



RADCOLUBE® FR257

Safety Data Sheet

MIL-PRF-87257E Hydraulic Fluid, Fire Resistant, Low Temperature, Synthetic Hydrocarbon Base, Aircraft and Missile

Issue date: 2/2/2010

Revision date: 10/22/2024

Supersedes: 10/1/2024

Version: 11.0

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 1: Identification

1.1. Identification

Trade name: RADCOLUBE® FR257

Specification: MIL-PRF-87257E Hydraulic Fluid, Fire Resistant, Low Temperature, Synthetic Hydrocarbon Base, Aircraft and Missile

Qualification Number (Date): AFPET/PTPS 19-011 (18 July 2019)
AFPET/PTPS 21-008 (20 April 2021)
AFPET/PTPS 24-009 (22 July 2024)

NATO Code: H-538

National Stock Number(s) (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)

1.2. Recommended use and restrictions on use

Use of the substance/mixture: 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.

Use of the substance/mixture: Hydraulic fluids and additives

1.3. Supplier

Manufacturer	Manufacturer
Radco Industries Inc.	Radco Industries Inc.
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)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Acute toxicity (inhalation:dust,mist) Category 4 H332 Harmful if inhaled

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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

H332 - Harmful if inhaled

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.

P261 - Avoid breathing fume, mist, spray, vapors.

P271 - Use only outdoors or in a well-ventilated area.

P280 - Wear eye protection, protective gloves, protective clothing.

P301+P310 - If swallowed: Immediately call a POISON CENTER, a doctor.

P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing.

P308+P313 - If exposed or concerned: Get medical advice/attention.

P312 - Call a doctor, a POISON CENTER if you feel unwell.

P331 - Do NOT induce vomiting.

P405 - Store locked up.

P501 - Dispose of contents/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	Product identifier	%	GHS US classification
dec-1-ene, dimers, hydrogenated	CAS-No.: 68649-11-6	50 – 75	Acute Tox. 4 (Inhalation), H332 Asp. Tox. 1, H304
Synthetic hydrocarbon*	CAS-No.: Trade Secret	10 – 50	Aquatic Chronic 3, H412
Dec-1-ene, homopolymer, hydrogenated Dec-1-ene, oligomers, hydrogenated	CAS-No.: 68037-01-4	10 – 50	Asp. Tox. 1, H304
Trade Secret 1*	CAS-No.: 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. Call a poison center/doctor/physician if you feel unwell.
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. Avoid breathing dust/fume/gas/mist/vapors/spray.

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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: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear personal protective equipment. Use only outdoors or in a well-ventilated area. Avoid breathing dust/fume/gas/mist/vapors/spray.

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
dec-1-ene, dimers, hydrogenated (68649-11-6)
No additional information available
Dec-1-ene, homopolymer, hydrogenated Dec-1-ene, oligomers, hydrogenated (68037-01-4)
No additional information available
Trade Secret 1
No additional information available

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Synthetic hydrocarbon
No additional information 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:	Liquid.
Color:	red
Odor:	slight
Odor threshold:	No data available
pH:	No data available
Melting point:	Not applicable
Freezing point:	≤ -63 °C (ASTM D97 Pour point)
Boiling point:	No data available
Flash point:	170 °C

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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:	0.821 – 0.8419 at 15.6°C (Water = 1)
Solubility:	Material insoluble in water.
Partition coefficient n-octanol/water (Log Pow):	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity, kinematic:	6.8 mm ² /s at 40°C
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).

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):	Inhalation:dust,mist: Harmful if inhaled.
Skin corrosion/irritation:	Not classified

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Carcinogenicity:	Not classified
Aspiration hazard:	May be fatal if swallowed and enters airways.
Viscosity, kinematic:	6.8 mm ² /s at 40°C
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.

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ATE US (dust, mist):	2.947 mg/l/4h
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dec-1-ene, dimers, hydrogenated (68649-11-6)

LD50 oral rat:	> 5000 mg/kg body weight (OECD 423 method)
LD50 dermal rat:	> 2000 mg/kg body weight (OECD 402 method)
ATE US (gases):	4500 ppmV/4h
ATE US (vapors):	11 mg/l/4h
ATE US (dust, mist):	1.5 mg/l/4h

Dec-1-ene, homopolymer, hydrogenated Dec-1-ene, oligomers, hydrogenated (68037-01-4)

LD50 dermal rat:	> 2000 mg/kg body weight (OECD 402 method)
LC50 Inhalation - Rat:	> 5.2 mg/l/4h (OECD 403 method)

Trade Secret 1

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

Synthetic hydrocarbon

LD50 oral rat:	> 15800 mg/kg body weight (OECD 401 method)
LD50 dermal rabbit:	> 7940 mg/kg body weight (OECD 402 method)
LC50 Inhalation - Rat:	> 5.7 mg/l/4h (OECD 403 method)

dec-1-ene, dimers, hydrogenated (68649-11-6)

Serious eye damage/irritation:	Not classified
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Dec-1-ene, homopolymer, hydrogenated Dec-1-ene, oligomers, hydrogenated (68037-01-4)

Serious eye damage/irritation:	Not classified
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Serious eye damage/irritation:	Not classified
Synthetic hydrocarbon	
Serious eye damage/irritation:	Not classified
dec-1-ene, dimers, hydrogenated (68649-11-6)	
Respiratory or skin sensitization:	Not classified
Dec-1-ene, homopolymer, hydrogenated Dec-1-ene, oligomers, hydrogenated (68037-01-4)	
Respiratory or skin sensitization:	Not classified
Trade Secret 1	
Respiratory or skin sensitization:	Not classified
Synthetic hydrocarbon	
Respiratory or skin sensitization:	Not classified
dec-1-ene, dimers, hydrogenated (68649-11-6)	
Germ cell mutagenicity:	Not classified
Dec-1-ene, homopolymer, hydrogenated Dec-1-ene, oligomers, hydrogenated (68037-01-4)	
Germ cell mutagenicity:	Not classified
Trade Secret 1	
Germ cell mutagenicity:	Not classified
Synthetic hydrocarbon	
Germ cell mutagenicity:	Not classified
Trade Secret 1	
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))
Synthetic hydrocarbon	
LOAEL (animal/male, F0/P):	2102 mg/kg body weight (OECD 415 method)
LOAEL (animal/female, F0/P):	2399 mg/kg body weight (OECD 415 method)
LOAEL (animal/male, F1):	2102 mg/kg body weight (OECD 415 method)

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Synthetic hydrocarbon	
LOAEL (animal/female, F1):	2399 mg/kg body weight (OECD 415 method)
NOAEL (animal/male, F1):	178 mg/kg body weight (OECD 415 method)
NOAEL (animal/female, F1):	203 mg/kg body weight (OECD 415 method)

Trade Secret 1	
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).

Synthetic hydrocarbon	
NOAEL (subchronic,oral,animal/male,90 days):	200 mg/kg body weight (OECD 408 method)
NOAEL (subchronic,oral,animal/female,90 days):	387 mg/kg body weight (OECD 408 method)

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

Ecology - general:

The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

Trade Secret 1	
LC50 - Fish [1]:	100 mg/l Brachydanio rerio (zebra-fish)
EC50 - Crustacea [1]:	51 mg/l Daphnia magna (Water flea)

Synthetic hydrocarbon	
LC50 - Fish [1]:	> 45 mg/l (Species: Oryzias latipes)
EC50 - Crustacea [1]:	> 48 mg/l (Species: Daphnia magna)

12.2. Persistence and degradability

dec-1-ene, dimers, hydrogenated (68649-11-6)	
Persistence and degradability:	Biodegradability in soil: no data available. Biodegradability in water: no data available.

Synthetic hydrocarbon	
Persistence and degradability:	Readily biodegradable in water.
Chemical oxygen demand (COD):	2.72 g O ₂ /g substance

12.3. Bioaccumulative potential

dec-1-ene, dimers, hydrogenated (68649-11-6)	
Bioaccumulative potential:	No bioaccumulation data available.

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Synthetic hydrocarbon	
BCF - Fish [1]:	27 (28 day(s), Lepomis macrochirus, Flow-through system, Freshwater, Read-across)
Partition coefficient n-octanol/water (Log Pow):	8.12 Quantitative structure-activity relationship (QSAR)
Bioaccumulative potential:	The substance has low potential for bioaccumulation.

12.4. Mobility in soil

Synthetic hydrocarbon	
Organic Carbon Normalized Adsorption Coefficient (Log Koc):	5.2853 Quantitative structure-activity relationship (QSAR)
Ecology - soil:	Potential for mobility in soil is slight.

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

DOT	TDG	IMDG	IATA
14.1. UN number			
Not regulated for transport			
14.2. Proper Shipping Name			
Not applicable	Not applicable	Not applicable	Not applicable
Transport document description			
Not applicable	Not applicable	Not applicable	Not applicable
14.3. Transport hazard class(es)			
Not applicable	Not applicable	Not applicable	Not applicable
14.4. Packing group			
Not applicable	Not applicable	Not applicable	Not applicable

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DOT	TDG	IMDG	IATA
14.5. Environmental hazards			
Not applicable	Not applicable	Not applicable	Not applicable
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, except for:

Trade Secret 1	CAS-No.	< 5%
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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****dec-1-ene, dimers, hydrogenated (68649-11-6)**

Listed on the Canadian DSL (Domestic Substances List)

Dec-1-ene, homopolymer, hydrogenated Dec-1-ene, oligomers, hydrogenated (68037-01-4)

Listed on the Canadian DSL (Domestic Substances List)

Synthetic hydrocarbon

Listed on the Canadian DSL (Domestic Substances List)

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EU-Regulations

No additional information available

National regulations

Dec-1-ene, homopolymer, hydrogenated Dec-1-ene, oligomers, hydrogenated (68037-01-4)
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

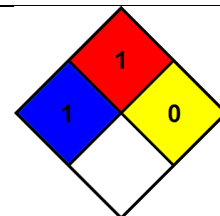
SECTION 16: Other information

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Full text of hazard classes and H-statements	
H304	May be fatal if swallowed and enters airways
H332	Harmful if inhaled
H361	Suspected of damaging fertility or the unborn child
H373	May cause damage to organs through prolonged or repeated exposure
H412	Harmful to aquatic life with long lasting effects

NFPA health hazard 1 - Materials that, under emergency conditions, can cause significant irritation.
 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	1 Slight Hazard - Irritation or minor reversible injury possible
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.

Indication of changes:			
Section	Changed item	Change	Comments
1	Specification	Modified	Changed to MIL-PRF-87257 revision E.

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