1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: RADCOLUBE® FOG OIL
This product meets Military Specification MIL-PRF-12070E(1).

ISO 9001:2015 Certification Number: C2018-00035

Recommended Use
For applications requiring one grade and type of fog oil with Military Symbol SGF-2 and NATO Code F-62. A refined mineral oil specifically prepared for use in smoke generators, characterized by its ability to be dispersed into the air as extremely small particles in the form of a smoke.

National Stock Numbers (NSN):
9150-00-261-7895  55-Gallon Drums

Company Identification
Headquarters and Manufacturing Facility (CAGE Code: 6ZS16)
Radco Industries, Inc.
700 Kingsland Drive
Batavia, IL 60510

Customer information number: 1-630-232-7966

2. HAZARDS IDENTIFICATION

Classification of mixture
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Aspiration Hazard, Category 1

Hazard Pictograms:

Signal Word  Danger

Hazard Statements
H304: May be fatal if swallowed and enters airways.

Precautionary Statements:
P201 + P202: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
P260: Do not breathe dust/fume/gas/mist/vapors/spray.
P270: Do not eat, drink or smoke when using this product.
P362: Take off contaminated clothing and wash before reuse.
3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>%Content</th>
<th>CAS Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distillates (petroleum), hydrotreated heavy naphthenic</td>
<td>100</td>
<td>64742-52-5</td>
</tr>
</tbody>
</table>

4. FIRST-AID MEASURES

**Eyes**
Immediately flush eyes with plenty of water for at least 15 minutes. If safe to do so, remove any contact lenses. Get medical attention if irritation occurs.

**Ingestion**
Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

**Inhalation**
Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

**Skin**
Wash exposed skin with soap and water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

5. FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media**
For small fires use carbon dioxide, dry chemical or foam. For large fires use alcohol-type foam, universal type foam or water fog.
6. **ACCIDENTAL RELEASE MEASURES**

Wear protective clothing when taking up spill. Eliminate sources of ignition. This product is insoluble in water and will float on the surface. Prevent from entering sewers or drains. Should this product enter sewers or drains, it should be pumped out into an open vessel.

7. **HANDLING AND STORAGE**

**Handling**
Do not breathe vapors/dust. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations.

**Storage**
Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. **EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Exposure Limits**

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distillates (petroleum), hydrotreated heavy naphthenic, vapor and mist</td>
<td>5 mg/m³</td>
<td>5 mg/m³</td>
</tr>
</tbody>
</table>

**Respiratory Protection**
Use with adequate ventilation. Avoid breathing vapor. If heated and ventilation is inadequate, use NIOSH certified respirator, which will protect against organic vapor.

**Hand Protection**
Wear clothing and gloves that cannot be penetrated by chemicals or oil.

**Eye Protection**
Safety glasses, chemical goggles, or face shields recommended to prevent contact.

**Other Protection**
Do not eat, drink, or smoke when handling this product.

9. **PHYSICAL AND CHEMICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Liquid</th>
</tr>
</thead>
</table>

This Safety Data Sheet (SDS) meets the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).
Odor: Colorless to light yellow
Odor threshold: Petroleum
Auto-ignition temperature: Not available.
Decomposition temperature: Not available.
Evaporation Rate (ASTM D972): < 0.0372 (butyl acetate = 1)
Flash point Cleveland Open Cup (ASTM D92): > 160°C (320°F)
Flash point Pensky-Martens (ASTM D93): Not available.
Flammability (solid, gas): Not available.
Lower flammability limit: Not available.
Upper flammability limit: Not available.
Initial boiling point and boiling range: 207 to 750°C (404.6 to 1382°F)
Melting point/freezing point: Not available.
Partition coefficient (n-octanol/water), Log P<sub>ow</sub>: > 6
pH: Not applicable
Solubility: Insoluble in water.
Relative density (ASTM D1298) 15.6°C/15.6°C: 0.9
Vapor density: Not available.
Vapor pressure: 0.0021 kPa (0.016 mm Hg) at room temperature
Viscosity (ASTM D445): 20 mm<sup>2</sup>/s (cSt) at 40°C (104°F)

10. STABILITY AND REACTIVITY INFORMATION

Materials to avoid
Exposure to materials which are highly oxidizing should be avoided.

Hazardous polymerization
Does not occur.

Hazardous decomposition products
Incomplete combustion may give various cracked and oxidized hydrocarbons.

Stability
Stable

11. TOXICOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Acute toxicity</th>
<th>Method</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distillates (petroleum), hydrotreated heavy naphthenic</td>
<td>Dermal</td>
<td>Rabbit</td>
<td>LD&lt;sub&gt;50&lt;/sub&gt; &gt; 5000 mg/kg bodyweight</td>
</tr>
<tr>
<td></td>
<td>Inhalation</td>
<td>Rat</td>
<td>LC&lt;sub&gt;50&lt;/sub&gt; &gt; 5.53 mg/L air</td>
</tr>
<tr>
<td></td>
<td>Oral</td>
<td>Rat</td>
<td>LD&lt;sub&gt;50&lt;/sub&gt; &gt; 5000 mg/kg bodyweight</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aspiration hazard</th>
<th>Test Method</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distillates (petroleum), hydrotreated heavy naphthenic</td>
<td>OECD 403</td>
<td>Rat</td>
<td>Aspiration hazard</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Carcinogenicity</th>
<th>Test Method</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distillates (petroleum), hydrotreated heavy naphthenic</td>
<td>Ames test</td>
<td>--</td>
<td>Non-carcinogenic</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Eye damage / irritation</th>
<th>Test Method</th>
<th>Species</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distillates (petroleum), hydrotreated heavy naphthenic</td>
<td>OECD 405</td>
<td>Rabbit</td>
<td>Not irritating</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Germ cell mutagenicity</th>
<th>Test Method</th>
<th>Species</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distillates (petroleum), hydrotreated heavy naphthenic</td>
<td>OECD 471</td>
<td>S. typhimurium</td>
<td>Not mutagenic</td>
</tr>
</tbody>
</table>
Reproductive toxicity

<table>
<thead>
<tr>
<th>Distillates (petroleum), hydrotreated heavy naphthenic</th>
<th>Test Method</th>
<th>Species</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OECD 414</td>
<td>Rat</td>
<td>NOAEL = 30 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>OECD 421</td>
<td>Rat</td>
<td>NOAEL ≥ 1000 mg/kg bw/day</td>
</tr>
</tbody>
</table>

Respiratory sensitization
No data available

Skin sensitization

<table>
<thead>
<tr>
<th>Distillates (petroleum), hydrotreated heavy naphthenic</th>
<th>Test Method</th>
<th>Species</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OECD 406</td>
<td>Guinea pig</td>
<td>Not sensitizing</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation

<table>
<thead>
<tr>
<th>Distillates (petroleum), hydrotreated heavy naphthenic</th>
<th>Test Method</th>
<th>Species</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Read across</td>
<td>Rabbit</td>
<td>Not irritating</td>
</tr>
</tbody>
</table>

Specific target organ toxicity – repeated exposure (STOT-RE)

<table>
<thead>
<tr>
<th>Distillates (petroleum), hydrotreated heavy naphthenic</th>
<th>Test Method</th>
<th>Species</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OECD 408</td>
<td>Rat</td>
<td>Oral NOAEL = 125 mg/kg/day</td>
</tr>
<tr>
<td></td>
<td>OECD 411</td>
<td>Rat</td>
<td>Dermal NOAEL &lt; 30 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Read across</td>
<td>Rat</td>
<td>Inhalation NOAEL = 220 mg/m³ air</td>
</tr>
</tbody>
</table>

Specific target organ toxicity – single exposure (STOT-SE)
No data available

12. ECOLOGICAL CONSIDERATIONS

Aquatic Toxicity

<table>
<thead>
<tr>
<th>Distillates (petroleum), hydrotreated heavy naphthenic</th>
<th>Test Method</th>
<th>Species</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OECD 201</td>
<td>P. subcapitata</td>
<td>NOEL ≥ 100 mg/L</td>
</tr>
<tr>
<td></td>
<td>OECD 202</td>
<td>D. magna</td>
<td>NOEL ≥ 10,000 mg/L</td>
</tr>
<tr>
<td></td>
<td>OECD 203</td>
<td>P. promelas</td>
<td>NOEL ≥ 100 mg/L after 96 hours</td>
</tr>
<tr>
<td></td>
<td>OECD 211</td>
<td>D. magna</td>
<td>NOEL = 10 mg/L after 21 days</td>
</tr>
<tr>
<td></td>
<td>QSAR</td>
<td>O. mykiss</td>
<td>NOELR ≥ 1000 mg/L after 14 days</td>
</tr>
</tbody>
</table>

Biodegradation

<table>
<thead>
<tr>
<th>Distillates (petroleum), hydrotreated heavy naphthenic</th>
<th>Test Method</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OECD 301F</td>
<td>Inherently biodegradable: 31% biodegradation after 28 days</td>
</tr>
</tbody>
</table>

Bioconcentration Factor (BCF)
No data available

Partition Coefficient n-octanol / water (Log K_{ow})
No data available

13. DISPOSAL INFORMATION

Disposal must be in accordance with applicable federal, state, or local regulations.

Do not allow product to reach ground water, water course, or sewage systems.

This unused material, when discarded or disposed of, is not specifically listed as a hazardous waste in Federal regulations; however, it could be considered hazardous if it meets criteria for being toxic, corrosive, ignitable, or reactive according to U.S. EPA definitions (40 CFR Subpart C). This material could also become hazardous waste if it is mixed with or comes into contact with a listed hazardous waste. If it is a hazardous waste, regulations in 40 CFR 262-266, 268, 270, and 279 may apply.

“Empty” containers retain residue (liquid and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition; they may explode and cause injury or death. Do not attempt to clean since residue is difficult to remove and even a trace of remaining material constitutes as explosive.
hazard. “Empty” drums should be completely drained, properly bunged, and promptly returned to a drum recycler. All other containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

14. TRANSPORT INFORMATION

U.S. Dept. of Transportation Shipping Name  
Not regulated.

Canadian Transportation of Dangerous Goods Shipping Name  
Not regulated.

European Rail/Road (ADR/RID) Shipping Name  
Not regulated.

Air (ICAO/IATA) Shipping Name  
Not regulated.

Sea (IMO/IMDG)  
Not regulated.

15. REGULATORY INFORMATION

California (Proposition 65)  
This product does not contain any of the substances known to the State of California to cause cancer, birth defects, or reproductive harm.

CERCLA Reportable Quantity  
This product is not reportable under 40 CFR Part 302.4.

Environmental Protection Agency  
None of the ingredients are listed.

National Toxicology Program (NTP)  
None of the ingredients are listed.

OSHA Hazard Communication Standard  

SARA Title III Section 302 Extremely Hazardous Substances (40 CFR Part 355)  
This product is not regulated under Section 302 of SARA and 40 CFR Part 355.

SARA Title III Sections 311/312 Hazardous Categorization (40 CFR Part 370)  
Hazardous categories for this product are:  
Acute = No  Chronic = No  Fire = No  Pressure = No  Reactive = No

SARA Title III Section 313 (40 CFR Part 372)  
This product is not regulated under Section 313 of SARA and 40 CFR Part 372.

U.S. Inventory (TSCA)  
Listed on inventory.

Australia Inventory (AICS)
Listed on inventory.

Canada Inventory (DSL)
All of the ingredients are listed.

China (CICS)
None of the ingredients are listed.

EC Inventory (EINECS/ELINCS)
In Compliance

International Agency for Research on Cancer (IARC)
None of the ingredients are listed.

Japan Inventory (MITI)
Listed on inventory.

Korea Inventory (ECL)
Listed on inventory.

16. OTHER INFORMATION

Safety Data Sheet Creation Date: 23 February 2018
Safety Data Sheet Revision Date: 8 October 2018

THIS INFORMATION RELATES TO THE SPECIFIC MATERIAL DESIGNATED AND MAY NOT BE VALID FOR SUCH MATERIAL USED IN COMBINATION WITH ANY OTHER MATERIALS OR IN ANY PARTICULAR PROCESS OR FOR ANY PARTICULAR PURPOSE. SUCH INFORMATION STATED IS TO THE BEST OF RADCO'S KNOWLEDGE AND BELIEF, ACCURATE AND RELIABLE AS OF THE DATE COMPILED. HOWEVER, NO REPRESENTATION, WARRANTY OR GUARANTEE IS MADE TO ITS ACCURACY, RELIABILITY, OR COMPLETENESS, PURCHASERS, USERS AND DISTRIBUTORS ARE NOT RELYING ON ANY PROMISE, REPRESENTATION, OR RECOMMENDATION MADE BY RADCO, AND RADCO DOES NOT ACCEPT LIABILITY FOR ANY LOSS OR DAMAGE THAT MAY OCCUR FROM THE USE OF THIS INFORMATION. FINAL DETERMINATION OF SUITABILITY OF ANY MATERIAL IS THE SOLE RESPONSIBILITY OF THE USER. ALL MATERIAL SHOULD BE USED WITH CAUTION TO GUARD AGAINST UNKNOWN HAZARDS. ALTHOUGH CERTAIN HAZARDS ARE DESCRIBED HEREIN, RADCO DOES NOT GUARANTEE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

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