

SAFETY DATA SHEET

Revision Date: 03/08/2012

Print Date: 11/2/2012

MSDS Number: R0330094

Version: 1.11

DOT 4 Brake Fluid
376475

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Ashland	Regulatory Information Number	1-800-325-3751
P.O. Box 2219	Telephone	614-790-3333
Columbus, OH 43216	Emergency telephone number	1-800-ASHLAND (1-800-274-5263)

Product name DOT 4 Brake Fluid

Product code 376475

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: liquid, yellow

WARNING! MAY AFFECT THE CENTRAL NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA. MAY BE HARMFUL IF SWALLOWED. MAY CAUSE EYE IRRITATION. MAY CAUSE SKIN AND RESPIRATORY TRACT IRRITATION. PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE DERMATITIS AND BURNS.

Potential Health Effects

Exposure routes

Inhalation, Skin absorption, Skin contact, Eye Contact, Ingestion

Eye contact

Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes.

Skin contact

Can cause skin irritation. Symptoms may include redness and burning of skin, and other skin damage. Skin absorption of this material (or a component) may be increased through injured skin. Although rare, skin contact with ethylene glycol may cause allergic skin reaction (delayed skin rash which may be followed by blistering, scaling and other skin effects).

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Ingestion

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. Liver, kidney and brain damage in humans has resulted from swallowing lethal or near-lethal amounts of ethylene glycol. Ingestion of medications contaminated with diethylene glycol has caused kidney failure and death in humans. Products containing diethylene glycol should be considered toxic by ingestion.

Inhalation

It is possible to breathe this material under certain conditions of handling and use (for example, during heating, spraying, or stirring). Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.).

Aggravated Medical Condition

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: lung (for example, asthma-like conditions), skin, Liver, kidney, Central nervous system, Upper respiratory tract

Symptoms

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness), pain in the abdomen and lower back, acute kidney failure (sudden slowing or stopping of urine production), lung edema (fluid buildup in the lung tissue)

Target Organs

Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals: male reproductive effects, kidney damage, liver damage, central nervous system damage, Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans: liver damage, kidney damage

Carcinogenicity

This material is not listed as a carcinogen by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or the Occupational Safety and Health Administration (OSHA).

Reproductive hazard

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This material (or a component) has been shown to cause harm to the fetus in laboratory animal studies. Harm to the fetus occurs only at exposure levels that harm the pregnant animal. The relevance of these findings to humans is uncertain.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components	CAS-No. / Trade Secret No.	Concentration
POLYETHYLENE GLYCOL MONOMETHYL ETHER	9004-74-4	>=20-<30%
TRIETHYLENE GLYCOL MONOMETHYL ETHER	112-35-6	>=20-<30%
TRIETHYLENE GLYCOL MONOBUTYL ETHER	143-22-6	>=15-<20%
TETRAETHYLENE GLYCOL	112-60-7	>=5-<10%
DIETHYLENE GLYCOL	111-46-6	>=1.5-<5%
TRIETHYLENE GLYCOL	112-27-6	>=1.5-<5%
SODIUM HYDROXIDE	1310-73-2	>=1-<1.5%
DIISOPROPANOLAMINE	110-97-4	>=1-<1.5%

4. FIRST AID MEASURES

Eyes

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

Skin

Remove contaminated clothing. Flush exposed area with large amounts of water. If skin is damaged, seek immediate medical attention. If skin is not damaged and symptoms persist, seek medical attention. Launder clothing before reuse.

Ingestion

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

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Inhalation

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

Notes to physician

Hazards: Ingestion or other significant exposure to this material (or a component) may cause metabolic acidosis.

Treatment: Fomepizole (4-methylpyrazole) is an effective antagonist of alcohol dehydrogenase, and as such, may be used as an antidote in the treatment of ethylene glycol, diethylene glycol and methanol poisoning.

5. FIREFIGHTING MEASURES

Suitable extinguishing media

Dry chemical, Carbon dioxide (CO₂), Alcohol-resistant foam, Water spray

Hazardous combustion products

Alcohols, Aldehydes, ethers, carbon dioxide and carbon monoxide, nitrogen oxides (NO_x), toxic fumes, various hydrocarbons

Precautions for fire-fighting

Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). DO NOT direct a solid stream of water or foam into hot, burning pools of liquid since this may cause frothing and increase fire intensity. Frothing can be violent and possibly endanger any firefighter standing too close to the burning liquid. Use water spray to cool fire exposed containers and structures until fire is out if it can be done with minimal risk. Avoid spreading burning material with water used for cooling purposes.

NFPA Flammable and Combustible Liquids Classification

Combustible Liquid Class IIIB

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

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For personal protection see section 8. Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.

Environmental precautions

Prevent spreading over a wide area (e.g. by containment or oil barriers). Do not let product enter drains. Do not flush into surface water or sanitary sewer system.

Methods for cleaning up

Keep in suitable, closed containers for disposal. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

Other information

Comply with all applicable federal, state, and local regulations.

7. HANDLING AND STORAGE

Handling

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed.

Storage

Store in a cool, dry, ventilated area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

SODIUM HYDROXIDE		1310-73-2
ACGIH	Ceiling Limit Value:	2 mg/m ³
NIOSH	Ceiling Limit Value and Time Period (if specified):	2 mg/m ³
OSHA Z1	Permissible exposure limit	2 mg/m ³

General advice

These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect

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exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

Exposure controls

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Eye protection

Wear chemical splash goggles when there is the potential for exposure of the eyes to liquid, vapor or mist. Maintain eye wash station near work area.

Skin and body protection

Wear resistant gloves (consult your safety equipment supplier).

Wear normal work clothing including long pants, long-sleeved shirts and foot covering to prevent direct contact of the product with the skin. Launder clothing before reuse. If skin irritation develops, contact your facility health and safety professional or your local safety equipment supplier to determine the proper personal protective equipment for your use.

Respiratory protection

A NIOSH-approved air-purifying respirator with an appropriate cartridge and/or filter may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits (if applicable) or if overexposure has otherwise been determined. Protection provided by air-purifying respirators is limited. Use a positive pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are not known or any other circumstances where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Colour	yellow
Odour	ammoniacal
Boiling point/boiling range	(>)446 °F / 230 °C @ 760.00 mmHg
pH	(Average) 8.0 5% aqueous solution
Flash point	250 °F / 121 °C Closed Cup
Vapour pressure	(<)0.167 hPa @ 68 °F / 20 °C
Relative vapour density	(>)10 AIR=1

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Density	(Average) 1.055 g/cm ³ @ 68 °F / 20 °C
	8.76 lb/gal
Water solubility	soluble
Autoignition temperature	(>)419 °F / 215 °C

10. STABILITY AND REACTIVITY

Stability

Stable.

Conditions to avoid

Avoid heat, open flame, and prolonged storage at elevated temperatures.

Incompatible products

Avoid contact with: acids, acid anhydrides, Alkaline earth metals, Alkali metals, aluminum, salts of strong bases, strong bases, strong oxidizing agents, Sulphur compounds

Hazardous decomposition products

acetaldehyde, Alcohols, Aldehydes, carbon dioxide and carbon monoxide, dioxolanes, ethers, formaldehyde-like, ketones, nitrogen oxides (NO_x), Organic acids, various hydrocarbons

Hazardous reactions

Product will not undergo hazardous polymerization.

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity

Acute oral toxicity - : no data available
Product

Acute oral toxicity - Components

TRIETHYLENE : LD 50: 11,300 mg/kg Species: Rat

GLYCOL

MONOMETHYL ETHER

TRIETHYLENE : LD 50: 5,300 mg/kg Species: Rat

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GLYCOL MONOBUTYL ETHER	
TETRAETHYLENE GLYCOL	: LD 50: ca. 30,000 mg/kg Species: Rat
DIETHYLENE GLYCOL	: LD 50: 12,565 mg/kg Species: Rat
TRIETHYLENE GLYCOL	: LD 50: 15,000 - 22,000 mg/kg Species: Rat
SODIUM HYDROXIDE	: LD Lo: 500 mg/kg Species: Rabbit
DIISOPROPANOLAMIN E	: LD 50: 2,000 mg/kg Species: Rat

Acute inhalation toxicity

Acute inhalation toxicity - Product	: no data available
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Acute inhalation toxicity - Components

DIETHYLENE GLYCOL	: LC Lo: 130 mg/m ³ Exposure time: 2 h Species: Mouse
TRIETHYLENE GLYCOL	: LC 50: > 3.9 mg/l Exposure time: 4 h Species: Rat

Acute dermal toxicity

Acute dermal toxicity - Product	: no data available
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Acute dermal toxicity - Components

TRIETHYLENE GLYCOL MONOBUTYL ETHER	: LD 50: 3,502 mg/kg Species: Rabbit
TETRAETHYLENE GLYCOL	: LD 50: 22,460 mg/kg Species: Rabbit
DIETHYLENE GLYCOL	: LD 50: 11,890 mg/kg Species: Rabbit
TRIETHYLENE GLYCOL	: LD 50: > 22.6 g/kg Species: Rabbit
SODIUM HYDROXIDE	: LD 50: 1,350 mg/kg Species: Rabbit
DIISOPROPANOLAMIN E	: LD 50: 8,000 mg/kg Species: Rabbit

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Acute toxicity (other routes of administration)

Acute toxicity (other routes of administration) : no data available

Acute toxicity (other routes of administration) - Components

TRIETHYLENE : LD 50: 11,700 mg/kg Application Route: Intravenous
GLYCOL Species: Rat

12. ECOLOGICAL INFORMATION

Biodegradability

Biodegradability - Product : no data available

Biodegradability - Components

TETRAETHYLENE : 40 % Method: OECD Test Guideline 301D
GLYCOL

DIETHYLENE GLYCOL : 92 %

Bioaccumulation

Bioaccumulation - Product : no data available

Bioaccumulation - Components

TRIETHYLENE : Species: Sheepshead minnow (Cyprinodon variegatus)
GLYCOL Exposure time: 28 d Concentration: 7.8 mg/l
Bioconcentration factor (BCF): 1,700 Method: Flow through

Ecotoxicity effects

Toxicity to fish

Toxicity to fish - Product : no data available

Toxicity to fish - Components

TETRAETHYLENE : LC 50: > 1,000 mg/l
GLYCOL Exposure time: 96 h
Species: Pimephales promelas (fathead minnow)

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DIETHYLENE GLYCOL	: LC 50: > 32,000 mg/l Exposure time: 96 h Species: Western mosquitofish (<i>Gambusia affinis</i>) Method: Static Remarks: Mortality
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TRIETHYLENE GLYCOL	: LC 50: > 10,000 mg/l Exposure time: 96 h Species: Bluegill (<i>Lepomis macrochirus</i>) Method: Static Remarks: Mortality
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SODIUM HYDROXIDE	: LC 50: 125 mg/l Exposure time: 96 h Species: Western mosquitofish (<i>Gambusia affinis</i>) Method: Static Remarks: Mortality
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DIISOPROPANOLAMINE	: LC 50: 1,100 mg/l Exposure time: 24 h Species: <i>Carassius auratus</i> (goldfish) Test Type: static test
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Toxicity to daphnia and other aquatic invertebrates.

Toxicity to daphnia and other aquatic invertebrates.	: no data available
- Product	

Toxicity to daphnia and other aquatic invertebrates. - Components

TETRAETHYLENE GLYCOL	: LC 50: 7,746 mg/l Exposure time: 48 h Species: Water flea (<i>Daphnia magna</i>)
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DIETHYLENE GLYCOL	: LC 50: > 10,000 mg/l Exposure time: 24 h Species: Water flea (<i>Daphnia magna</i>) Method: Static
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Remarks: Mortality

TRIETHYLENE GLYCOL	: EC 50: 46,500 mg/l Exposure time: 48 h Species: Water flea (Daphnia magna) Method: Static Remarks: Intoxication
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SODIUM HYDROXIDE	: EC 50: 34.59 - 47.13 mg/l Exposure time: 48 h Species: Water flea (Daphnia magna) Remarks: Intoxication
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Toxicity to algae

Toxicity to algae - Product	: no data available
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Toxicity to algae - Components

TETRAETHYLENE GLYCOL	: IC50: > 1,000 mg/l Species: Pseudokirchneriella subcapitata (green algae)
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Toxicity to bacteria

Toxicity to bacteria - Product	: no data available
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13. DISPOSAL CONSIDERATIONS

Waste disposal methods

Dispose of in accordance with all applicable local, state and federal regulations.

14. TRANSPORT INFORMATION

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REGULATION

ID NUMBER	PROPER SHIPPING NAME	*HAZARD CLASS	SUBSIDIARY HAZARDS	PACKING GROUP	MARINE POLLUTANT / LTD. QTY.
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U.S. DOT - ROAD

Not dangerous goods

U.S. DOT - RAIL

Not dangerous goods

U.S. DOT - INLAND WATERWAYS

Not dangerous goods

TRANSPORT CANADA - ROAD

Not dangerous goods

TRANSPORT CANADA - RAIL

Not dangerous goods

TRANSPORT CANADA - INLAND WATERWAYS

Not dangerous goods

INTERNATIONAL MARITIME DANGEROUS GOODS

Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO

Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

Not dangerous goods

MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES

Not dangerous goods

***ORM = ORM-D, CBL = COMBUSTIBLE LIQUID**

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

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15. REGULATORY INFORMATION

California Prop. 65

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

SARA Hazard Classification SARA 311/312 Classification

Acute Health Hazard

SARA 313 Component(s)

TRIETHYLENE GLYCOL MONOMETHYL ETHER	30.00 %
TRIETHYLENE GLYCOL MONOBUTYL ETHER	18.00 %

New Jersey RTK Label Information

Triethylene glycol monomethyl ether, borate	30989-05-0
POLYETHYLENE GLYCOL MONOMETHYL ETHER	9004-74-4
TRIETHYLENE GLYCOL MONOMETHYL ETHER	112-35-6
TRIETHYLENE GLYCOL MONOBUTYL ETHER	143-22-6
POLYOXYETHYLENE MONOBUTYL ETHER	9004-77-7
SODIUM HYDROXIDE	1310-73-2

Pennsylvania RTK Label Information

Triethylene glycol monomethyl ether, borate	30989-05-0
POLYETHYLENE GLYCOL MONOMETHYL ETHER	9004-74-4
TRIETHYLENE GLYCOL MONOMETHYL ETHER	112-35-6
TRIETHYLENE GLYCOL MONOBUTYL ETHER	143-22-6
POLYOXYETHYLENE MONOBUTYL ETHER	9004-77-7
TETRAETHYLENE GLYCOL	112-60-7
DIETHYLENE GLYCOL	111-46-6
TRIETHYLENE GLYCOL	112-27-6
PENTAETHYLENE GLYCOL	4792-15-8
SODIUM HYDROXIDE	1310-73-2
DIISOPROPANOLAMINE	110-97-4

Notification status

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EU. EINECS	y (positive listing)
US. Toxic Substances Control Act	y (positive listing)
Australia. Industrial Chemical (Notification and Assessment) Act	n (Negative listing)
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL). (Can. Gaz. Part II, Vol. 133)	y (positive listing)
Japan. Kashin-Hou Law List	y (positive listing)
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	y (positive listing)
China. Inventory of Existing Chemical Substances	y (positive listing)

Reportable quantity - Product

US. EPA CERCLA Hazardous Substances (40 CFR 302)	66671 lbs
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Reportable quantity-Components

SODIUM HYDROXIDE	1310-73-2	1000 lbs
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	HMIS	NFPA
Health	2	1
Flammability	1	1
Physical hazards	0	
Instability		0
Specific Hazard	--	--

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).