



## Material Safety Data for: Brake Fluid

### 1. PRODUCT IDENTIFICATION

**Name** brake fluid  
**Synonyms** -  
**Product Uses** hydraulic fluid

### 2. INGREDIENTS

	CAS #	%	TWA/ELV / TLV ppm	LD <sub>50</sub>		LC <sub>50</sub> ppm INHALATION
				ORAL	(mg/kg) SKIN	
Diethylene Glycol Monobutyl Ether	112-34-5	15-35%	not listed	2000	2700	not known
Triethylene Glycol Monobutyl Ether	143-22-6	15-25%	not listed	5300	3540	not known
Tripropylene Glycol	24800-44-0	15-20%	not listed	3000	not known	not known
Diethylene Glycol	111-46-6	5-10%	not listed	2300	11,890	not known
Polypropylene Glycol	25322-69-4	5-10%	not listed	>2000	>20,000	not known
Diethylene Glycol Monoethyl Ether	111-90-0	5-10%	25	3000	8500	not known
Triethylene Glycol Monoethyl Ether	112-50-5	5-10%	not listed	3070	8000	not known
Diethylene Glycol Monopropyl Ether	6881-94-3	5-10%	not listed	not known	not known	not known
Polypropylene Glycol Monopropyl Ether	29011-16-3	5-10%	not listed	not known	not known	not known

### 3. (a) HAZARDS SUMMARY

**Hazards, Quick Guide:** ingestion may damage the liver & kidneys and even cause death

#### Canada – WHMIS

Key:

#### D 2B

**B 2** – Flash Point <38°C, **B 3** – Flash Point >38°C & <93°C

**D 1** – Immediately Toxic, **D 2** – Chronic Toxicity

**C** – Oxidising Substance, **E** – Corrosive

#### U.S.A. – HMIS

Key:

#### Health – 2, Fire – 1, Reactivity – 0

0=minimal, 1=slight, 2=moderate, 3=serious, 4=severe

### 3. (b) HAZARDS – TOXICITY

#### Effects, Acute Exposure

Skin Contact little to no effect  
 Skin Absorption slight; no toxic effects likely by this route  
 Eye Contact may be slightly irritating  
 Inhalation vapour may irritate; low vapour pressure greatly reduces likelihood of inhalation  
 Ingestion little or no effect likely to accidental ingestion of small amounts

#### Effects, Chronic Exposure

General prolonged absorption (or large single dose) may damage liver & kidneys  
 Sensitising not a sensitiser in humans or animals  
 Carcinogen/Tumorigen not considered a tumorigen in humans; one component is a mouse tumorigen  
 Reproductive Effect one component fetotoxic in rodents and reduces fertility no known effect in humans  
 Mutagen may be a rodent mutagen; no known effect on humans  
 Synergistic With not known  
 LD<sub>50</sub> (oral) 2070mg/kg  
 LD<sub>50</sub> (skin) 6350mg/kg  
 LC<sub>50</sub> (inhalation) not known – no data available

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**4. FIRST AID**

SKIN:	Wash with soap and plenty of water. Remove contaminated clothing and do not reuse until thoroughly cleaned or laundered.
EYES:	Wash eyes with plenty of water, holding eyelids open. Seek medical assistance promptly if there is irritation.
INHALATION:	Remove from contaminated area promptly. <b>CAUTION: Rescuer must not endanger himself!</b> If breathing stops, administer artificial respiration and seek medical aid promptly.
INGESTION:	Give plenty of water to dilute product. Do not induce vomiting (NOTE below). Keep victim quiet. If vomiting occurs, lower victim's head below hips to prevent inhalation of vomited material. Seek medical help promptly.

*Inadvertent inhalation of vomited material may seriously damage the lungs. The danger of this is greater than the risk of poisoning through absorption of this relatively low-toxicity substance. The stomach should only be emptied under medical supervision, and after the installation of an airway to protect the lungs.*

**5. PHYSICAL PROPERTIES**

Odour & Appearance	clear, amber, hygroscopic liquid with mild ether odour
Odour Threshold	not known
Vapour Pressure	below 0.14mmHg / 0.019kPa (20°C / 68°F)
Evaporation Rate ( <i>Butyl Acetate = 1</i> )	below 0.001 – not considered volatile
Vapour Density (air = 1)	above 3
Boiling Range	approx 230-300°C / 446-572°F
Freezing Point	not known – probably well below -50°C / -45°F
Specific Gravity	1.023-1.035 (20/20°C)
Water Solubility	complete
Also soluble in	most oxygenated organic solvents and some hydrocarbons
Viscosity	not known
pH	6.5-7.5 – ( <i>none of the components liberate hydrogen ions when dissolved</i> )

**6. FLAMMABILITY & FIRE FIGHTING**

Flash Point	130°C / 270°F (closed cup)
Autoignition Temperature	not known – probably above 250°C / 482°F
Flammable Limits	not known
Combustion Products	carbon monoxide, nitrogen oxides, smoke, part oxidised hydrocarbon fragments
Firefighting Precautions	foam, dry chemical, water fog, water spray; firefighters must wear SCBA
Static Charge Accumulation	cannot accumulate a static charge on agitation or pumping

**7. STABILITY / REACTIVITY**

Dangerously Reactive With	strong oxidising agents
Also Reactive With	none known
Stability	stable; will not polymerize
Decomposes in Presence of	not known
Decomposition Products	none apart from Hazardous Combustion Products
Sensitive to Mechanical Impact	no

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**8. PROTECTIVE EQUIPMENT / EXPOSURE CONTROL**

TWAEV / TLV	25ppm / 137mg/m <sup>3</sup> ( <i>diethylene glycol monoethyl ether – no other components listed</i> )
STEL	not listed
Ventilation	mechanical ventilation may be required to maintain airborne titre below TWAEV; depending on handling procedures
Hands	not required – nitrile gloves may be worn – <i>consult supplier to confirm suitability</i>
Eyes	safety glasses with side shields – <i>always protect the eyes</i>
Clothing	no special protective clothing required

**9. HANDLING & STORAGE**

Store in a cool, dry environment, away from sources of ignition, heat and oxidising agents.

Components of this product may react with oxygen in the air to form explosive or flammable peroxides. This product is hygroscopic and absorbs moisture from air. Ensure that containers are full and tightly sealed. If prolonged storage of a part container is anticipated, flush headspace with dry nitrogen gas prior to sealing. Empty containers may contain a flammable / explosive vapour. Always ensure that containers, whether empty or full, or part full, are tightly sealed unless in use.

Never cut, drill, weld or grind on or near this container. Avoid contact with skin and wash work clothes frequently. An eye bath and safety shower must be available near the workplace.

**10. SPILL PROCEDURES**

Leak Precaution	dyke to control spillage and prevent environmental contamination
Handling Spill	ventilate contaminated area; recover free liquid with suitable pumps; absorb residue on an inert sorbent, sweep, shovel, & store in closed containers for recycling or disposal

**11. DISPOSAL**

Waste Disposal	<b>do not flush to sewer</b> , recycle solvent if possible, if local regulations permit, may be put in sanitary landfill, may be incinerated in approved facility
Containers	<b>Drums</b> should be reused. Recondition and pressure test by a licensed reconditioner prior to re-use. <b>Pails</b> must be vented and thoroughly dried prior to crushing and recycling. <b>IBCs</b> (intermediate bulk containers): polyethylene bottle must be pressure tested & recertified at 30 months. Replace at 60 months (5yrs). Steel containers must be inspected, pressure tested & recertified every 5 years. <i>Never cut, drill, weld or grind on or near this container, even if empty</i>

**12. ENVIRONMENTAL INFORMATION**

Bioaccumulation	the substances in this product are not bioaccumulators
Biodegradation	these substances degrade readily and rapidly in the presence or absence of oxygen
Abiotic Degradation	this product reacts with atmospheric hydroxyl radicals; its estimated half-life in air is unknown
Mobility in soil, water	this product is water soluble and will move readily in soil and water
Environmental Impact	none of the substances in this product are particularly toxic to the environment

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**13. TRANSPORT REGULATIONS**

<i>Canada TDG</i>	<b>PIN</b>	<b>UN-not regulated for transport</b>
	<b>Shipping Name</b>	<b>not regulated for transport</b>
	<b>Class</b>	<b>not regulated for transport</b>
	<b>Packing Group</b>	<b>not regulated for transport</b>
<i>U.S.A. 49 CFR</i>	<b>PIN</b>	<b>UN- not regulated for transport</b>
	<b>Shipping Name</b>	<b>not regulated for transport</b>
	<b>Class</b>	<b>not regulated for transport</b>
	<b>Packing Group</b>	<b>not regulated for transport</b>
<b>Marine Pollutant</b>		not a marine pollutant

**14. EMERGENCY INFORMATION**

<i>Canada</i>	<b>Call CANUTEC (collect)</b>	<b>(613) 996-6666</b>
<i>U.S.A.</i>	<b>Call CHEMTREC</b>	<b>(800) 424-9300</b>

**15. REGULATIONS**

All of the substances in this product are listed on the Canadian DSL and the U.S.A. TSCA

**16. PREPARATION INFORMATION**

*Prepared for Megaloid Laboratories by Peter Bursztyn, (705) 734-1577*

**File Name: Brake Fluid**

*Data from RTECS, Haz. Substance Data Base, Cheminfo, manufacturer data, and other source, as available*

*Preparation Date: **October 2003** Revision Date: **July 2006***

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