SAFETY DATA SHEET

1. Identification

Product identifier **Dot 3 – Premium Brake Fluid**

Other means of identification

Product code H-130 (21-b)

Recommended use Brake fluid.

Recommended restrictions None known.

Manufacturer / Importer / Supplier / Distributor information

Manufacturer/Supplier Federal-Mogul World Headquarters
26555 Northwestern Highway
Southfield, Michigan 48033
USA

Contact person: msds.request@federalmogul.com

Emergency Telephone: 24hr EP (INFOTRAC): 1-800-535-5053
International: (001) 352-323-3500

Non-emergency Telephone: 1-248-354-9844

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Reproductive toxicity	Category 2

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement Causes serious eye damage. Causes skin irritation. Suspected of damaging fertility or the unborn child.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wash thoroughly after handling. Wear protective gloves/eye protection/face protection.

Response If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. If on skin: Wash with plenty of water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse. IF exposed or concerned: Get medical advice/attention. If exposed or concerned: Get medical advice/attention.

Storage Store locked up.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC) Not classified.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Triethylene glycol monobutyl ether	143-22-6	25-29
Diethylene glycol	111-46-6	16-20
Polyethylene glycol hexylether	112-59-4	11-15

2-(2-Butoxyethoxy)-ethanol	112-34-5	10-14
Triethylene glycol methyl ether	112-35-6	7-11
Polyethylene glycol	25322-68-3	4-8
Diethylene glycol monoethyl ether	111-90-0	3-6
2-(2-propoxyethoxy)ethanol	6881-94-3	2-6
Triethylene glycol ethyl ether	112-50-5	2-6
Triethylene glycol	112-27-6	1-5
2-(2-Methoxyethoxy)ethanol	111-77-3	<5
Ethylene glycol	107-21-1	<5

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Inhalation Move injured person into fresh air and keep person calm under observation. Get medical attention if any discomfort continues.

Skin contact Remove contaminated clothes and rinse skin thoroughly with water. Get medical attention if irritation develops or persists.

Eye contact Flush thoroughly with water for at least 15 minutes. Get immediate medical assistance. If medical assistance is not immediately available, flush an additional 15 minutes.

Ingestion Rinse mouth thoroughly with water and give large amounts of milk or water, if person is conscious. Only induce vomiting at the instruction of medical personnel. Get medical attention if any discomfort continues.

Most important symptoms/effects, acute and delayed Exposed individuals may experience eye tearing, redness, and discomfort. Defats the skin.

Indication of immediate medical attention and special treatment needed Treat symptomatically.

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Water spray, dry powder or carbon dioxide.

Unsuitable extinguishing media Water jet.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing should be worn when fighting chemical fires. Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace.

Fire-fighting equipment/instructions Use standard firefighting procedures and consider the hazards of other involved materials. Containers close to fire should be removed immediately or cooled with water.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Avoid contact with skin and eyes. Wear suitable protective clothing. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up Remove sources of ignition. Absorb spillage with non-combustible, absorbent material. Collect in containers and seal securely.

Environmental precautions Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling Avoid contact with skin and eyes. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Use Personal Protective Equipment recommended in section 8 of the SDS. Pregnant women should not work with the product, if there is the least risk of exposure.

Conditions for safe storage, including any incompatibilities Keep container in a well-ventilated place. Keep containers tightly closed. Store away from incompatible materials.

8. Exposure controls/personal protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
2-(2-Butoxyethoxy)-ethanol (CAS 112-34-5)	STEL	10 ppm	Inhalable fraction and vapor.
Ethylene glycol (CAS 107-21-1)	Ceiling	100 mg/m3	Aerosol.

US. Workplace Environmental Exposure Level (WEEL) Guides

Components	Type	Value	Form
Diethylene glycol monoethyl ether (CAS 111-90-0)	TWA	140 mg/m3 25 ppm	
Diethylene glycol (CAS 111-46-6)	TWA	10 mg/m3	
Polyethylene glycol (CAS 25322-68-3)	TWA	10 mg/m3	Particulate.
Triethylene glycol (CAS 112-27-6)	TWA	10 mg/m3	Particulate.

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Provide adequate ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of vapors. Provide easy access to water supply and eye wash facilities.

Individual protection measures, such as personal protective equipment

Eye/face protection Chemical goggles and face shield are recommended.

Skin protection

Hand protection Chemical resistant gloves. Butyl rubber gloves are recommended. Be aware that the liquid may penetrate the gloves. Frequent change is advisable. Suitable gloves can be recommended by the glove supplier.

Other Wear appropriate clothing to prevent repeated or prolonged skin contact.

Respiratory protection If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA 29 CFR 1910.134. Respirator type: High-efficiency particulate respirator.

Thermal hazards When material is heated, wear gloves to protect against thermal burns.

General hygiene considerations Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Observe any medical surveillance requirements.

9. Physical and chemical properties

Appearance Light amber liquid.

Physical state Liquid.

Form Liquid.

Color Light amber.

Odor Mild.

Odor threshold Not available.

pH 9.5 - 10.5

Melting point/freezing point Not available.

Initial boiling point and boiling range > 401 °F (> 205 °C)

Flash point Not available.

Evaporation rate Not available.

Flammability (solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Vapor pressure	Not available.
Vapor density	Not available.
Relative density	1.028 - 1.036 (20°C)
Solubility(ies)	Soluble in water.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.

10. Stability and reactivity

Reactivity	The product is stable and non reactive under normal conditions of use, storage and transport.
Chemical stability	Stable under normal temperature conditions. Glycol Ethers can form peroxides on storage – do not distil to dryness.
Possibility of hazardous reactions	Will not occur.
Conditions to avoid	Avoid exposure to high temperatures or direct sunlight.
Incompatible materials	Strong oxidizing agents. Strong bases.
Hazardous decomposition products	Carbon dioxide. Carbon monoxide.

11. Toxicological information

Information on likely routes of exposure

Ingestion	May cause discomfort if swallowed.
Inhalation	Glycol does not easily form a vapour at normal temperatures. Therefore, it must be heated or misted before inhalation exposure can occur.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye damage.
Symptoms related to the physical, chemical and toxicological characteristics	Exposed individuals may experience eye tearing, redness, and discomfort. Defats the skin.

Information on toxicological effects

Acute toxicity May cause discomfort if swallowed.

Components	Species	Test Results
2-(2-Butoxyethoxy)-ethanol (CAS 112-34-5)		
Acute		
Dermal		
LD50	Rabbit	2700 mg/kg
Oral		
LD50	Rat	4500 mg/kg
2-(2-Methoxyethoxy)ethanol (CAS 111-77-3)		
Acute		
Dermal		
LD50	Rabbit	6540 mg/kg
Oral		
LD50	Rat	5500 mg/kg
Diethylene glycol monoethyl ether (CAS 111-90-0)		
Acute		
Dermal		
LD50	Rabbit	8476 mg/kg
Oral		
LD50	Rat	5.54 g/kg
Ethylene glycol (CAS 107-21-1)		
Acute		
Dermal		
LD50	Rabbit	9530 mg/kg

Components	Species	Test Results
Oral		
LD50	Rat	4700 mg/kg
Polyethylene glycol hexylether (CAS 112-59-4)		
Acute		
Dermal		
LD50	Rabbit	1500 mg/kg
Oral		
LD50	Rat	3.73 ml/kg
Triethylene glycol (CAS 112-27-6)		
Acute		
Dermal		
LD50	Rabbit	22460 mg/kg
Oral		
LD50	Rat	15000 - 22000 mg/kg
Triethylene glycol ethyl ether (CAS 112-50-5)		
Acute		
Dermal		
LD50	Rabbit	8200 mg/kg
Oral		
LD50	Rat	10600 mg/kg
Triethylene glycol methyl ether (CAS 112-35-6)		
Acute		
Dermal		
LD50	Rabbit	7100 mg/kg
Oral		
LD50	Rat	11300 mg/kg
Triethylene glycol monobutyl ether (CAS 143-22-6)		
Acute		
Dermal		
LD50	Rabbit	3.54 ml/kg
Oral		
LD50	Rat	5300 mg/kg

Skin corrosion/irritation	Causes skin irritation.
Serious eye damage/eye irritation	Causes serious eye damage.
Respiratory sensitization	No data available.
Skin sensitization	Not a skin sensitizer.
Germ cell mutagenicity	No data available.
Carcinogenicity	No data available.
Reproductive toxicity	Suspected of damaging fertility or the unborn child.
Specific target organ toxicity - single exposure	No data available.
Specific target organ toxicity - repeated exposure	No data available.
Aspiration hazard	No data available.
Further information	Glycol Ethers: Some glycol ethers cause adverse effects in animals that include the reproductive system, offspring, blood, kidney and liver. Organic solvents may be absorbed into the body by inhalation and cause permanent damage to the nervous system, including the brain.

12. Ecological information

Ecotoxicity	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components		Species	Test Results
2-(2-Methoxyethoxy)ethanol (CAS 111-77-3)			
Aquatic			
Fish	LC50	Bluegill (Lepomis macrochirus)	7500 mg/l, 96 hours
Diethylene glycol monoethyl ether (CAS 111-90-0)			
Aquatic			
Fish	LC50	Bluegill (Lepomis macrochirus)	> 10000 mg/l, 96 hours
Ethylene glycol (CAS 107-21-1)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	8050 mg/l, 96 hours
Polyethylene glycol (CAS 25322-68-3)			
Aquatic			
Fish	LC50	Atlantic salmon (Salmo salar)	> 1000 mg/l, 96 hours
Triethylene glycol (CAS 112-27-6)			
Aquatic			
Fish	LC50	Bluegill (Lepomis macrochirus)	> 10000 mg/l, 96 hours

Persistence and degradability Expected to be inherently biodegradable. Expected to be readily biodegradable.

Bioaccumulative potential Potential to bioaccumulate is low.

Partition coefficient n-octanol / water (log Kow)

Diethylene glycol monoethyl ether (CAS 111-90-0)	-0.54
Ethylene glycol (CAS 107-21-1)	-1.36
2-(2-Butoxyethoxy)-ethanol (CAS 112-34-5)	0.56
Polyethylene glycol hexylether (CAS 112-59-4)	1.7

Mobility in soil No data available.

Mobility in general The product is water soluble and may spread in water systems.

Other adverse effects No data available.

13. Disposal considerations

Disposal instructions Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

Local disposal regulations Dispose of in accordance with local regulations.

Hazardous waste code Waste codes should be assigned by the user based on the application for which the product was used.

Waste from residues / unused products Dispose of in accordance with local regulations.

Contaminated packaging Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

Not regulated as a hazardous material by DOT.

IATA

Not regulated as a dangerous good.

IMDG

Not regulated as a dangerous good.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

15. Regulatory information

US federal regulations This product is hazardous according to OSHA 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

2-(2-Butoxyethoxy)-ethanol (CAS 112-34-5)	LISTED
2-(2-Methoxyethoxy)ethanol (CAS 111-77-3)	LISTED
Diethylene glycol monoethyl ether (CAS 111-90-0)	LISTED

Ethylene glycol (CAS 107-21-1)	LISTED
Polyethylene glycol hexylether (CAS 112-59-4)	LISTED
Triethylene glycol ethyl ether (CAS 112-50-5)	LISTED
Triethylene glycol methyl ether (CAS 112-35-6)	LISTED
Triethylene glycol monobutyl ether (CAS 143-22-6)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance
No

SARA 311/312 Hazardous chemical
Yes

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

2-(2-Butoxyethoxy)-ethanol (CAS 112-34-5)
2-(2-Methoxyethoxy)ethanol (CAS 111-77-3)
Diethylene glycol monoethyl ether (CAS 111-90-0)
Ethylene glycol (CAS 107-21-1)
Polyethylene glycol hexylether (CAS 112-59-4)
Triethylene glycol ethyl ether (CAS 112-50-5)
Triethylene glycol methyl ether (CAS 112-35-6)
Triethylene glycol monobutyl ether (CAS 143-22-6)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA)
Not regulated.

Food and Drug Administration (FDA)
Not regulated.

US state regulations
This product does not contain a chemical known to the State of California to cause cancer.

US. Massachusetts RTK - Substance List

2-(2-Methoxyethoxy)ethanol (CAS 111-77-3)
Ethylene glycol (CAS 107-21-1)

US. New Jersey Worker and Community Right-to-Know Act

2-(2-Butoxyethoxy)-ethanol (CAS 112-34-5)	500 lbs
2-(2-Methoxyethoxy)ethanol (CAS 111-77-3)	500 lbs
Diethylene glycol monoethyl ether (CAS 111-90-0)	500 lbs
Ethylene glycol (CAS 107-21-1)	500 lbs
Polyethylene glycol hexylether (CAS 112-59-4)	500 lbs
Triethylene glycol ethyl ether (CAS 112-50-5)	500 lbs
Triethylene glycol methyl ether (CAS 112-35-6)	500 lbs
Triethylene glycol monobutyl ether (CAS 143-22-6)	500 lbs

US. Pennsylvania RTK - Hazardous Substances

2-(2-Butoxyethoxy)-ethanol (CAS 112-34-5)
2-(2-Methoxyethoxy)ethanol (CAS 111-77-3)
Diethylene glycol (CAS 111-46-6)
Diethylene glycol monoethyl ether (CAS 111-90-0)
Ethylene glycol (CAS 107-21-1)
Polyethylene glycol hexylether (CAS 112-59-4)
Triethylene glycol (CAS 112-27-6)
Triethylene glycol ethyl ether (CAS 112-50-5)
Triethylene glycol methyl ether (CAS 112-35-6)
Triethylene glycol monobutyl ether (CAS 143-22-6)

US. Rhode Island RTK

2-(2-Butoxyethoxy)-ethanol (CAS 112-34-5)
2-(2-Methoxyethoxy)ethanol (CAS 111-77-3)
Diethylene glycol monoethyl ether (CAS 111-90-0)
Ethylene glycol (CAS 107-21-1)
Polyethylene glycol hexylether (CAS 112-59-4)
Triethylene glycol ethyl ether (CAS 112-50-5)
Triethylene glycol methyl ether (CAS 112-35-6)
Triethylene glycol monobutyl ether (CAS 143-22-6)

US. California Proposition 65

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Not listed.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	No
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 this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

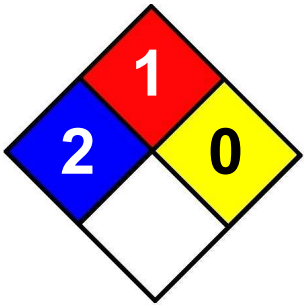
16. Other information, including date of preparation or last revision

Issue date 08-August-2013

Revision date -

Version # 01

NFPA Ratings



References HSDB® - Hazardous Substances Data Bank
Registry of Toxic Effects of Chemical Substances (RTECS)

Disclaimer The information provided on this data sheet was abstracted from supplier material safety data sheets and standard references in occupational health and toxicology. Federal-Mogul makes no representation or warranty with respect to the information obtained from such references. The information is however, as of the date provided, true and accurate to the best of Federal-Mogul's knowledge, and should be used to make an independent determination of the methods to safeguard workers and the environment.