SIGNAL WORD: DANGER

STATEMENT OF HAZARDS:
CORROSIVE, FLAMMABLE LIQUID
CAUSES IRRITATION OR BURNS TO THE SKIN, EYES, RESPIRATORY AND DIGESTIVE TRACTS.

PRECAUTIONARY STATEMENTS:
Keep container closed. Keep away from sources of ignition. Insure adequate ventilation or use an approved respirator. Avoid breathing vapor. Do not get in eyes, on skin, on clothing or ingest. Wash thoroughly after handling. Use goggles, impervious clothing and rubber shoes. Reacts with aluminum, zinc, and other metals liberating flammable hydrogen gas. Ground all equipment. Do not cut or weld on empty container. Dispose of empty container properly.

EYES:
OBJECT IS TO FLUSH MATERIAL OUT IMMEDIATELY THEN SEEK MEDICAL ATTENTION. IMMEDIATELY flush eyes with large amounts of water for at least 15 minutes forcibly holding lids apart to ensure complete irrigation of all eye and lid tissue. Washing eyes within one (1) minute is essential to achieve maximum effectiveness. SEEK MEDICAL ATTENTION IMMEDIATELY.

SKIN:
SEEK MEDICAL ATTENTION IMMEDIATELY. Flush thoroughly with cool water under shower while removing contaminated clothing and shoes. CONTINUE TO FLUSH UNTIL MEDICAL ATTENTION ARRIVES. Discard non-rubber shoes. Wash clothing before reuse.

INHALATION:
Remove to fresh air. If breathing is difficult, have trained person administer oxygen. If respiration stops, administer artificial resuscitation. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION:
DO NOT INDUCE VOMITING. This material is not soluble. DO NOT GIVE FLUIDS. If spontaneous vomiting is inevitable, PREVENT ASPIRATION by keeping the victims head below the knees. GET IMMEDIATE MEDICAL ATTENTION. A qualified physician can perform gastric lavage only when the airway (trachea) has been secured to prevent aspiration.
IN CASE OF:

SPILL OR LEAK:
Remove all ignition sources and non-essential personnel. A trained spill team wearing appropriate ppe should stop the release and contain the spill with absorbent material while attempting to stay upwind. Notify appropriate government agencies.

FIRE:
Use dry chemical, foam, carbon dioxide or water spray. Use air supplied respirator and full protection equipment. Fire will liberate toxic gases.

HANDLING AND STORAGE:
Store in a cool, dry place separate from alkalies, aluminum, zinc and other metals.

DISPOSAL:
Product should be completely removed from container. Material that cannot be used or chemically reprocessed should be disposed of in accordance with all local, state and federal regulations. Incinerate in properly permitted equipment designed to handle oxides of phosphorus as combustion products or send to a waste disposal firm. Do not weld, cut or drill on empty containers. Empty containers should be disposed of in a manner meeting government regulations.

INFORMATION REQUIRED BY FEDERAL, STATE OR LOCAL REGULATIONS:

This product contains:

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HMIS RATING SYSTEM:  HEALTH 3  FLAMMABILITY 3  REACTIVITY 0

FOR INDUSTRIAL USE ONLY

For additional information, see Material Safety Data Sheet (MSDS) for this product.