



RADCOLUBE® 500M

Safety Data Sheet

MIL-PRF-87252F Coolant Fluid, Hydrolytically Stable, Dielectric

Issue date: 7/22/2019

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Version: 7.0

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

SECTION 1: Identification

1.1. Identification

Trade name: RADCOLUBE® 500M
Specification: MIL-PRF-87252F Coolant Fluid, Hydrolytically Stable, Dielectric
Qualification Number (Date): AFPET/PTPT 19-014 (25 September 2019)
AFPET/PTPS 24-013 (8 August 2024)

NATO Code: S-1748

National Stock Number(s) (NSN): 9150-01-306-2475 [Quart]
9150-01-336-7174 [Gallon Oblong]
9150-01-304-0885 [Gallon Round]
9150-01-306-2470 [55 Gallon Drum]

1.2. Recommended use and restrictions on use

Use of the substance/mixture: RADCOLUBE® 500M Coolant Fluid is a military-qualified dielectric/cooling fluid consisting of a synthetic hydrocarbon base oil and additives. Designed for safe use in land and airborne closed loop cooling systems. RADCOLUBE® 500M demonstrates excellent heat transfer fluid properties, oxidative stability and dielectric characteristics in both military and commercial applications from -54°C (-65°F) to 135°C (275°F).

Recommended use: Heat transfer fluids

1.3. Supplier

Manufacturer
Radco Industries Inc.
CAGE Code 6ZS16
700 Kingsland Drive
Batavia, Illinois 60510
United States
T (630) 232-7966
www.radcoind.com

Manufacturer
Radco Industries Inc.
CAGE Code 1RVC4
39W930 Midan Drive
LaFox, Illinois 60147
United States
T (630) 232-7966
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

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GHS US classification

Acute toxicity (inhalation:dust,mist) Category 4	H332	Harmful if inhaled
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, gas, mist, vapors, spray.
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 POISON CENTER, a doctor 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	95 – 100	Acute Tox. 4 (Inhalation), H332 Asp. Tox. 1, H304
Trade Secret A*	CAS-No.: Trade Secret	< 1	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:	Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital. Call a physician immediately.
First-aid measures after inhalation:	Remove person to fresh air and keep comfortable for breathing. Remove the victim into fresh air. Call a poison center/doctor/physician if you feel unwell.
First-aid measures after skin contact:	Soap may be used. Wash skin with plenty of water.
First-aid measures after eye contact:	Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Rinse eyes with water as a precaution.
First-aid measures after ingestion:	Rinse mouth out with water. Ingestion of large quantities: immediately to hospital. Call Poison Information Centre (www.big.be/antigif.html). Do not induce vomiting. Call a physician immediately.

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

Potential Adverse human health effects and Slightly harmful if swallowed. Caution! Substance is absorbed through the skin. symptoms:

Symptoms/effects after inhalation:	ON HEATING: Irritation of the respiratory tract.
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:	Quick-acting ABC powder extinguisher. Quick-acting BC powder extinguisher. Quick-acting class B foam extinguisher. Quick-acting CO2 extinguisher. Class B foam (not alcohol-resistant). Water spray. Dry powder. Foam. Carbon dioxide.
Unsuitable extinguishing media:	Water (quick-acting extinguisher, reel); risk of puddle expansion. Water; risk of puddle expansion.

5.2. Specific hazards arising from the chemical

Fire hazard:	DIRECT FIRE HAZARD: Not easily combustible. INDIRECT FIRE HAZARD: Temperature above flashpoint: higher fire/explosion hazard.
Explosion hazard:	No direct explosion hazard.
Hazardous decomposition products in case of fire:	Upon combustion: carbon monoxide and carbon dioxide are formed.

5.3. Special protective equipment and precautions for fire-fighters

Precautionary measures fire:	Exposure to fire/heat: keep upwind. Exposure to fire/heat: have neighbourhood close doors and windows.
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:	Heat/fire exposure: self-contained breathing apparatus (EN 136 + EN 137). 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:	Gloves (EN 374). protective clothing (EN 14605 / EN 13034).
Emergency procedures:	Ventilate spillage area. Avoid breathing dust/fume/gas/mist/vapors/spray.

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. Take up liquid spill into inert absorbent material. Scoop absorbed substance into closing containers. Clean contaminated surfaces with an excess of water. 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.
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Precautions for safe handling:	Keep away from naked flames/heat. In finely divided state: use spark-/explosionproof appliances. Finely divided: keep away from ignition sources/sparks. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. 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:	Observe normal hygiene standards. 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.
Storage temperature:	10 – 50 °C
Heat-ignition:	KEEP SUBSTANCE AWAY FROM: Heat sources.
Information on mixed storage:	KEEP SUBSTANCE AWAY FROM: oxidizing agents.
Storage area:	Meet the legal requirements.
Special rules on packaging:	SPECIAL REQUIREMENTS: correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
Packaging materials:	Store always product in container of same material as original container.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

RADCOLUBE® 500M (68037-01-4)	
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA	5 mg/m ³ Inhalable fraction
USA - OSHA - Occupational Exposure Limits	
Local name	Oil mist, mineral
OSHA PEL TWA	5 mg/m ³
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1
dec-1-ene, dimers, hydrogenated (68649-11-6)	
No additional information available	
Trade Secret A	
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.

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8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Wear recommended personal protective equipment.

Hand protection:	
Gloves	
Eye protection:	
Safety glasses	
Skin and body protection:	
Protective clothing (EN 14605 or EN 13034)	
Type	
Chemically resistant protective gloves	
Respiratory protection:	
On heating: Full face mask. [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:	Colourless
Odor:	Odourless
Odor threshold:	No data available
pH:	Not applicable
Melting point:	Not applicable
Freezing point:	≤ -63 °C (ASTM D97 Pour point)
Boiling point:	≥ 305 °C (10% fraction)
Flash point:	≈ 172 (≥ 150) °C Cleveland Open Cup Method
Relative evaporation rate (butyl acetate=1):	No data available
Flammability:	Not applicable.

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Vapor pressure:	< 1.3 hPa (at 20°C)
Relative vapor density at 20°C:	No data available
Particle size:	Not applicable
Relative density:	0.83 at 15.6°C
Density:	0.8 g/ml at 15.6°C
Solubility:	insoluble in water. Water: < 0.1 g/100ml
Partition coefficient n-octanol/water (Log Pow):	No data available
Auto-ignition temperature:	329 °C
Decomposition temperature:	No data available
Viscosity, kinematic:	5 mm ² /s at 40°C
Viscosity, dynamic:	No data available
Explosion limits:	Lower explosion limit: Not available Upper explosion limit: Not 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.

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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 pH: Not applicable
Carcinogenicity:	Not classified
Aspiration hazard:	May be fatal if swallowed and enters airways.
Viscosity, kinematic:	5 mm ² /s at 40°C
Potential Adverse human health effects and symptoms:	Slightly harmful if swallowed. Caution! Substance is absorbed through the skin.
Symptoms/effects after inhalation:	ON HEATING: Irritation of the respiratory tract.
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): 1.508 mg/l/4h

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

Trade Secret A

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

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

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

Serious eye damage/irritation: Not classified

Trade Secret A

Serious eye damage/irritation: Not classified

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

Respiratory or skin sensitization: Not classified

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Trade Secret A	
Respiratory or skin sensitization:	Not classified
dec-1-ene, dimers, hydrogenated (68649-11-6)	
Germ cell mutagenicity:	Not classified
Trade Secret A	
Germ cell mutagenicity:	Not classified
Trade Secret A	
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))
Trade Secret A	
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:	The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.
Ecology - air:	Not included in the list of substances which may contribute to the greenhouse effect (IPCC). Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014).
Ecology - water:	No data available on ecotoxicity.

Trade Secret A	
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

RADCOLUBE® 500M (68037-01-4)	
Persistence and degradability:	Biodegradability in water: no data available.
dec-1-ene, dimers, hydrogenated (68649-11-6)	
Persistence and degradability:	Biodegradability in soil: no data available. Biodegradability in water: no data available.

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12.3. Bioaccumulative potential

RADCOLUBE® 500M (68037-01-4)	
Bioaccumulative potential:	No bioaccumulation data available.
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

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
14.5. Environmental hazards			
Not applicable	Not applicable	Not applicable	Not applicable

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DOT	TDG	IMDG	IATA
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 A	CAS-No.	≤ 1%
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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)

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

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SECTION 16: Other information

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

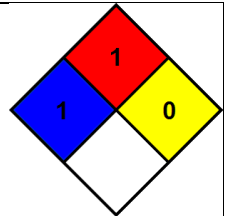
Revision date: 10/01/2024

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

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.

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.