



RADCOLUBE® FR257 HYDRAULIC FLUID

SAFETY DATA SHEET

**MIL-PRF-87257C HYDRAULIC FLUID, FIRE RESISTANT, LOW TEMPERATURE, SYNTHETIC HYDROCARBON BASE, AIRCRAFT AND MISSILE,
NATO CODE NUMBER H-538**

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: RADCOLUBE® FR257 HYDRAULIC FLUID, FIRE RESISTANT

This product meets Military Specification MIL-PRF-87257C, NATO Code Number H-538.

Qualification# AFPET/PTPT 14-006 Date of Approval: 2 May 2014

ISO 9001:2015 Certification Number: C2018-00035

Recommended Use

Synthetic hydrocarbon base hydraulic fluid for use in the -54°C to +200°C (-65°F to 392°F) temperature range in aircraft and missile hydraulic systems.

This hydraulic fluid is identified by NATO Code No. H-538.

National Stock Numbers (NSN):

| | |
|------------------|----------------|
| 9150-01-388-7769 | Quart |
| 9150-01-386-6687 | Gallon |
| 9150-01-391-2087 | 5 Gallon Pail |
| 9150-01-387-4577 | 55 Gallon Drum |

Company Identification

Headquarters
Radco Industries, Inc.
700 Kingsland Drive
Batavia, IL 60510
CAGE Code 6ZS16

Manufacturing Facility
Radco Industries, Inc.
39W930 Midan Drive
LaFox, IL 60147
CAGE Code 1RVC4

Customer information number: 1-630-232-7966

EMERGENCY TELEPHONE NUMBER

Advisory Office in case of poisoning: Chemtrec

Chemtrec (North America): 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification of mixture:

Aspiration hazard, Category 1



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Hazard Pictograms:



Signal Word:

DANGER

Hazard Statements:

| | |
|-------|---|
| H304: | May be fatal if swallowed and enters airways. |
|-------|---|

Precautionary Statements:

| | |
|--------------------|---|
| P243: | Take precautionary measures against static discharge |
| P273: | Avoid release to the environment. |
| P301 + P315 +P331: | IF SWALLOWED: Do NOT induce vomiting. Get immediate medical advice/attention. |
| P305 + P351: | IF IN EYES: Rinse cautiously with water for several minutes. |
| P350: | Gently wash with soap and water. |
| P362: | Take off contaminated clothing and wash before reuse. |
| P405: | Store locked up. |
| P501: | Dispose of contents/container to an approved waste disposal plant. |

3. COMPOSITION/INFORMATION ON INGREDIENTS

| <u>Components</u> | <u>%Content</u> | <u>CAS Number</u> |
|-------------------|-----------------|-------------------|
| Polyalphaolefin | Proprietary | Proprietary |
| Additive Package | Proprietary | Proprietary |

4. FIRST-AID MEASURES

Eyes

Immediately flush eyes with plenty of water for at least 15 minutes.

Ingestion

If swallowed, drink plenty of water, DO NOT induce vomiting. Immediately call a doctor.

Inhalation

Move to fresh air. If unconscious place in recovery position and seek medical advice. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. Remove from further exposure. Immediately call a doctor.

Skin

Wash exposed skin with soap and water.

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.

Fire-Fighting Equipment

Firefighter should wear normal protective equipment (full bunker gear) and positive-pressure contained breathing apparatus.

Water can be used to cool fire-exposed containers, to protect personnel and to disperse vapors and spills. Water runoff can cause environmental damage. Dike and collect water used to fight fires.



Special Fire-Fighting Procedures

Use water spray to cool fire-exposed containers and structures. If a rail or tank truck is involved in a fire, isolate for 800 meters (0.5 mile) in all directions. Shut off fuel to fire if it is possible to do so without hazard. If this is impossible, withdraw from the area and let the fire burn out under controlled conditions. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tank due to fire.

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

Do not store in open or unlabeled containers. Keep container tightly closed in a dry and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits

None established

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

| | |
|--|--------------------------------------|
| Appearance: | Transparent, red liquid |
| Odor: | Odorless |
| Odor threshold: | Not Determined |
| Auto-ignition temperature: | 340°C (644°F) |
| Decomposition temperature: | Not Determined |
| Evaporation Rate (ASTM D972): | 14% after 6.5 hours at 135°C (275°F) |
| Flash point Cleveland Open Cup (ASTM D92): | 172°C (341.6°F) |
| Flash point Pensky-Martens (ASTM D93): | Not Determined |
| Flammability (solid, gas): | Non-flammable |
| Lower flammability limit: | Not Determined |



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| | |
|--|---|
| Upper flammability limit: | Not Determined |
| Initial boiling point and boiling range: | Not determined |
| Melting point/freezing point: | < -60°C (-76°F) |
| Partition coefficient (n-octanol/water), Log P _{ow} : | Not Determined |
| pH: | Not applicable |
| Solubility: | Water insoluble |
| Relative density (ASTM D1298) 15.6°C/15.6°C: | 0.84 |
| Vapor density: | Not Determined |
| Vapor pressure: | < 0.1 mmHg at 20°C (68°F) |
| Viscosity (ASTM D445): | 2.1 mm ² /s (cSt) at 100°C (212°F) 6.8 mm ² /s (cSt) at 40°C(104°F) 470 mm ² /s (cSt) at -40°C (-40°F) 2,350 mm ² /s (cSt) at -54°C (65.2°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

| Acute toxicity | Method | Species | Result |
|------------------|------------|---------|--|
| Polyalphaolefin | Dermal | Rat | LD ₅₀ > 2000 mg/kg |
| | Inhalation | Rat | LC ₅₀ = 5.0 mg/L after 1 hour |
| | Oral | Rat | LD ₅₀ > 2000 mg/kg |
| Additive Package | -- | -- | Not expected to be hazardous. |

| Aspiration hazard | Test Method | Species | Result |
|-------------------|-------------|---------|-------------------------------|
| Polyalphaolefin | OECD 403 | Rat | Aspiration hazard, Category 1 |
| Additive Package | -- | -- | No data available |

Carcinogenicity

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH, IARC, NTP or OSHA.

| Eye damage / irritation | Test Method | Species | Results |
|-------------------------|-------------|---------|----------------|
| Polyalphaolefin | OECD 405 | Rabbit | Not irritating |
| Additive Package | -- | -- | Not classified |



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| Germ cell mutagenicity | Test Method | Species | Results |
|------------------------|-------------|-----------------------|-------------------------------|
| Polyalphaolefin | OECD 471 | <i>S. typhimurium</i> | Not mutagenic |
| Additive Package | -- | -- | Not expected to be mutagenic. |

| Reproductive toxicity | Test Method | Species | Results |
|-----------------------|-------------|---------|-------------------------------|
| Polyalphaolefin | OECD 415 | Rat | No reproductive harm |
| Additive Package | -- | -- | Not expected to be hazardous. |

Respiratory sensitization

No data available

| Skin sensitization | Test Method | Species | Results |
|--------------------|-------------|------------|-----------------|
| Polyalphaolefin | OECD 406 | Guinea pig | Not sensitizing |
| Additive Package | -- | -- | Not classified |

| Skin corrosion/irritation | Test Method | Species | Results |
|---------------------------|-------------|---------|------------------------------|
| Polyalphaolefin | OECD 404 | Rabbit | Not irritating |
| Additive Package | -- | -- | Not expected to be irritant. |

Specific target organ toxicity (STOT)-repeated exposure

No data available

Specific target organ toxicity (STOT)-single exposure

No data available

12. ECOLOGICAL CONSIDERATIONS

| Aquatic Toxicity | Test Method | Species | Results |
|------------------|-------------------------------------|---|---|
| Polyalphaolefin | OECD 203 OECD 211 DIN 38412-8 | <i>D. magna</i> <i>O. mykiss</i> <i>P. putida</i> | NOEL = 125 mg/L after 21 days LL ₅₀ > 1000g/L after 96 hours EC ₅₀ > 10g/L after 16 hours |
| Additive Package | -- | -- | Not expected to be hazardous. |

| Terrestrial Toxicity | Test Method | Species | Results |
|-------------------------------------|-------------|-----------|---------------------------------|
| 1-Decene, homopolymer, hydrogenated | OECD 222 | Earthworm | LC50 > 1000 mg/kg after 56 days |
| Additive Package | -- | -- | No data available |

| Biodegradation | Test Method | Results |
|------------------|-------------|---------------------------|
| Polyalphaolefin | OECD 301B | Not readily biodegradable |
| Additive Package | -- | No data available |

| Partition Coefficient n-octanol / water (Log K _{ow}) | Results |
|--|-----------------------------|
| Polyalphaolefin | Log K _{ow} = 10.09 |
| Additive Package | No data available |

13. DISPOSAL INFORMATION

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.

14. TRANSPORT INFORMATION



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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

Not hazardous per 29 CFR 1910.1200(d).

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)



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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: 2 February 2010

Safety Data Sheet Revision Date: 8 October 2018

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