1. CHEMICAL PRODUCT AND COMPANY INFORMATION

PRODUCT: NATIONAL POLYOLESTER LUBRICANT PE68
PRODUCT CODE: PE68
CHEMICAL NAME/FAMILY: SYNTHETIC ESTER LUBRICATING FLUID
OTHER NAMES: Refrigerant Oil
MANUFACTURER: NATIONAL REFRIGERANTS, INC.
ADDRESS: 11401 Roosevelt Boulevard Phila., Pa. 19154
INFORMATION: 800-262-0012
DATE: 3/2015
PREPARER: Matt Callahan

2. HAZARD IDENTIFICATION


OTHER HAZARDS: SKIN AND EYE CONTACT: Prolonged contact may cause minor skin irritation.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>CAS NO.</th>
<th>APPROX%</th>
<th>TLV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pentaerythritol ester of heptanoic and isopentanoic acids</td>
<td>68441-94-1</td>
<td>Proprietary</td>
<td>5mg³ (as a mist)</td>
</tr>
<tr>
<td>Mixed pentaerythritol esters of isononionic and heptanoic acids</td>
<td>118685-29-3</td>
<td>Proprietary</td>
<td>5mg³</td>
</tr>
<tr>
<td>Antiwear/antioxidant additive</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

SKIN CONTACT: In case of skin contact, remove contaminated clothing and wash skin thoroughly with soap and water.

EYE CONTACT: If splashed into eyes, flush with clear water for 15-minutes or until irritation subsides. If irritation persists, call a physician.

INHALATION: Vapor inhalation under ambient conditions is normally not a problem. If overcome by vapor from hot product, immediately remove from exposure and call a physician. If breathing is irregular or has stopped, start
resuscitation; administer oxygen if available. If overexposure is due to oil mist, remove from further exposure until excessive oil mist condition subsides.

**INGESTION:** If ingested, do not induce vomiting. Call a physician immediately.

### 5. FIRE FIGHTING MEASURES

**FIRE AND EXPLOSION HAZARDS:** N/A

**EXTINGUISHING MEDIA:** Foam, CO₂, Dry Chemical

**SPECIAL FIREFIGHTING INSTRUCTIONS:** Use water spray to cool surface of container. Use Self Contained Breathing Apparatus (SCBA), avoid breathing fumes, vapors, or mists. Water may cause frothing.

### 6. ACCIDENTAL RELEASE MEASURES

**PROCEDURES IN CASE OF ACCIDENTAL RELEASE, BREAKAGE OR LEAKAGE:** Ventilate area. Avoid breathing vapor. Wear appropriate personal protective equipment, including appropriate respiratory protection. Contain spill if possible. Wipe up or absorb on suitable material and shovel up. Prevent entry into sewers and waterways. Avoid contact with skin, eyes or clothing.

### 7. HANDLING AND STORAGE

**HANDLING:** Minimum feasible handling temperatures should be maintained. Avoid exposure to heat and flames. Protect against eye and skin contact.

**STORAGE:** Periods of exposure to high temperatures should be minimized. Water contamination should be avoided. Keep container tightly sealed when not in use. Store containers in an upright and secure position to prevent spills and protect against damage.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**GENERAL CONTROL MEASURES**

Normal ventilation for standard manufacturing procedures is generally adequate. Local exhaust should be used when large amounts are released. Mechanical ventilation should be used in low places. Keep containers closed when not in use. Do not handle near heat, sparks, flame, or strong oxidants.

**PERSONAL PROTECTIVE EQUIPMENT**

Butyl gloves should be worn to avoid prolonged or repeated exposure. Chemical splash goggles should be worn as needed to prevent eye contact. Under normal use, no respiratory protection is required when using this chemical.
PERSONAL HYGIENE
Minimize breathing vapor, mist, or fumes. Avoid prolonged contact with skin.
Remove contaminated clothing, and launder or dry-clean before reuse. Cleanse skin thoroughly after contact, especially before eating, with waterless hand cleaner followed by soap and water.

EXPOSURE GUIDELINES: ACGIH TLV = 5mg/m3 (as a mist)

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPEARANCE</td>
<td>Amber liquid</td>
</tr>
<tr>
<td>ODOR</td>
<td>Slight chemical odor</td>
</tr>
<tr>
<td>ODOR THRESHOLD</td>
<td>Not determined</td>
</tr>
<tr>
<td>PH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>MELTING POINT/FREEZING POINT</td>
<td>N/A</td>
</tr>
<tr>
<td>BOILING POINT</td>
<td>N/A</td>
</tr>
<tr>
<td>FLASH POINT: COC TEST METHOD</td>
<td>&gt;270°C (518°F)</td>
</tr>
<tr>
<td>EVAPORATION RATE</td>
<td>Not applicable</td>
</tr>
<tr>
<td>FLAMMABILITY</td>
<td>Not applicable</td>
</tr>
<tr>
<td>LEL/UEL</td>
<td>Not evaluated</td>
</tr>
<tr>
<td>VAPOR PRESSURE</td>
<td>N/A</td>
</tr>
<tr>
<td>VAPOR DENSITY</td>
<td>N/A at 77 deg. F (Air = 1)</td>
</tr>
<tr>
<td>RELATIVE DENSITY</td>
<td>0.98 g/cc@20°C (68°F)</td>
</tr>
<tr>
<td>SOLUBILITY</td>
<td>Negligible</td>
</tr>
<tr>
<td>PARTITION COEFFICIENT</td>
<td>n-Octanol/water: Not applicable</td>
</tr>
<tr>
<td>AUTO IGNITION TEMPERATURE</td>
<td>Not determined</td>
</tr>
<tr>
<td>DECOMPOSITION TEMPERATURE</td>
<td>Not determined</td>
</tr>
<tr>
<td>VISCOSITY</td>
<td>72.3 cSt @ 40°C</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

STABILITY: Material is stable. Avoid open flames and high temperatures.

DECOMPOSITION: This material may decompose if exposed to high temperatures (open flames) producing CO and CO₂.

INCOMPATABILITY: N/A

POLYMERIZATION: Will not occur.
11. TOXICOLOGICAL INFORMATION

PRINCIPLE HEALTH HAZARDS

SKIN CONTACT: In case of skin contact, remove contaminated clothing and wash skin thoroughly with soap and water.

EYE CONTACT: If splashed into eyes, flush with clear water for 15-minutes or until irritation subsides. If irritation persists, call a physician.

INHALATION: Vapor inhalation under ambient conditions is normally not a problem. If overcome by vapor from hot product, immediately remove from exposure and call a physician. If breathing is irregular or has stopped, start resuscitation; administer oxygen if available. If overexposure is due to oil mist, remove from further exposure until excessive oil mist condition subsides.

INGESTION: If ingested, do not induce vomiting. Call a physician immediately.

EXPOSURE LIMIT FOR TOTAL PRODUCT

5mg/m³ for oil mist in air

CARCINOGENICITY

Not listed as a carcinogen by IARC, NTP, OSHA or ACGIH.

SAFETY PRECAUTIONS

Avoid breathing vapors and prolonged skin exposure. Use with sufficient ventilation to keep exposure below recommended limits.

SIGNS AND SYMPTOMS OF EXPOSURE

None known

12. ECOLOGICAL INFORMATION

- ENVIRONMENTAL TOXICITY -

Freshwater Fish Toxicity         The acute LC50 is > 1000mg/L based on similar materials
Freshwater Invertebrates Toxicity The acute EC50 is > 1000mg/L based on similar materials
Algal Inhibition                  The acute EC50 is > 1000mg/L based on similar materials
Saltwater Fish Toxicity           Not determined
Saltwater Invertebrates Toxicity  Not determined
Bacteria Toxicity                  The acute EC50 is > 1000ppm based on similar materials
Miscellaneous Toxicity            Not determined

-ENVIRONMENTAL FATE –

Biodegradation                   This product will biodegrade moderately based on OECD 301-type test data for similar products
Bioaccumulation                   Less than 1.0% of the components potentially bioconcentrate, based on octanol/water coefficients
13. DISPOSAL CONSIDERATIONS

SPILL, LEAK OR RELEASE
Ventilate area. Do not flush into sewers. Dike spill. Collect on absorbent material and transfer to steel drums for recovery or disposal. Comply with Federal, State and local regulations on reporting releases.

WASTE DISPOSAL
Comply with Federal, State and local regulations

14. TRANSPORTATION INFORMATION

*** This product is not regulated by DOT, IMO, ICAO

DOMESTIC--OTHER THAN AIR (DOT)
PROPER SHIPPING NAME:
UN NUMBER: Not applicable
HAZARD CLASS: Not applicable
DOT LABELS: Not applicable
DOT PLACARD: Not applicable

INTERNATIONAL WATER OR AIR (IMO/ICAO)
PROPER SHIPPING NAME:
UN NUMBER: Not applicable
HAZARD CLASS: Not applicable
IMO/ICAO LABEL: Not applicable

15. REGULATORY INFORMATION

SARA TITLE III INFORMATION (40CFR300)

EXTREMELY HAZARDOUS SUBSTANCES (40CFR355)

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>TPQ (LBS)</th>
<th>RQ (LBS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None listed</td>
<td>N/A</td>
<td>N/A</td>
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</table>

CERCLA HAZARDOUS SUBSTANCES (40CFR302.4)

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>WT%</th>
<th>RQ (LBS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None listed</td>
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<td>N/A</td>
</tr>
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PRODUCT HAZARD CATAGORIES (SARA TITLE III/SECTIONS 311 & 312)

<table>
<thead>
<tr>
<th>IMMEDIATE</th>
<th>NO</th>
<th>DELAYED</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRE</td>
<td>NO</td>
<td>PRESSURE</td>
<td>NO</td>
</tr>
<tr>
<td>REACTIVE</td>
<td>NO</td>
<td>CHRONIC</td>
<td>NO</td>
</tr>
</tbody>
</table>
16. OTHER INFORMATION

HMIS CODES: H  F  R  P
1  1  0  -

DISCLAIMER:

INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE BELIEVED TO BE ACCURATE AT THE TIME OF PREPARATION. NO WARRANTY IS MADE CONCERNING THE ACCURACY AND NO LIABILITY SHALL BE MADE FOR CLAIMS FOR USE OR RELIANCE OF THE RECOMMENDATIONS CONTAINED HEREIN.