



RADCOLUBE® 500M

Safety Data Sheet

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

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Version: 4.0

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)
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).
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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
Elburn, 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)
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SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

RADCOLUBE® 500M

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

Safety Data Sheet

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

GHS US classification

Acute toxicity (inhalation:dust,mist) Category 4 H332 Harmful if inhaled
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, gas, mist, vapors, spray.

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 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 (Base Oil)	CAS-No.: 68649-11-6	95 – 100	Acute Tox. 4 (Inhalation), H332 Asp. Tox. 1, H304

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 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.

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.

RADCOLUBE® 500M

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

Safety Data Sheet

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

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

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".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment: Contain released product, collect/pump into suitable containers. Plug the leak, cut off the supply.
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.
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

Precautions for safe handling: Wear personal protective equipment. 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. 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

Storage conditions: Store locked up. Store in a well-ventilated place. Keep cool.
Storage temperature: 10 – 50 °C
Heat-ignition: KEEP SUBSTANCE AWAY FROM: Heat sources.
Information on mixed storage: KEEP SUBSTANCE AWAY FROM: oxidizing agents.

RADCOLUBE® 500M

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

Safety Data Sheet

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

Storage area: Meet the legal requirements.
Special rules on packaging: SPECIAL REQUIREMENTS: correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

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	

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:	
Gloves	
Eye protection:	
Safety glasses	
Skin and body protection:	
Protective clothing (EN 14605 or EN 13034)	
Type	
Chemically resistant protective gloves	
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:	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 (ASTM D92 Cleveland Open Cup)
Relative evaporation rate (butyl acetate=1):	No data available
Flammability:	Not applicable.
Vapor pressure:	< 1.3 hPa (at 20°C)
Relative vapor density at 20°C:	No data available
Particle size:	Not applicable (liquid)
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

RADCOLUBE® 500M

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

Safety Data Sheet

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

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 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 ingestion:	Risk of lung edema.
STOT-single exposure:	Not classified
STOT-repeated exposure:	Not classified
Reproductive toxicity:	Not classified

RADCOLUBE® 500M (68037-01-4)

ATE US (dust, mist):	1.508 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 (OECD 402 method)

RADCOLUBE® 500M**MIL-PRF-87252F Coolant Fluid, Hydrolytically Stable, Dielectric**

Safety Data Sheet

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

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, dimers, hydrogenated (68649-11-6)	
Serious eye damage/irritation:	Not classified

dec-1-ene, dimers, hydrogenated (68649-11-6)	
Respiratory or skin sensitization:	Not classified

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

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.

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

RADCOLUBE® 500M

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

Safety Data Sheet

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

SECTION 13: Disposal considerations

13.1. Disposal methods

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

Product/Packaging disposal recommendations: Remove to an authorized waste treatment plant.

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

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

RADCOLUBE® 500M

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

Safety Data Sheet

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

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

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	

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

SECTION 16: Other information

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

Revision date: 01/10/2024

RADCOLUBE® 500M**MIL-PRF-87252F Coolant Fluid, Hydrolytically Stable, Dielectric**

Safety Data Sheet

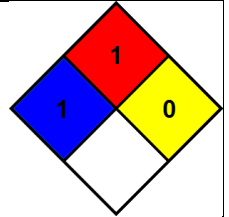
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Full text of H-phrases	
H304	May be fatal if swallowed and enters airways
H332	Harmful if inhaled

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.