MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name **Bel-Ray Super DOT 4 Brake Fluid**

Product Code 99480

MSDS Number 6419

Version # 1.1

Revision date 04-20-2012

Product use Brake Fluid

Manufacturer information

Bel-Ray Company, Inc.
P.O. Box 526
Farmingdale, NJ 07727
United States of America
+1 732 938 2421
CHEMTREC: +1 703-527-3887 (outside USA)
CHEMTREC: 800-424-9300 (USA)

2. Hazards Identification

Emergency overview

WARNING

Irritating to eyes and skin.

Potential health effects

Routes of exposure Ingestion. Skin contact. Eye contact.

Eyes Avoid contact with eyes.

Skin Irritating to skin. Avoid contact with the skin.

Inhalation May cause irritation of respiratory tract.

Ingestion Irritating. May cause nausea, stomach pain and vomiting.

Target organs Kidneys. Liver.

Chronic effects Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.

Signs and symptoms Symptoms may include redness, edema, drying, defatting and cracking of the skin. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

3. Composition / Information on Ingredients

Components	CAS #	Percent
2,2'-(octylimino)bisethanol	15520-05-5	3 - 7
Diethylene Glycol	111-46-6	1 - 5
Other components below reportable levels		60 - 100

Composition comments Not applicable to consumer products.

4. First Aid Measures

First aid procedures

Eye contact Flush eyes immediately with large amounts of water. If a contact lens is present, DO NOT delay irrigation or attempt to remove the lens. Continue rinsing.

Skin contact Remove and isolate contaminated clothing and shoes. Wash off immediately with soap and plenty of water.

Inhalation If symptoms develop move victim to fresh air. Get medical attention, if needed.

Ingestion Never give anything by mouth to a victim who is unconscious or is having convulsions. Rinse mouth thoroughly. Do not induce vomiting. Never give liquid to an unconscious person.

General advice Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. If you feel unwell, seek medical advice (show the label where possible). Show this safety data sheet to the doctor in attendance.

5. Fire Fighting Measures

Flammable properties Not flammable by WHMIS criteria.

Extinguishing media

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Water. Do not use water jet as an extinguisher, as this will spread the fire.

Protection of firefighters

Protective equipment for firefighters Firefighters should wear full protective clothing including self contained breathing apparatus.

Fire fighting equipment / instructions Not available.

Explosion data

Sensitivity to static discharge Not available.

Sensitivity to mechanical impact Not available.

Hazardous combustion products Carbon monoxide and carbon dioxide.

6. Accidental Release Measures

Personal precautions Keep unnecessary personnel away. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak.

Methods for containment Stop leak if you can do so without risk. Dike the spilled material, where this is possible.

Methods for cleaning up Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Clean surface thoroughly to remove residual contamination.

Never return spills in original containers for re-use. Clean up in accordance with all applicable regulations. For waste disposal, see section 13 of the MSDS.

Other information Clean up in accordance with all applicable regulations.

7. Handling and Storage

Handling Avoid breathing mist or vapor. Avoid contact with skin. Avoid contact with eyes. Do not use in areas without adequate ventilation. When using do not eat or drink. Wash thoroughly after handling.

Storage Store in a closed container away from incompatible materials. Use care in handling/storage.

8. Exposure Controls / Personal Protection

Engineering controls Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Eye / face protection Wear safety glasses with side shields (or goggles).

Skin protection Wear suitable protective clothing.

Respiratory protection Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

9. Physical & Chemical Properties

Appearance Not available.

Physical state Liquid.

Form Liquid.

Color Not available.

Odor Not available.

Odor threshold Not available.

pH	7 - 11.5
Vapor pressure	0.11 hPa estimated
Density	1.07 - 1.09 g/cm3
Vapor density	Not available.
Boiling point	> 527 °F (> 275 °C)
Melting point/Freezing point	13.28 °F (-10.4 °C) estimated
Solubility (water)	350 g/l
Solubility (other)	Not available.
Specific gravity	1.07 estimated
Relative density	Not available.
Flash point	> 264.2 °F (> 129 °C)
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Auto-ignition temperature	444 °F (228.89 °C) estimated
VOC	2 % estimated
Viscosity	17 - 18 mm^2/s
Percent volatile	2 % estimated
Other data	
Flammability class	Combustible IIIB estimated
Viscosity temperature	68 °F (20 °C)

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Avoid temperatures exceeding the flash point.
Incompatible materials	Not available.
Hazardous decomposition products	At thermal decomposition temperatures, carbon monoxide and carbon dioxide.

11. Toxicological Information

Toxicological data

Product	Test Results
Bel-Ray Super DOT 4 Brake Fluid (Mixture)	Acute Oral LD50 Guinea pig: 700 g/kg estimated Acute Oral LD50 Mouse: 665 g/kg estimated Acute Oral LD50 Rabbit: 1345 g/kg estimated Acute Oral LD50 Rat: 780 g/kg estimated Acute Other LD50 Mouse: 480 g/kg estimated Acute Other LD50 Rat: 385 g/kg estimated

Components	Test Results
Diethylene Glycol (111-46-6)	Acute Dermal LD50 Rabbit: 11890 mg/kg Acute Oral LD50 Cat: 3300 mg/kg Acute Oral LD50 Dog: 9000 mg/kg Acute Oral LD50 Guinea pig: 8700 mg/kg Acute Oral LD50 Guinea pig: 14 g/kg Acute Oral LD50 Mouse: 23700 mg/kg Acute Oral LD50 Mouse: 13.3 g/kg Acute Oral LD50 Rabbit: 26.9 g/kg Acute Oral LD50 Rat: > 7700 mg/kg Acute Oral LD50 Rat: 15.6 g/kg Acute Other LD50 Mouse: 22500 mg/kg Acute Other LD50 Mouse: 9.6 g/kg Acute Other LD50 Rabbit: 2000 mg/kg

Components	Test Results
	Acute Other LD50 Rat: 7700 mg/kg Acute Other LD50 Rat: 7.7 g/kg

Acute effects Causes skin irritation. Causes skin and eye irritation.

Local effects May irritate eyes and skin.

Chronic effects Not expected to be hazardous by WHMIS criteria.

12. Ecological Information

Ecotoxicological data

Components	Test Results
Diethylene Glycol (111-46-6)	LC50 Western mosquitofish (Gambusia affinis): > 32000 mg/l 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability Not available.

13. Disposal Considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This product, in its present state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40 CFR 261.4 (b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. Dispose in accordance with all applicable regulations.

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport Information

TDG

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

15. Regulatory Information

Canadian regulations This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

WHMIS status Controlled

WHMIS classification D2B - Other Toxic Effects-TOXIC

WHMIS labeling

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other Information

Further information
HMIS® is a registered trade and service mark of the NPCA.

HMIS® ratings
Health: 2*
Flammability: 1
Physical hazard: 0

NFPA ratings
Health: 2
Flammability: 1
Instability: 0

Disclaimer
Bel-Ray Company cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use.

Issue date
04-20-2012

This data sheet contains changes from the previous version in section(s):
This document has undergone significant changes and should be reviewed in its entirety.

MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name **Bel-Ray Silicone DOT 5 Brake Fluid**

Product Code 99450

MSDS Number 6420

Version # 1.2

Revision date 08-22-2013

Product use Brake Fluid

Manufacturer information

Bel-Ray Company, Inc.
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+1 732 938 2421
CHEMTREC: +1 703-527-3887 (outside USA)
CHEMTREC: 800-424-9300 (USA)

2. Hazards Identification

Emergency overview

WARNING

Irritating to eyes and skin.

Potential health effects

Routes of exposure Inhalation. Ingestion. Skin contact. Eye contact.

Eyes Contact with eyes may cause irritation. Avoid contact with eyes.

Skin Irritating to skin. Avoid contact with the skin.

Inhalation May cause irritation of respiratory tract. Prolonged inhalation may be harmful.

Ingestion Irritating. May cause nausea, stomach pain and vomiting.

Chronic effects Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.

Signs and symptoms Symptoms may include redness, edema, drying, defatting and cracking of the skin. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Potential environmental effects May cause long-term adverse effects in the environment.

3. Composition / Information on Ingredients

Components	CAS #	Percent
TRIBUTYL PHOSPHATE	126-73-8	1 - 5
Other components below reportable levels		60 - 100

Composition comments Not applicable to consumer products.

4. First Aid Measures

First aid procedures

Eye contact Flush eyes immediately with large amounts of water. If a contact lens is present, DO NOT delay irrigation or attempt to remove the lens. Continue rinsing. Get medical attention if irritation develops and persists.

Skin contact Remove and isolate contaminated clothing and shoes. Wash off immediately with soap and plenty of water. Get medical attention if irritation develops and persists.

Inhalation Move to fresh air. Get medical attention, if needed.

Ingestion Never give anything by mouth to a victim who is unconscious or is having convulsions. Rinse mouth thoroughly. Do not induce vomiting. If ingestion of a large amount does occur, call a poison control center immediately. Never give liquid to an unconscious person.

General advice Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Call a physician if symptoms develop or persist. Show this safety data sheet to the doctor in attendance.

5. Fire Fighting Measures

Flammable properties Not flammable by WHMIS criteria.

Extinguishing media

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Water. Do not use water jet as an extinguisher, as this will spread the fire.

Protection of firefighters

Protective equipment for firefighters Firefighters should wear full protective clothing including self contained breathing apparatus.

Fire fighting equipment / instructions Not available.

Explosion data

Sensitivity to static discharge Not available.

Sensitivity to mechanical impact Not available.

Hazardous combustion products Carbon monoxide and carbon dioxide.

6. Accidental Release Measures

Personal precautions Keep unnecessary personnel away. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak. In case of spills, beware of slippery floors and surfaces.

Environmental precautions Prevent further leakage or spillage if safe to do so. Do not contaminate water.

Methods for containment Stop leak if you can do so without risk. Dike the spilled material, where this is possible.

Methods for cleaning up Should not be released into the environment.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills in original containers for re-use. Clean up in accordance with all applicable regulations. For waste disposal, see section 13 of the MSDS.

Other information Clean up in accordance with all applicable regulations.

7. Handling and Storage

Handling Avoid breathing mist or vapor. Avoid contact with skin. Avoid contact with eyes. Do not use in areas without adequate ventilation. Avoid prolonged exposure. When using do not eat or drink. Wash thoroughly after handling. Avoid release to the environment.

Storage Room temperature - normal conditions. Store in a closed container away from incompatible materials. Keep out of the reach of children. Use care in handling/storage.

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value
TRIBUTYL PHOSPHATE (126-73-8)	TWA	0.2 ppm

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Components	Type	Value
TRIBUTYL PHOSPHATE (126-73-8)	TWA	2.2 mg/m3
		0.2 ppm

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value
TRIBUTYL PHOSPHATE (126-73-8)	TWA	0.2 ppm

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Components	Type	Value
TRIBUTYL PHOSPHATE (126-73-8)	TWA	0.2 ppm

Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)

Components	Type	Value
TRIBUTYL PHOSPHATE (126-73-8)	TWA	2.2 mg/m3
		0.2 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
TRIBUTYL PHOSPHATE (126-73-8)	PEL	5 mg/m3

Engineering controls Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Eye / face protection Wear safety glasses with side shields (or goggles).

Skin protection Wear suitable protective clothing.

Respiratory protection Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

9. Physical & Chemical Properties

Appearance Oily.
Oily.

Physical state Liquid.

Form Liquid.
Liquid.

Color Purple
Purple

Odor Odorless.
Odorless.

Odor threshold Not available.

pH Not available.

Vapor pressure < 0.1 mm Hg

Density 958.00 kg/m³

Vapor density Not available.

Boiling point 552.2 °F (289 °C) estimated

Melting point/Freezing point -112 °F (-80 °C) estimated

Solubility (water) Not available.

Solubility (other) Not available.

Specific gravity 0.958

Relative density Not available.

Flash point 402.80 °F (206.00 °C)

Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Auto-ignition temperature	Not available.
Viscosity	42 - 43 cSt
Other data	
Flammability class	Combustible IIIB estimated
Viscosity temperature	77 °F (25 °C)

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Avoid temperatures exceeding the flash point.
Incompatible materials	Not available.
Hazardous decomposition products	At thermal decomposition temperatures, carbon monoxide and carbon dioxide.

11. Toxicological Information

Toxicological data

Product	Species	Test Results
Bel-Ray Silicone DOT 5 Brake Fluid (Mixture)		
Acute		
Inhalation		
LC50	Cat	10088.8887 mg/l, estimated
	Rat	5466.6665 mg/l, estimated
Oral		
LD50	Hen	82800 mg/kg, estimated
	Mouse	52844.4453 mg/kg, estimated
	Rat	133.3333 g/kg, estimated
Other		
LD50	Mouse	7044.4443 mg/kg, estimated
	Rat	4444.4443 mg/kg, estimated
		35.5556 g/kg, estimated

Components	Species	Test Results
TRIBUTYL PHOSPHATE (126-73-8)		
Acute		
Dermal		
LD50	Rabbit	> 3100 mg/kg
Inhalation		
LC50	Cat	227 mg/l, 4 Hours
	Rat	123 mg/l, 6 Hours
Oral		
LD50	Hen	1863 mg/kg
	Mouse	1189 mg/kg
	Rat	3 g/kg
Other		
LD50	Mouse	158.5 mg/kg
	Rat	100 mg/kg
		0.8 g/kg

* Estimates for product may be based on additional component data not shown.

Acute effects Causes skin irritation. Causes skin and eye irritation.

Local effects Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Contact with eyes may cause irritation.

Chronic effects Prolonged inhalation may be harmful. Not expected to be hazardous by WHMIS criteria.

12. Ecological Information

Ecotoxicological data

Product		Species	Test Results
Bel-Ray Silicone DOT 5 Brake Fluid (Mixture)			
Fish	LC50	Fish	336.8889 mg/l, 96 hours, estimated
Components		**Species**	**Test Results**
TRIBUTYL PHOSPHATE (126-73-8)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	1 - 10 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Ecotoxicity Contains a substance which causes risk of hazardous effects to the environment.

Environmental effects An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Persistence and degradability Not available.

13. Disposal Considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. This product, in its present state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40 CFR 261.4 (b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. Dispose in accordance with all applicable regulations.

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport Information

TDG

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

15. Regulatory Information

Canadian regulations This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

WHMIS status Controlled

WHMIS classification D2B - Other Toxic Effects-TOXIC

WHMIS labeling

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other Information

Further information

HMIS® is a registered trade and service mark of the NPCA.

HMIS® ratings

Health: 2
Flammability: 1
Physical hazard: 0

NFPA ratings

Health: 2
Flammability: 1
Instability: 0

Disclaimer

Bel-Ray Company cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use.