



RADCOLUBE® 17331

Safety Data Sheet

MIL-PRF-17331L Lubricating Oil, Steam Turbine and Gear, Moderate Service

Issue date: 4/1/2015

Revision date: 1/17/2024

Supersedes: 12/15/2023

Version: 10.0

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

SECTION 1: Identification

1.1. Identification

Trade name	RADCOLUBE® 17331
Specification:	MIL-PRF-17331L Lubricating Oil, Steam Turbine and Gear, Moderate Service
Qualification Number (Date):	Ser 05S/2019-028 (22 February 2019) Ser 05S/2020-160 (4 May 2020)
Military Symbol:	2190 TEP
NATO Code:	O-250
National Stock Number(s) (NSN):	9150-01-368-7076 (Oblong Gallon) 9150-01-370-2583 (5 Gallon Pail) 9150-01-368-7075 (55 Gallon Drum) 9150-01-372-6915 (Bulk Transport)

1.2. Recommended use and restrictions on use

Use of the substance/mixture:	Moderate service steam turbine and gear lubricating oil for use in main and auxiliary turbines and gears, air compressors, and certain hydraulic equipment, as well as for general mechanical lubrication.
Use of the substance/mixture:	Lubricant

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

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

Skin sensitization, Category 1

H317

May cause an allergic skin reaction

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):

Warning

Hazard statements (GHS US):

H317 - May cause an allergic skin reaction

Precautionary statements (GHS US):

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

P272 - Contaminated work clothing must not be allowed out of the workplace.

P280 - Wear eye protection, protective clothing.

P302+P352 - If on skin: Wash with plenty of Gently wash with plenty of soap and water..

P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.

P363 - Wash contaminated clothing before reuse.

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
Distillates (petroleum), hydrotreated heavy paraffinic	CAS-No.: 64742-54-7	50 – 75	Not classified
Distillates (petroleum), hydrotreated heavy paraffinic	CAS-No.: 64742-54-7	10 – 50	Not classified
Trade Secret 1*	CAS-No.: Trade Secret	0 – 0.5	Acute Tox. 4 (Oral), H302 Skin Sens. 1, H317 STOT RE 2, H373 Aquatic Chronic 1, H410
Trade Secret 2*	CAS-No.: Trade Secret	Trade Secret	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:

If you feel unwell, seek medical advice.

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. Take off contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.
First-aid measures after eye contact:	Rinse eyes with water as a precaution.
First-aid measures after ingestion:	Call a poison center/doctor/physician if you feel unwell.

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:	May cause an allergic skin reaction.
Symptoms/effects after eye contact:	None under normal conditions.
Symptoms/effects after ingestion:	None under normal conditions.

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 contact with skin and eyes. 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.

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. Avoid contact with skin and eyes. Avoid breathing fume, mist, spray, vapors. Wear personal protective equipment.

Hygiene measures: Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. 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: Keep cool. Protect from sunlight.

Incompatible products: Strong acids. Strong bases.

Information on mixed storage: KEEP SUBSTANCE AWAY FROM: (strong) acids. (strong) bases.

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

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

RADCOLUBE® 17331	
USA - OSHA - Occupational Exposure Limits	
Local name	Oil mist, mineral
OSHA PEL TWA	5 mg/m³
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1

Distillates (petroleum), hydrotreated heavy paraffinic (64742-54-7)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Mineral oil, excluding metal working fluids Pure, highly and severely refined
ACGIH OEL TWA	5 mg/m ³ (I - Inhalable particulate matter)
Remark (ACGIH)	TLV® Basis: URT irr. Notations: A4 (Not classifiable as a Human Carcinogen)
Regulatory reference	ACGIH 2023
Distillates (petroleum), hydrotreated heavy paraffinic (64742-54-7)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Mineral oil, excluding metal working fluids Pure, highly and severely refined
ACGIH OEL TWA	5 mg/m ³ (I - Inhalable particulate matter)
Remark (ACGIH)	TLV® Basis: URT irr. Notations: A4 (Not classifiable as a Human Carcinogen)
Regulatory reference	ACGIH 2023
Trade Secret 2	
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA	3 mg/m ³ (Inhalable fraction)
Trade Secret 1	
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 insufficient ventilation, wear suitable respiratory equipment

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:	Light yellow to brown
Odor:	Petroleum-like odor
Odor threshold:	No data available
pH:	No data available
Melting point:	Not applicable
Freezing point:	≤ -6 °C (ASTM D97 Pour point)
Boiling point:	No data available
Flash point:	243 – 258 °C (ASTM D92)
Relative evaporation rate (butyl acetate=1):	No data available
Flammability:	Not applicable.
Vapor pressure:	< 0.01 mm Hg at 20°C (68°F)
Relative vapor density at 20°C:	No data available
Relative density:	0.8676 – 0.8789 at 15.6°C (Water = 1)
Density:	7.23 – 7.32 lb/gal 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:	77 – 81 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).

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:	Not classified
Viscosity, kinematic:	77 – 81 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:	May cause an allergic skin reaction.
Symptoms/effects after eye contact:	None under normal conditions.
Symptoms/effects after ingestion:	None under normal conditions.
STOT-single exposure:	Not classified
STOT-repeated exposure:	Not classified
Reproductive toxicity:	Not classified

Distillates (petroleum), hydrotreated heavy paraffinic (64742-54-7)

LD50 oral rat:	> 5000 mg/kg body weight (OECD 401 method)
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Distillates (petroleum), hydrotreated heavy paraffinic (64742-54-7)

LD50 oral rat:	> 5000 mg/kg body weight (OECD 401 method) (OECD 420 method)
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Trade Secret 2

LD50 oral rat:	> 2000 mg/kg (Literature data)
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Trade Secret 1

LD50 oral rat:	1625 mg/kg body weight (male)
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LD50 dermal rabbit:	> 5000 mg/kg body weight (male)
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ATE US (oral):	1625 mg/kg body weight
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Distillates (petroleum), hydrotreated heavy paraffinic (64742-54-7)

Serious eye damage/irritation:	Not classified
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Distillates (petroleum), hydrotreated heavy paraffinic (64742-54-7)

Serious eye damage/irritation:	Not classified
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Trade Secret 2

Serious eye damage/irritation:	Not classified
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Trade Secret 1

Serious eye damage/irritation:	Not classified
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Distillates (petroleum), hydrotreated heavy paraffinic (64742-54-7)

Respiratory or skin sensitization:	May cause an allergic skin reaction.
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Distillates (petroleum), hydrotreated heavy paraffinic (64742-54-7)

Respiratory or skin sensitization:	May cause an allergic skin reaction.
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Trade Secret 2

Respiratory or skin sensitization:	May cause an allergic skin reaction.
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Trade Secret 1

Respiratory or skin sensitization:	May cause an allergic skin reaction.
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Distillates (petroleum), hydrotreated heavy paraffinic (64742-54-7)

Germ cell mutagenicity:	Not classified
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Distillates (petroleum), hydrotreated heavy paraffinic (64742-54-7)

Germ cell mutagenicity:	Not classified
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Trade Secret 2

Germ cell mutagenicity:	Not classified
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Trade Secret 1	
Germ cell mutagenicity:	Not classified
Trade Secret 1	
NOAEL (animal/male, F0/P):	< 40 mg/kg body weight Test method EU B.35
NOAEL (animal/female, F0/P):	< 46 mg/kg body weight Test method EU B.35
Distillates (petroleum), hydrotreated heavy paraffinic (64742-54-7)	
LOAEL (oral,rat,90 days):	125 mg/kg body weight (OECD 408 method)
Distillates (petroleum), hydrotreated heavy paraffinic (64742-54-7)	
LOAEL (oral,rat,90 days):	125 mg/kg body weight (OECD 408 method)
Trade Secret 1	
LOAEL (oral,rat,90 days):	20 mg/kg body weight (OECD 407 method)
NOAEL (oral,rat,90 days):	80 mg/kg body weight (OECD 407 method)
STOT-repeated exposure:	May cause damage to organs through prolonged or repeated exposure.

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]:	0.44 mg/l (Species: Oncorhynchus mykiss (Rainbow trout))
EC50 - Crustacea [1]:	0.3 mg/l EC50 48h - Daphnia magna [mg/l]
ErC50 algae:	0.93 mg/l (Species: Pseudokirchneriella subcapitata; 96 Hours, Freshwater)
LOEC (chronic):	0.1 mg/l Species: Daphnia magna (Water flea); 21 days

12.2. Persistence and degradability

Trade Secret 2	
Persistence and degradability:	Not readily biodegradable in water.
Trade Secret 1	
Persistence and degradability:	Not readily biodegradable in water.

12.3. Bioaccumulative potential

Trade Secret 2	
Bioaccumulative potential:	No bioaccumulation data available.

Trade Secret 1	
BCF - Fish [1]:	427 – 2730 (OECD 305 method)
Partition coefficient n-octanol/water (Log Pow):	4.28 Experimental data
Bioaccumulative potential:	Potential for bioaccumulation ($500 \leq \text{BCF} \leq 5000$).

12.4. Mobility in soil

Trade Secret 1	
Surface tension:	No data available
Organic Carbon Normalized Adsorption Coefficient (Log Koc):	3.227 (QSAR Source: PCKOCWIN v2.0)
Ecology - soil:	Low potential for mobility in soil.

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

14.3. Transport hazard class(es)

DOT

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

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
Distillates (petroleum), hydrotreated heavy paraffinic	64742-54-7	Present	Active	
Distillates (petroleum), hydrotreated heavy paraffinic	64742-54-7	Present	Active	

Trade Secret 2		Present	Active	XU
Trade Secret 1		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

Distillates (petroleum), hydrotreated heavy paraffinic (64742-54-7)

Listed on the Canadian DSL (Domestic Substances List)

Distillates (petroleum), hydrotreated heavy paraffinic (64742-54-7)

Listed on the Canadian DSL (Domestic Substances List)

Trade Secret 2

Listed on the Canadian DSL (Domestic Substances List)

Trade Secret 1

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

Distillates (petroleum), hydrotreated heavy paraffinic (64742-54-7)

Listed on INSQ (Mexican National Inventory of Chemical Substances)

Distillates (petroleum), hydrotreated heavy paraffinic (64742-54-7)

Listed on INSQ (Mexican National Inventory of Chemical Substances)

Trade Secret 2

Listed on INSQ (Mexican National Inventory of Chemical Substances)

Trade Secret 1

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

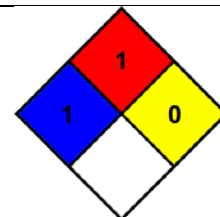
SECTION 16: Other information

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

Revision date: 01/17/2024

Full text of H-phrases	
H302	Harmful if swallowed
H317	May cause an allergic skin reaction
H373	May cause damage to organs through prolonged or repeated exposure
H410	Very toxic 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.

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.