

160-057

BRAKE FLUID DOT 3

M4312C, M4316C, M4332C, M4334C,
M4339C
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MSDS Preparation Date (dd/mm/yyyy) 09/07/2007

MATERIAL SAFETY DATA SHEET

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

Product Identifier : **BRAKE FLUID DOT 3**
 Product Use : Brake fluid
 Chemical Family : Mixture
 Manufacturer part no. : M4312C, M4316C, M4332C, M4334C, M4339C
 Supplier's name and address: **Radiator Specialty Co., of Canada**
 1711 Aimco Blvd.
 Mississauga, ON, Canada
 L4W 1H7
 24 Hr. Emergency Tel # : 613-996-6666 (CANUTEC)
 Manufacturer's name and address: **Refer to Supplier**

SECTION 2 - COMPOSITION INFORMATION ON INGREDIENTS

Ingredients	CAS #	Wt. %	LC ₅₀ (4hr) (Rat, inh.)	LD ₅₀	
				(Oral, rat)	(Rabbit, dermal)
Diethylene glycol	111-46-6	1.00 - 5.00	N/Av	12,565 mg/kg	11,880 mg/kg
Diethylene glycol monobutyl ether	112-34-5	1.00 - 5.00	N/Av	5660 mg/kg	2700 mg/kg
Methoxy triglycol	112-35-6	10.00 - 30.00	N/Av	11,300 µL/kg	7100 µL/kg
Triethylene glycol monoethyl ether	112-50-5	15.00 - 40.00	> 50,000 mg/m ³	8500 mg/kg	8170 mg/kg
Triethylene glycol monobutyl ether	143-22-6	10.00 - 30.00	N/Av	5300 mg/kg	3540 µL/kg
Polyethylene glycol monoethyl ether	27879-07-8	1.00 - 5.00	N/Av	N/Av	N/Av
Polyethylene glycol monomethyl ether	9004-74-4	5.00 - 10.00	N/Av	22 mL/kg	> 20 mL/kg
Polyalkylene glycol monobutyl ether	9004-77-7	5.00 - 10.00	N/Av	N/Av	N/Av

SECTION 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
 Yellow liquid. Slight ethereal odour.
 Warning! Harmful if swallowed. May be harmful if inhaled. May cause nausea, vomiting, headache and other central nervous system effects. Can cause cyanosis. Kidney injury may occur. Causes eye irritation. May cause respiratory irritation.

*****POTENTIAL HEALTH EFFECTS*****

Target organs : Eyes, skin, respiratory system, digestive system, central nervous system, Kidneys.
 Routes of exposure : *Inhalation*: YES *Skin Absorption*: YES *Skin & Eyes*: YES *Ingestion*: YES
 Signs and symptoms of short-term (acute) exposure

- Inhalation* : If product is heated or mists are formed, inhalation may cause irritation to the nose, throat and respiratory tract. May be absorbed following inhalation, and cause additional symptoms similar to those listed for ingestion.
- Skin* : May cause mild skin irritation. Can be absorbed through skin.
- Eyes* : May cause moderate to severe irritation. May cause corneal damage.
- Ingestion* : May cause irritation of mouth, throat, and stomach. Symptoms may include pain, headache, nausea, vomiting, dizziness, drowsiness and other central nervous system effects. Could cause cyanosis (bluish discoloration of the skin due to deficient oxygenation of the blood). Kidney injury may occur.

Potential chronic health effects

: None known or reported by the manufacturer.
 Other important hazards : See TOXICOLOGICAL INFORMATION, Section 11.

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SECTION 4 - FIRST AID MEASURES

- Inhalation** : Immediately remove person to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen by qualified medical personnel only. If irritation persists, seek prompt medical attention.
- Skin contact** : Remove/Take off immediately all contaminated clothing. Wash exposed area thoroughly with soap and water for at least 15 minutes. If irritation persists, seek prompt medical attention. Wash contaminated clothing before re-use.
- Eye contact** : Immediately flush eyes with plenty of water for at least 15 minutes. Seek immediate medical attention/advice.
- Ingestion** : Do not induce vomiting. Get medical attention. Never give anything by mouth to an unconscious person.

SECTION 5 - FIRE FIGHTING MEASURES

- Fire hazards/conditions of flammability** : Not flammable under normal conditions of use. However, may ignite if exposed to extreme heat and flame. Vapours are heavier than air and collect in confined and low-lying areas. Closed containers may rupture if exposed to excess heat or flame due to a build-up of internal pressure.
- Flash point** : 137 °C
- Flash point Method** : Pensky Martens Closed Cup **Auto-ignition temperature** : N/Av
- Lower flammable limit (% by vol.)** : N/Av **Upper flammable limit (% by vol.)** : N/Av
- Oxidizing properties** : None known.
- Flame Projection Length** : N/Av **Flashback observed** : N/Av
- Explosion data: Sensitivity to mechanical impact / static discharge** : Not expected to be sensitive to mechanical impact or static discharge
- Suitable extinguishing media** : Dry chemical, foam, carbon dioxide and water fog.
- Special fire-fighting procedures/equipment** : Firefighters should wear proper protective equipment and self contained breathing apparatus with full face piece operated in positive pressure mode. Move containers from fire area if safe to do so. Water spray may be useful in cooling equipment exposed to heat and flame.
- Hazardous combustion products** : Carbon oxides; Aldehydes, formaldehyde; other unidentified organic compounds

SECTION 6 - ACCIDENTAL RELEASE MEASURES

- Personal precautions** : All persons dealing with clean-up should wear the appropriate protective equipment including self-contained breathing apparatus. Keep all other personnel upwind and away from the spill/release. Restrict access to area until completion of clean-up.
- Environmental precautions** : Ensure spilled product does not enter drains, sewers, waterways, or confined spaces.
- Spill response/cleanup** : Ventilate area of release. Remove all sources of ignition. Contain and absorb spilled liquid with non-combustible, inert absorbent material (e.g. sand), then place absorbent material into a container for later disposal (see Section 13). Notify the appropriate authorities as required.
- Prohibited materials** : None known.

SECTION 7 - HANDLING AND STORAGE

- Safe Handling procedures** : Use in a well ventilated area. Wear suitable protective equipment during handling. Avoid breathing vapour or mist. Do not ingest. Avoid contact with skin, eyes and clothing. Keep away from extreme heat and flame. Avoid contact with incompatible materials. Wash thoroughly after handling.
- Storage requirements** : Store in a cool, dry, well-ventilated area. Keep away from direct sunlight. Do not store in copper or aluminum (or their alloys) containers. Inspect periodically for damage or leaks. No smoking in the area.
- Incompatible materials** : Oxidizing agents; Acids; Halogenated compounds.
- Special packaging materials** : Always keep in containers made of the same materials as the supply container.

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits				
Ingredients	ACGIH TLV		OSHA PEL	
	TWA	STEL	PEL	STEL
Diethylene glycol	10 mg/m ³ (AIHA WEEL)	N/Av	N/Av	N/Av
Diethylene glycol monobutyl ether	N/Av	N/Av	N/Av	N/Av
Methoxy triglycol	N/Av	N/Av	N/Av	N/Av
Triethylene glycol monoethyl ether	N/Av	N/Av	N/Av	N/Av
Triethylene glycol monobutyl ether	N/Av	N/Av	N/Av	N/Av
Polyethylene glycol monoethyl ether	N/Av	N/Av	N/Av	N/Av
Polyethylene glycol monomethyl ether	N/Av	N/Av	N/Av	N/Av
Polyalkylene glycol monobutyl ether	N/Av	N/Av	N/Av	N/Av

Ventilation and engineering measures

: Use general or local exhaust ventilation to maintain air concentrations below recommended exposure limits.

Respiratory protection

: If the TLV is exceeded, a NIOSH/MSHA-approved respirator is advised. Seek advice from respiratory protection specialists.

Skin protection

: Impervious gloves must be worn when using this product. Advice should be sought from glove suppliers.

Eye / face protection

: Chemical splash goggles are recommended.

Other protective equipment

: Depending on conditions of use, an impervious apron should be worn. An eyewash station and safety shower should be made available in the immediate working area.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: Liquid	Appearance	: yellow
Odour	: Slight ethereal odour	Odour threshold	: N/Av
pH	: N/Av		
Boiling point	: 259.6°C	Specific gravity	: 1.039
Melting/Freezing point	: -51°C	Coefficient of water/oil distribution	: N/Av
Vapour pressure (mmHg @ 20° C / 68° F)	: N/Av	Solubility in water	: 100%
Vapour density (Air = 1)	: 6	Evaporation rate (n-Butyl acetate = 1)	: < 0.01
Volatile organic Compounds (VOC's)	: N/Av	Volatiles (% by weight)	: 2.8
Absolute pressure of container	: N/Av	Viscosity	: N/Av

SECTION 10. REACTIVITY AND STABILITY DATA

Stability and reactivity	: Stable under the recommended storage and handling conditions prescribed. May form explosive peroxides during prolonged exposure to air and heat. Hazardous polymerisation does not occur.
Conditions to avoid	: Avoid heat and open flame. Keep away from direct sunlight.
Materials To Avoid And Incompatibility	: See Section 7 (Handling and Storage) section for further details.
Hazardous decomposition products	: Peroxides. Refer to Section 5 for additional 'Hazardous combustion products'.

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SECTION III - TOXICOLOGICAL INFORMATION

- Toxicological data** : There is no available data for the product itself, only for the ingredients See Section 2
- Carcinogenic status** : No components are listed as carcinogens by ACGIH, IARC, OSHA or NTP
- Reproductive effects** : Not expected to have other reproductive effects.
- Teratogenicity** : Not expected to be a teratogen.
- Mutagenicity** : Not expected to be mutagenic in humans
- Sensitization to material** : Not expected to be a skin or respiratory sensitizer
- Synergistic materials** : None known.
- Medical conditions aggravated by overexposure** : Pre-existing skin, eye and respiratory disorders.
- Additional Health Hazards** : CNS depression may result from extreme exposures.


SECTION IV - ECOLOGICAL INFORMATION

- Environmental effects** : The product should not be allowed to enter drains or water courses, or be deposited where it can affect ground or surface waters. No data is available on the product itself
- Important environmental characteristics** : No data is available on the product itself.
- Ecotoxicological** : No data is available on the product itself.

SECTION V - DISPOSAL CONSIDERATIONS

- Handling for Disposal** : Handle waste according to recommendations in Section 7 Empty containers retain residue (liquid and/or vapour) and can be dangerous
- Methods of Disposal** : Dispose of in accordance with federal, provincial and local hazardous waste laws.

SECTION VI - TRANSPORTATION INFORMATION

Regulatory Information	UN Number	Shipping Name	Class	Packing Group	Label
TDG	None	Not regulated	not regulated	none	
TDG Additional Information	None				

SECTION VII - REGULATORY INFORMATION

Canadian Environmental Protection Act (CEPA) Information: All ingredients listed appear on the Domestic Substances List (DSL).

Canadian WHMIS Classification:
Class D2B (Materials Causing Other Toxic Effects, Toxic Material)



This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

TSCA: All listed ingredients appear on the Toxic Substances Control Act (TSCA) inventory

SECTION VIII - OTHER INFORMATION


- Legend** : ACGIH American Conference of Governmental Industrial Hygienists
AIHA American Industrial Hygiene Association
CAS Chemical Abstract Services
IARC International Agency for Research on Cancer
Inh Inhalation
N/Ap not applicable

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N/Av: not available
 NIOSH: National Institute of Occupational Safety and Health
 OSHA: Occupational Safety and Health Administration
 PEL: Permissible exposure limit
 RTECS: Registry of Toxic Effects of Chemical Substances
 STEL Short Term Exposure Limit
 TDG Canadian Transportation of Dangerous Goods Act & Regulations
 TLV Threshold Limit Values
 TWA Time Weighted Average
 TSCA Toxic Substance Control Act
 WEEL Workplace Environmental Exposure Level
 WHMIS Workplace Hazardous Materials Identification System

References

- : 1. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices for 2006
- 2. International Agency for Research on Cancer Monographs, searched 2007.
- 3. Canadian Centre for Occupational Health and Safety, CCInfoWeb databases, 2007 (Chempendium, HSDB and RTECs).
- 4. Material Safety Data Sheets from manufacturer

<p>Prepared for: Radiator Specialty Co of Canada 1711 Almco Blvd Mississauga, ON, Canada, L4W 1H7 Telephone 905-625-9117 (Mon - Fri., 9 AM - 5 PM) Please direct all enquiries to Radiator Specialty.</p>	
<p>Prepared by: ICC The Compliance Center Inc Canada: 1-888-977-4834 USA: 1-888-442-9628 http://www.thecompliancecenter.com</p>	

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