



RADCOLUBE® FR257

Safety Data Sheet

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

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Supersedes: 6/21/2022

Version: 7.4

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-87257D 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)
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	Elburn, 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

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

Precautionary statements (GHS US):

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

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

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.

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 (Base Stock)	CAS-No.: 68649-11-6	Trade Secret	Acute Tox. 4 (Inhalation), H332 Asp. Tox. 1, H304
Synthetic hydrocarbon mixture* (Base Stock)	CAS-No.: Trade Secret	Trade Secret	Asp. Tox. 1, H304
1-[[4-[[dimethylphenyl]azo]dimethylphenyl]azo]-2-naphthol (colorants)	CAS-No.: 1320-06-5	0.01	Not classified

*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.

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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 ingestion:	Risk of lung edema.
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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.
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5.2. Specific hazards arising from the chemical

Hazardous decomposition products in case of fire: Toxic fumes may be released.

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting:	Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

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".
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6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up:	Take up liquid spill into absorbent material.
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.

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling: 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

Storage conditions: Store locked up. Store in a well-ventilated place. Keep cool.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

RADCOLUBE® FR257	
No additional information available	
dec-1-ene, dimers, hydrogenated (68649-11-6)	
No additional information available	
1-[[4-[(dimethylphenyl)azo]dimethylphenyl]azo]-2-naphthol (1320-06-5)	
USA - OSHA - Occupational Exposure Limits	
Local name	Total Dust (Inert or Nuisance Dust)
OSHA PEL TWA [1]	15 mg/m ³
OSHA PEL TWA [2]	50 mppcf
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-3 Mineral Dusts
Synthetic hydrocarbon mixture	
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

Hand protection:
Protective gloves
Eye protection:
Safety glasses

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Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

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:	No data available
Freezing point:	≤ -63 °C (ASTM D97 Pour point)
Boiling point:	No data available
Flash point:	170 °C
Relative evaporation rate (butyl acetate=1):	No data available
Flammability:	No data available
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

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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):	Harmful if inhaled.
Skin corrosion/irritation:	Not classified
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 ingestion:	Risk of lung edema.
STOT-single exposure:	Not classified
STOT-repeated exposure:	Not classified
Reproductive toxicity:	Not classified

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ATE US (dust, mist):	2.891 mg/l/4h

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dec-1-ene, dimers, hydrogenated (68649-11-6)	
LD50 oral rat:	> 5000 mg/kg body weight (Equivalent or similar to OECD 423, Rat, Male / female, Read-across, Oral, 14 day(s))
LD50 dermal rat:	> 2000 mg/kg body weight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)
ATE US (gases):	4500 ppmV/4h
ATE US (vapors):	11 mg/l/4h
ATE US (dust, mist):	1.5 mg/l/4h

1-[[4-[(dimethylphenyl)azo]dimethylphenyl]azo]-2-naphthol (1320-06-5)	
LD50 oral rat:	> 5000 mg/kg
Serious eye damage/irritation:	Not classified
Respiratory or skin sensitization:	Not classified
Germ cell mutagenicity:	Not classified

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.

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.

12.3. Bioaccumulative potential

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

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

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

Waste treatment methods: Dispose of contents/container in accordance with licensed collector's sorting instructions.

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SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

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

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

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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

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
dec-1-ene, dimers, hydrogenated	68649-11-6	Present	Active	
1-[[4- [(dimethylphenyl)azo]dimethylphenyl]azo]-2- naphthol	1320-06-5	Present	Active	
Synthetic hydrocarbon mixture		Not present	-	

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)

1-[[4-[[dimethylphenyl]azo]dimethylphenyl]azo]-2-naphthol (1320-06-5)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

No additional information available

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 H-phrases	
H304	May be fatal if swallowed and enters airways
H332	Harmful if inhaled

Abbreviations and acronyms	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

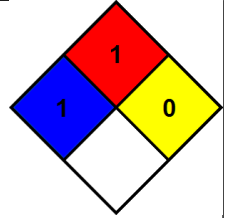
NFPA health hazard 1 - Materials that, under emergency conditions, can cause significant irritation.
 NFPA fire hazard 1 - Materials that must be preheated before ignition can occur.

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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
2.1	GHS-US classification	Modified	

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.