



RADCOLUBE® FR170

Safety Data Sheet

MIL-PRF-46170E TYPE I Hydraulic Fluid, Rust Inhibited, Fire Resistant, Synthetic

Issue date: 2/2/2010

Revision date: 7/22/2025

Supersedes: 4/28/2025

Version: 16.0

according to 29 CFR § 1910.1200, Hazard Communication Standard (HCS)

SECTION 1: Identification

1.1. Identification

Trade name	RADCOLUBE® FR170
Radco Product Code:	FR170 (21070C)
Specification:	MIL-PRF-46170E Type I Hydraulic Fluid, Rust Inhibited, Fire Resistant, Synthetic
Qualification Number (Date):	HF-79 (11 March 2021) HF-80 (16 March 2021) HF-82 (20 July 2021) HF-83 (20 July 2021) HF-88 (9 September 2024)
NATO Code:	H-544
National Stock Number(s) (NSN):	9150-01-332-7819 (Pint) 9150-00-111-6256 (Quart) 9150-00-111-6254 (Gallon) 9150-00-111-6255 (5 Gallon Pail) 9150-01-158-0462 (55 Gallon Drum)

1.2. Recommended use and restrictions on use

Use of the substance/mixture:	This product is a synthetic hydrocarbon base hydraulic fluid for use in the -40°C to 200°C (-40°F to 392°F) temperature range in recoil mechanisms and ground vehicle and equipment hydraulic systems. This hydraulic fluid will not be used for aircraft systems, aircraft ground support equipment, or the preservation of aircraft components.
Use of the substance/mixture:	Hydraulic fluids and additives
Recommended use:	Hydraulic fluids
Restrictions on use:	Hydraulic fluids

1.3. Supplier

Manufacturer	Manufacturer
Radco Industries L.L.C.	Radco Industries L.L.C.
CAGE Code 6ZS16	CAGE Code 1RVC4
700 Kingsland Drive	39W930 Midan Drive
Batavia, Illinois 60510	LaFox, Illinois 60147
United States	United States
T (630) 232-7966	T (630) 232-7966
www.radcoind.com	www.radcoind.com

1.4. Emergency telephone number

Emergency number:	For Chemical Emergency Call CHEMTREC 24hr/day 7days/week Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)
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SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Reproductive toxicity, Category 2	H361	Suspected of damaging fertility.
Aspiration hazard, Category 1	H304	May be fatal if swallowed and enters airways.

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US):



Signal word (GHS US):	Danger
Hazard statements (GHS US):	H304 - May be fatal if swallowed and enters airways H361 - Suspected of damaging fertility.
Precautionary statements (GHS US):	P201 - Obtain special instructions before use. P202 - Do not handle until all safety precautions have been read and understood. P280 - Wear protective clothing. P301+P310 - If swallowed: Immediately call a doctor, a POISON CENTER. P308+P313 - If exposed or concerned: Get medical advice/attention. P331 - Do NOT induce vomiting. P405 - Store locked up. P501 - Dispose of contents and container to an approved waste disposal plant.

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	CAS-No.	%	GHS US classification
1-Dodecene, polymer with 1-decene, hydrogenated	151006-60-9	0 – 75	Asp. Tox. 1, H304
Napthalenesulfonic acid, dinonyl-, barium salt (2:1)	25619-56-1	< 5	Aquatic Chronic 2, H411
Alkylated amine*	Trade Secret	< 5	Repr. 2, H361 STOT RE 2, H373

*Chemical name, CAS number and/or exact concentration have been withheld as a trade secret

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures**4.1. Description of first aid measures**

First-aid measures general:	Call a physician immediately.
First-aid measures after inhalation:	Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact:	Wash skin with plenty of water.
First-aid measures after eye contact:	Rinse eyes with water as a precaution.
First-aid measures after ingestion:	Do not induce vomiting. Call a physician immediately.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation:	Although no appropriate human or animal health effects data are known to exist, this material is expected to be an inhalation hazard.
Symptoms/effects after skin contact:	None under normal conditions.
Symptoms/effects after eye contact:	None under normal conditions.
Symptoms/effects after ingestion:	Risk of lung edema.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures**5.1. Suitable (and unsuitable) extinguishing media**

Suitable extinguishing media:	Water spray. Dry powder. Foam. Carbon dioxide.
Unsuitable extinguishing media:	Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Fire hazard:	No fire hazard.
Explosion hazard:	No direct explosion hazard.
Hazardous decomposition products in case of fire:	Toxic fumes may be released.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions:	Fight fire from safe distance and protected location. Do not enter fire area without proper protective equipment, including respiratory protection.
Protection during firefighting:	Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

General measures:	Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material-damage.
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6.1.1. For non-emergency personnel

Protective equipment:	Wear recommended personal protective equipment.
Emergency procedures:	Ventilate spillage area.

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6.1.2. For emergency responders

Protective equipment: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

Emergency procedures: Evacuate unnecessary personnel. Stop leak if safe to do so.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment: Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak, if possible without risk.

Methods for cleaning up: Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters.

Other information: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed: Not expected to present a significant hazard under anticipated conditions of normal use.

Precautions for safe handling: Ensure good ventilation of the work station. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear personal protective equipment.

Hygiene measures: Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures: Keep in a cool, well-ventilated place away from heat.

Storage conditions: Store locked up.

Packaging materials: Store always product in container of same material as original container.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

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No additional information available
1-Dodecene, polymer with 1-decene, hydrogenated (151006-60-9)
No additional information available
Napthalenesulfonic acid, dinonyl-, barium salt (2:1) (25619-56-1)
No additional information available

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USA - OSHA - Occupational Exposure Limits	
Local name	Barium, soluble compounds (as Ba)
OSHA PEL TWA	0.5 mg/m ³
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1
Alkylated amine	
No additional information available	
Monitoring methods	
Monitoring methods	A specific exposure sampling method is not available.

8.2. Appropriate engineering controls

Appropriate engineering controls: Ensure good ventilation of the work station.

Environmental exposure controls: Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Wear recommended personal protective equipment.

Hand protection:
Protective gloves
Eye protection:
Safety glasses
Skin and body protection:
Wear suitable protective clothing
Respiratory protection:
[In case of inadequate ventilation] wear respiratory protection.

Personal protective equipment symbol(s):



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid
Appearance:	Pale yellow or light brown oily liquid.
Color:	Light yellow to brown

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Odor:	slight
Odor threshold:	No data available
pH:	No data available
Melting point:	Not applicable
Freezing point:	≤ -57 °C (ASTM D97 Pour point)
Boiling point:	No data available
Flash point:	≥ 222 °C (ASTM D92 Cleveland Open Cup Method)
Relative evaporation rate (butyl acetate=1):	No data available
Flammability:	Not applicable.
Vapor pressure:	< 0.01 mm Hg at 20°C
Relative vapor density at 20°C:	No data available
Relative density:	0.849 – 0.854
Solubility:	No data available
Partition coefficient n-octanol/water (Log Pow):	No data available
Auto-ignition temperature:	≥ 378 °C
Decomposition temperature:	No data available
Viscosity, kinematic:	15.2 – 16.8 mm ² /s at 40°C (104°F)
Viscosity, dynamic:	No data available
Explosion limits:	No data available
Explosive properties:	No data available
Oxidizing properties:	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity**10.1. Reactivity**

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

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10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information**11.1. Information on toxicological effects**

Acute toxicity (oral):	Not classified
Acute toxicity (dermal):	Not classified
Acute toxicity (inhalation):	Not classified
Skin corrosion/irritation:	Not classified
Carcinogenicity:	Not classified
Aspiration hazard:	May be fatal if swallowed and enters airways.
Viscosity, kinematic:	15.2 – 16.8 mm ² /s at 40°C (104°F)
Symptoms/effects after inhalation:	Although no appropriate human or animal health effects data are known to exist, this material is expected to be an inhalation hazard.
Symptoms/effects after skin contact:	None under normal conditions.
Symptoms/effects after eye contact:	None under normal conditions.
Symptoms/effects after ingestion:	Risk of lung edema.
STOT-single exposure:	Not classified
STOT-repeated exposure:	Not classified
Reproductive toxicity:	Suspected of damaging fertility.

1-Dodecene, polymer with 1-decene, hydrogenated (151006-60-9)

LD50 dermal rat:	> 2000 mg/kg body weight (OECD 402 method)
LC50 Inhalation - Rat:	> 5 mg/l (OECD 403 method)

Napthalenesulfonic acid, dinonyl-, barium salt (2:1) (25619-56-1)

LD50 dermal rabbit:	3000 mg/kg body weight
ATE US (dermal):	3000 mg/kg body weight

Alkylated amine

LD50 oral rat:	> 5000 mg/kg body weight (OECD 401 method)
LD50 dermal rat:	> 2000 mg/kg body weight (OECD 402 method)

1-Dodecene, polymer with 1-decene, hydrogenated (151006-60-9)

Serious eye damage/irritation:	Not classified
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Napthalenesulfonic acid, dinonyl-, barium salt (2:1) (25619-56-1)

Serious eye damage/irritation:	Not classified
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Alkylated amine	
Serious eye damage/irritation:	Not classified
1-Dodecene, polymer with 1-decene, hydrogenated (151006-60-9)	
Respiratory or skin sensitization:	Not classified
Napthalenesulfonic acid, dinonyl-, barium salt (2:1) (25619-56-1)	
Respiratory or skin sensitization:	Not classified
Alkylated amine	
Respiratory or skin sensitization:	Not classified
1-Dodecene, polymer with 1-decene, hydrogenated (151006-60-9)	
Germ cell mutagenicity:	Not classified
Napthalenesulfonic acid, dinonyl-, barium salt (2:1) (25619-56-1)	
Germ cell mutagenicity:	Not classified
Alkylated amine	
Germ cell mutagenicity:	Not classified
Alkylated amine	
NOAEL (animal/male, F0/P):	18 – 54 mg/kg body weight (OECD 443 method)
NOAEL (animal/female, F0/P):	18 – 54 mg/kg body weight (OECD 443 method)
NOAEL (animal/male, F1):	18 – 167 mg/kg body weight (OECD 443 method)
NOAEL (animal/female, F1):	18 – 167 mg/kg body weight (OECD 443 method)
Additional data:	Reproduction NOAEL, oral, rat: 225 mg/kg bw/day (28 days, (OECD 422 method)), Parental NOAEL, oral, rat: 25 mg/kg bw/day (28 days, (OECD 422 method))
Alkylated amine	
NOAEL (oral, rat, 90 days):	25 mg/kg body weight (OECD 422 method)
STOT-repeated exposure:	May cause damage to organs (liver) through prolonged or repeated exposure (oral).

SECTION 12: Ecological information**12.1. Toxicity**

Ecology - general: Harmful to aquatic life with long lasting effects.

Napthalenesulfonic acid, dinonyl-, barium salt (2:1) (25619-56-1)	
LC50 - Fish [1]:	0.28 mg/l 96 Hours
EC50 - Crustacea [1]:	78 mg/l EC50 48h - Daphnia magna [mg/l]

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Napthalenesulfonic acid, dinonyl-, barium salt (2:1) (25619-56-1)	
NOEC chronic fish:	0.27 mg/l 48 Hours
Alkylated amine	
LC50 - Fish [1]:	100 mg/l Brachydanio rerio (zebra-fish)
EC50 - Crustacea [1]:	51 mg/l Daphnia magna (Water flea)

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Napthalenesulfonic acid, dinonyl-, barium salt (2:1) (25619-56-1)	
Partition coefficient n-octanol/water (Log Kow):	6.7 at 20°C

12.4. Mobility in soil

Napthalenesulfonic acid, dinonyl-, barium salt (2:1) (25619-56-1)	
Mobility in soil:	5.24 QSAR

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations**13.1. Disposal methods**

Regional waste regulation:	Disposal must be done according to official regulations.
Waste treatment methods:	Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations:	Disposal must be done according to official regulations.
Product/Packaging disposal recommendations:	Disposal must be done according to official regulations.
Additional information:	Do not re-use empty containers.

SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA / ICAO / ADN / RID / ADG

14.1. UN number

Not regulated for transport

14.2. UN proper shipping name

Proper Shipping Name (DOT):	Not applicable
Proper Shipping Name (TDG):	Not applicable
Proper Shipping Name (IMDG):	Not applicable
Proper Shipping Name (IATA):	Not applicable

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14.3. Transport hazard class(es)

DOT

Transport hazard class(es) (DOT): Not applicable

TDG

Transport hazard class(es) (TDG): Not applicable

IMDG

Transport hazard class(es) (IMDG): Not applicable

IATA

Transport hazard class(es) (IATA): Not applicable

14.4. Packing group

Packing group (DOT): Not applicable

Packing group (TDG): Not applicable

Packing group (IMDG): Not applicable

Packing group (IATA): Not applicable

14.5. Environmental hazards

Other information: No supplementary information available.

14.6. Special precautions for user

DOT

No data available

TDG

No data available

IMDG

No data available

IATA

No data available

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are present and listed as Active on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

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This product or mixture is not known to contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) 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.

15.2. International regulations

CANADA

1-Dodecene, polymer with 1-decene, hydrogenated (151006-60-9)

Listed on the Canadian DSL (Domestic Substances List)

Napthalenesulfonic acid, dinonyl-, barium salt (2:1) (25619-56-1)

Listed on the Canadian DSL (Domestic Substances List)

Alkylated amine

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

Napthalenesulfonic acid, dinonyl-, barium salt (2:1) (25619-56-1)

Listed on INSQ (Mexican National Inventory of Chemical Substances)

Alkylated amine

Listed on INSQ (Mexican National Inventory of Chemical Substances)

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

according to 29 CFR § 1910.1200, Hazard Communication Standard (HCS)

Revision date: 07/22/2025

Data sources: ECHA (European Chemicals Agency). Supplier's safety documents.

Full text of hazard classes and H-statements

H304	May be fatal if swallowed and enters airways
H361	Suspected of damaging fertility or the unborn child
H373	May cause damage to organs through prolonged or repeated exposure
H411	Toxic to aquatic life with long lasting effects

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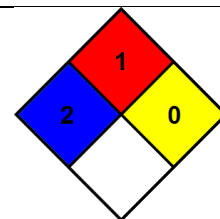
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NFPA health hazard 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

NFPA fire hazard 1 - Materials that must be preheated before ignition can occur.

NFPA reactivity 0 - Material that in themselves are normally stable, even under fire conditions.



Hazard Rating

Health 2 Moderate Hazard - Temporary or minor injury may occur

Flammability 1 Slight Hazard - Materials that must be preheated before ignition will occur. Includes liquids, solids and semi solids having a flash point above 200 F. (Class IIIB)

Physical 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Personal protection B - Safety glasses, Gloves

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.