



**RADCOLUBE® SBR-1  
SAFETY DATA SHEET**

**MIL-PRF-46176B BRAKE FLUID, SILICONE, AUTOMOTIVE, ALL-WEATHER, OPERATIONAL AND PRESERVATIVE**

**1. PRODUCT AND COMPANY IDENTIFICATION**

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**Product Name**

RADCOLUBE® SBR-1

This product meets Military Specification MIL-PRF-46176B and US DOT 5

Qualification Numbers (Effective Date)

SBF-1031 (10 November 2016)

SBF-1033 (23 January 2017)

ISO 9001:2015 Certification Number: C2018-00035

**Recommended Use**

The brake fluid covered by this specification is military unique due to the requirement that it perform at a minimum ambient temperature of –55°C, whereas commercial silicone-based brake fluids are rated at a minimum ambient temperature of –40°C. It is intended for use as an operational fluid and preservative fluid in automotive hydraulic brake systems at ambient temperatures ranging from 55°C to -55°C and fluid temperatures ranging from 205°C to -55°C.

If brake fluid in accordance with MIL-PRF-46176B performance specification is used to replace another type of brake fluid, adequate flushing of the brake system must be accomplished to remove all traces of the brake fluid that is to be replaced. If these fluids are not completely removed, the corrosion-protective and preservative properties of the silicone fluid will be negated.

**National Stock Numbers (NSN):**

9150-01-102-9455	Gallon
9150-01-123-3152	5 Gallon Pail
9150-01-072-8379	55 Gallon Drum

**Company Identification**

Headquarters and Manufacturing Facility (CAGE Code 6ZS16)

Radco Industries, Inc.

700 Kingsland Drive

Batavia, IL 60510

Manufacturing Facility (CAGE Code 1RVC4)

Radco Industries, Inc.

39W930 Midan Drive

LaFox, IL 60147

Customer information number: 1-630-232-7966

**EMERGENCY TELEPHONE NUMBER**

**Advisory Office in case of poisoning: Chemtrec**

Chemtrec (North America): 1-800-424-9300

**2. HAZARDS IDENTIFICATION**

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Classification of mixture:

Carcinogenicity, Category 2

Eye irritation, Category 2A

Skin irritation, Category 2A

**Hazard Pictograms:**





Signal Word                      Warning

**Hazard Statements:**

H303:	May be harmful if swallowed.
H315 + H320:	Causes eye and skin irritation.
H351:	Suspected of causing cancer.
H412:	Harmful to aquatic life with long-lasting effects.

**Precautionary Statements:**

P202:	Do not handle until all safety precautions have been read and understood.
P273:	Avoid release to the environment.
P281:	Use personal protective equipment as required.
P301 + P331 + P313:	IF SWALLOWED: Do NOT induce vomiting. Get medical advice/attention.
P305 + P351 + P338 P337 + P313:	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. If eye irritation persists, get medical advice/attention.
P302 + P350 + P333 + P313:	IF ON SKIN: Wash with soap and water. If skin irritation or a rash occurs: Get medical advice/attention.
P362:	Take off contaminated clothing and wash before reuse.
P405:	Store locked up.
P501:	Dispose of contents/container to an approved waste disposal plant.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

<u>Components</u>	<u>%Content</u>	<u>CAS Number</u>
Polydimethylsiloxane	Balance	63148-62-9
Tributyl Phosphate	< 10%	126-73-8
Bis(2-ethylhexyl) sebecate	< 10%	122-62-3

**4. FIRST-AID MEASURES**

**Eyes**  
Prevent this fluid from coming in contact with the eyes as it may cause irritation. Wash the hands thoroughly after exposure. Upon accidental eye exposure, wash the eyes promptly with water for at least fifteen (15) minutes. Eye hazard is neither severe nor permanent.

**Ingestion**  
If swallowed, do NOT induce vomiting. Get medical attention immediately.

**Inhalation**  
Move to fresh air. If unconscious place in recovery position and seek medical advice. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. Remove from further exposure. Immediately call a doctor.

**Skin**  
Wash skin thoroughly with mild soap and plenty of water for at least 15 minutes.

**5. FIRE-FIGHTING MEASURES**

**Suitable Extinguishing Media**  
For small fires use carbon dioxide, dry chemical or foam.  
For large fires use alcohol-type foam, universal type foam or water fog.

**Fire-Fighting Equipment**  
Firefighter should wear normal protective equipment (full bunker gear) and positive-pressure contained breathing apparatus. Water can be used to cool fire-exposed containers, to protect personnel and to disperse vapors and spills. Water runoff can cause environmental damage. Dike and collect water used to fight fires.



### Special Fire-Fighting Procedures

Use water spray to cool fire-exposed containers and structures. If a rail or tank truck is involved in a fire, isolate for 800 meters (0.5 mile) in all directions. Shut off fuel to fire if it is possible to do so without hazard. If this is impossible, withdraw from the area and let the fire burn out under controlled conditions. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tank due to fire.

## 6. ACCIDENTAL RELEASE MEASURES

Wear protective clothing when taking up spill. Eliminate sources of ignition. This product is insoluble in water and will float on the surface. Prevent from entering sewers or drains. Should this product enter sewers or drains, it should be pumped out into an open vessel.

## 7. HANDLING AND STORAGE

### Handling

Do not breathe vapors/dust. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations.

### Storage

Do not store in open or unlabeled containers. Keep container tightly closed in a dry and well-ventilated place.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Component	CAS Number	EC Number	Permissible Exposure Limits (PEL)
Bis(2-ethylhexyl) sebacate	122-62-3	204-558-8	None established
Polydimethylsiloxane	63148-62-9	613-156-5	None established
Tributyl phosphate	126-73-8	204-800-2	ACGIH Threshold Limit Values (TLV): 5 mg/m <sup>3</sup> ; 0.20 ppm NIOSH Recommended Exposure Limits: 2.5 mg/m <sup>3</sup> ; 0.20 ppm Occupational Exposure Limits (OSHA) - Table Z-1: 5 mg/m <sup>3</sup> PEL California permissible exposure limits (Title 8, Article 107): 2.5 mg/m <sup>3</sup> ; 0.2 ppm

### Respiratory Protection

Use with adequate ventilation. Avoid breathing vapor. If heated and ventilation is inadequate, use NIOSH certified respirator, which will protect against organic vapor.

### Hand Protection

Wear clothing and gloves that cannot be penetrated by chemicals or oil.

### Eye Protection

Safety glasses, chemical goggles, or face shields recommended to prevent contact.

### Other Protection

Do not eat, drink, or smoke when handling this product.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Violet, viscous fluid
Odor:	Odorless
Odor threshold:	Not determined
Auto-ignition temperature:	Not determined
Decomposition temperature:	Not determined
Evaporation Rate (ASTM D972):	Not determined
Flash point Cleveland Open Cup (ASTM D92):	204°C (399°F)
Flash point Pensky-Martens (ASTM D93):	Not determined
Flammability (solid, gas):	Non-flammable
Lower flammability limit:	Not determined
Upper flammability limit:	Not determined
Initial boiling point and boiling range:	Not determined
Melting point/freezing point:	Not determined
Partition coefficient (n-octanol/water), Log P <sub>ow</sub> :	Not determined
pH:	Not applicable
Solubility in water:	1.5 µg/mL at 20°C (68°F)



Relative density (ASTM D1298) 15.6°C/15.6°C:	0.94
Vapor density:	Not Determined
Vapor pressure:	< 0.23 mmHg at 20°C (68°F)
Viscosity (ASTM D445):	> 1.3 mm <sup>2</sup> /s at 100°C (212°F) < 900 mm <sup>2</sup> /s at -55°C (-67°F)

## 10. STABILITY AND REACTIVITY INFORMATION

### Conditions to avoid

Heat and open flame

### Materials to avoid

Strong oxidizing agents

### Hazardous polymerization

Does not occur.

### Hazardous decomposition products

Decomposition of this product under fire conditions can produce carbon dioxide, carbon monoxide, phenol, phosphoric acid, phosphorus oxides, and other organic decomposition products.

### Stability

Stable

## 11. TOXICOLOGICAL INFORMATION

Acute toxicity	Method	Species	Result
Bis(2-ethylhexyl) sebacate	Dermal	Rat	LD <sub>50</sub> = 18,300 mg/kg
	Inhalation	Rat	LC <sub>50</sub> > 3.2 mg/L
	Oral	Rat	LD <sub>50</sub> = 12,800mg/kg
Polydimethylsiloxane	Dermal	Rat	LD <sub>50</sub> > 15,440 mg/kg
	Inhalation	--	--
	Oral	Rat	LD <sub>50</sub> > 15,440 mg/kg
Tributyl phosphate	Dermal	Rat	LD <sub>50</sub> > 3,100 mg/kg
	Inhalation	Rat	LC <sub>50</sub> > 4.2 mg/l after 4 hours
	Oral	Rat	LD <sub>50</sub> = 1,552 mg/kg

Aspiration hazard	Test Method	Species	Result
Bis(2-ethylhexyl) sebacate	OECD 403	Rat	LC <sub>50</sub> > 3.2 mg/L
Polydimethylsiloxane	--	--	No data available
Tributyl phosphate	OECD 403	Rat	LC <sub>50</sub> > 4.2 mg/l after 4 hours

Carcinogenicity	Test Method	Species	Result
Bis(2-ethylhexyl) sebacate	--	--	No data available
Polydimethylsiloxane	--	--	No data available
Tributyl phosphate	EPA OTS 798.3300	Rat	NOEL = 8.9 mg/kg

Eye damage / irritation	Test Method	Species	Results
Bis(2-ethylhexyl) sebacate	OECD 405	Rabbit	Not irritating
Polydimethylsiloxane	--	--	No data available
Tributyl phosphate	OECD 405	Rabbit	Slightly irritating

Germ cell mutagenicity	Test Method	Species	Results
Bis(2-ethylhexyl) sebacate	OECD 473	Hamster	Not mutagenic
Polydimethylsiloxane	Ames test	<i>S. typhimurium</i>	Not mutagenic
Tributyl phosphate	Ames test	<i>S. typhimurium</i>	Not mutagenic



Reproductive toxicity	Test Method	Species	Results
Bis(2-ethylhexyl) sebacate	OECD 414 OECD 415	Rat Rat	NOAEL ≥ 1080 mg/kg bodyweight/day LOAEL = 2399 mg/kg bodyweight/day
Polydimethylsiloxane	--	--	No data available
Tributyl phosphate	EPA OTS 798.4700 EPA OTS 798.4900	Rat Rat	NOAEL ≥ 225 mg/kg bodyweight NOAEL = 750 mg/kg bodyweight/day

#### Respiratory sensitization

No data available

Skin sensitization	Test Method	Species	Results
Bis(2-ethylhexyl) sebacate	OECD 406	Guinea pig	Not sensitizing
Polydimethylsiloxane	--	--	No data available
Tributyl phosphate	EPA OTS 798.4100	Guinea pig	Not sensitizing

Skin corrosion/irritation	Test Method	Species	Results
Bis(2-ethylhexyl) sebacate	OECD 404	Rabbit	Not irritating
Polydimethylsiloxane	--	--	No data available
Tributyl phosphate	OECD 404	Rabbit	Slightly irritating

Specific target organ toxicity – repeated exposure (STOT-RE)	Test Method	Species	Results
Bis(2-ethylhexyl) sebacate	OECD 407	Rat	NOAEL ≥ 1000 mg/kg
Polydimethylsiloxane	--	--	No data available
Tributyl phosphate	EPA OTS 798.2650	Mouse	NOEL = 75 mg/kg bodyweight

#### Specific target organ toxicity – single exposure (STOT-SE)

No data available

## 12. ECOLOGICAL CONSIDERATIONS

Aquatic Toxicity	Test Method	Species	Results
Bis(2-ethylhexyl) sebacate	OECD 201 OECD 202 OECD 203	<i>D. subspicatus</i> <i>Daphnia sp.</i> <i>Leuciscus idus</i>	EC <sub>50</sub> > 1000 mg/L after 72 hours EC <sub>50</sub> > 1000 mg/L after 48 hours LC <sub>50</sub> > 1000 mg/L after 96 hours
Polydimethylsiloxane	--	--	No data available
Tributyl phosphate	FEA 1984 OECD 202 OECD 203	<i>Daphnia magna</i> <i>Daphnia sp.</i> <i>Oryzias latipes</i>	NOEC = 1.3 mg/L after 24 hours NOEC = 1.8 mg/L LC <sub>50</sub> = 17 mg/L after 96 hours

Terrestrial Toxicity	Test Method	Species	Results
Bis(2-ethylhexyl) sebacate	EU Method C.8	Earthworm	NOEC = 550 mg/kg after 14 days
Polydimethylsiloxane	--	--	No data available
Tributyl phosphate	Literature	<i>T. urticae</i>	NOEC = 2000 mg/kg

Biodegradation	Test Method	Results
Bis(2-ethylhexyl) sebacate	OECD 301B	Readily biodegradable: 84.6% biodegradation after 28 days
Polydimethylsiloxane	--	No data available
Tributyl phosphate	OECD 301C	Readily biodegradable: 77.1% biodegradation after 28 days

Bioconcentration Factor (BCF)	Results
Bis(2-ethylhexyl) sebacate	BCF = 27
Polydimethylsiloxane	No data available
Tributyl phosphate	BCF = 21 – 35



Partition Coefficient	Results
Bis(2-ethylhexyl) sebacate	log P <sub>ow</sub> = 10.08
Polydimethylsiloxane	No data available
Tributyl phosphate	log P <sub>ow</sub> = 4.00

### 13. DISPOSAL INFORMATION

This unused material, when discarded or disposed of, is not specifically listed as a hazardous waste in Federal regulations; however, it could be considered hazardous if it meets criteria for being toxic, corrosive, ignitable, or reactive according to U.S. EPA definitions (40 CFR Subpart C). This material could also become hazardous waste if it is mixed with or comes into contact with a listed hazardous waste. If it is a hazardous waste, regulations in 40 CFR 262-266, 268, 270, and 279 may apply.

### 14. TRANSPORT INFORMATION

#### United States Department of Transportation (DOT)

Not regulated

#### Canada Transport - Transportation of Dangerous Goods (TDG)

Not regulated

#### International Air Transport Association (IATA)

Not regulated

#### International Carriage of Dangerous Goods by Inland Waterways (AND)

Not regulated

#### International Carriage of Dangerous Goods by Rail (RID)

Not regulated

#### International Carriage of Dangerous Goods by Road (ADR)

Not regulated

#### International Civil Aviation Organization (ICAO)

Not regulated

#### International Maritime Dangerous Goods Code (IMDG Code)

Not regulated

### 15. REGULATORY INFORMATION

#### California (Proposition 65)

This product does not contain any of the substances known to the State of California to cause cancer, birth defects, or reproductive harm.

#### CERCLA Reportable Quantity

This product is not reportable under 40 CFR Part 302.4.

#### Environmental Protection Agency

None of the ingredients are listed

#### National Toxicology Program (NTP)

None of the ingredients are listed.

#### OSHA Hazard Communication Standard

Not hazardous per 29 CFR 1910.1200(d).

#### SARA Title III Section 302 Extremely Hazardous Substances (40 CFR Part 355)

This product is not regulated under Section 302 of SARA and 40 CFR Part 355.



**SARA Title III Sections 311/312 Hazardous Categorization (40 CFR Part 370)**

Hazardous categories for this product are:

Acute = No      Chronic = No      Fire = No      Pressure = No      Reactive = No

**SARA Title III Section 313 (40 CFR Part 372)**

This product is not regulated under Section 313 of SARA and 40 CFR Part 372.

**U.S. Inventory (TSCA)**

Listed on inventory.

**Australia Inventory (AICS)**

Listed on inventory.

**Canada Inventory (DSL)**

All of the ingredients are listed.

**China (CICS)**

None of the ingredients are listed.

**EC Inventory (EINECS/ELINCS)**

In Compliance

**International Agency for Research on Cancer (IARC)**

None of the ingredients are listed.

**Japan Inventory (MITI)**

Listed on inventory.

**Korea Inventory (ECL)**

Listed on inventory.

**16. OTHER INFORMATION**

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Safety Data Sheet Creation Date:      17 January 2012

Safety Data Sheet Revision Date:      16 January 2019

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