

PRODUCT NAME: ABRO Brake Fluid DOT 4
PRODUCT NUMBER/SIZE: BF-99-4-P250 / 250 mL

Revision Date: 4/23/15

SECTION 1 Identification of the Substance and of the Company/Undertaking

MANUFACTURER'S NAME: ABRO INDUSTRIES, INC.

ADDRESS: 3580 Blackthorn Court
South Bend, IN 46628
USA

PRODUCT DESCRIPTION: Brake Fluid

COMPANY PHONE: 574-232-8289

EMERGENCY 24-HR TELEPHONE: Chemtrec: US/Canada 1-800-424-9300
International +1-703-527-3887

SECTION 2 Hazards Identification

Classification:

Acute toxicity, dermal (Category 5)
Acute toxicity, oral (Category 4)
Skin Irritation (Category 3)
Serious eye damage (Category 1)
Reproductive toxicity (Category 2)

Label Pictogram(s):



Signal Word: WARNING

Hazard Phrases: Harmful if swallowed. May be harmful in contact with skin. Causes mild skin irritation. Causes serious eye damage. Suspected of damaging fertility or the unborn child.

Precautionary Phrases: Obtain special instructions before use. Do not handle until all safety instructions have been read and understood. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear eye protection / face protection.

Response: IF SWALLOWED: Call a POISON CENTER or doctor / physician immediately. IF SWALLOWED: Rinse mouth. IF ON SKIN: Call a POISON CENTER or doctor / physician if you feel unwell. If skin irritation occurs: Get medical advice / attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. IF IN EYES: Immediately call a POISON CENTER or doctor / physician. If exposed or concerned: Get medical advice / attention.

**Storage /
Disposal:**

Store in a well-ventilated place. Dispose of contents/container in accordance with local/regional/national/international regulations.

Other:

Keep out of reach of children.

SECTION 3

Composition/Information on Ingredients

COMPONENTS	CAS Number	Percent by weight
Triethylene Glycol Monomethyl Borate Ether	71243-41-9	30 - 40
Triethylene Glycol Monomethyl Ether	112-35-6	28 - 31
Polyethylene Glycol Methyl Ether	9004-74-4	14 - 28
Diethylene Glycol	111-46-6	0 – 5
Triethylene Glycol Monobutyl Ether	143.22-6	0 – 3.25
Tetraethylene Glycol	112-60-7	0 - 2
Polyethylene Glycol	25322-68-3	0 – 2
Tetraethylene Glycol Monobutyl Ether	1559-34-8	0 – 1.5

SECTION 4

First Aid Measures

General

Take proper precautions to ensure your own health and safety before attempting rescue and providing first aid.

Skin

Wash skin with soap and water. Remove contaminated clothing. Launder contaminated clothing before reuse. (Discard contaminated shoes.) If irritation occurs get medical attention.

Inhalation

Remove exposed person to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, give artificial respiration. CALL A PHYSICIAN IMMEDIATELY.

Eye

Flush eyes with large amounts of water for at least 15 minutes, lifting eyelids to insure complete flushing of surface. GET MEDICAL ATTENTION IMMEDIATELY.

Ingestion

Never give anything by mouth to an unconscious person. Have patient drink several glasses of water, then induce vomiting by having patient tickle back of throat with finger. Keep airway clear. GET MEDICAL ATTENTION IMMEDIATELY.

SECTION 5

Fire Fighting Measures

Flammable Properties**Classification**

OSHA/NFPA Class IIIB combustible liquid

Flash Point:

<121 °C (249 °F) PMCC

Auto Ignition Temperature

310 °C (590 °F)

Lower Flammable Limit

No Data Available

Upper Flammable Limit

No Data Available

Extinguishing Media

Suitable: SMALL FIRE: Use dry chemicals, CO₂, water spray or alcohol resistant foam. LARGE FIRE: Use water spray, water fog or alcohol resistant foam.

Unsuitable: Do not use solid water stream.

Protection of Firefighters

Protective Equipment/Clothing: Wear positive pressure self-contained breathing apparatus (SCBA). Structural fire fighters protective clothing will only provide limited protection.

Fire Fighting Guidance: Fight fire from maximum distance or use unmanned hose handlers or monitor nozzles. Move containers from fire area if you can do it without risk. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. Always stay away from tanks engulfed in fire.

Hazardous Combustion Products: Carbon Oxides (CO, CO₂)

SECTION 6 Accidental Release Measures

Release Response

Combustible liquid. Eliminate all sources of ignition. Do not touch or walk through spilled material. Stop leak if you can do so without risk. Prevent entry into waterways, sewers, basements or confined areas. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Use clean non-sparking tools to collect absorbed material.

SECTION 7 Handling and Storage

Handling

Normal precautions common to good manufacturing practice should be followed in handling and storage. Open and handle container with care. Do not handle near heat, sparks or flame. Avoid contact with incompatible agents. Use only with adequate ventilation/personal protection. Avoid contact with eyes, skin, and clothing. Do not enter storage area unless adequately ventilated. Metal containers involved in the transfer of this material should be grounded and bonded. Handle empty containers with care as residue may be combustible. After handling, always wash hands thoroughly with soap and water. Isolate, vent, drain, wash and purge systems or equipment before maintenance or repair. Observe precautions pertaining to confined space entry. Check atmosphere for explosiveness and oxygen deficiencies. Use only non-sparking tools.

Storage

Store in well ventilated area. Store away from heat, open flame and strong oxidizing agents. Keep container tightly closed and properly labeled. Ground all equipment containing this material. Use only non-sparking tools.

SECTION 8

Exposure Controls/Personal Protection

Engineering Controls

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits.

Personal Protection

Inhalation A respiratory protection program that meets OSHA's 29 CFR 1910.134 or ANSI Z88.2 requirements must be followed whenever workplace conditions warrant respirator use. No occupational exposure limit(s) have been established for this material or its components. If nuisance mists cause discomfort, U.S. National Institute for Occupational Safety and Health (NIOSH) approved respiratory protection is suggested.

Skin Wear chemical resistant gloves such as rubber, neoprene, or vinyl. When skin contact is possible, protective clothing including gloves, apron, sleeves, boots, head and face protection should be worn. The equipment must be cleaned thoroughly after each use.

Eye Safety glasses are required as minimum requirements. Use splash goggles when eye contact due to splashing or spraying liquid is possible.

Additional Remarks

Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use, and the hazards and/or potential hazards that may be encountered during use. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. Promptly remove soiled clothing and wash thoroughly before reuse. Use care in walking on spilled material. Material spilled on hard surfaces can be a serious slipping/falling hazard.

Occupational Exposure Limits

Component Name Source / Date Value Type Notation

Tetraethylene Glycol US (ACGIH) / 2007 N/L
US (OSHA) / 2007 N/L

Diethylene Glycol US (ACGIH) / 2006 N/L
US (OSHA) / 1993 N/L

SECTION 9

Physical and Chemical Properties

Appearance:	Liquid. Amber.
Odor:	Mild Odor.
Odor Threshold:	No value available.
pH:	8.6 (25% Aqueous Solution)
Boiling Point/Boiling Range:	>232 °C (> 449.6 ° F) @ 760 mm Hg
Freezing Point/ Melting Point:	<-50 °C (-58 °F)
Flash Point:	>121 °C (249.8 °F) PMCC
Auto-Ignition:	310 °C (590 °F)
Flammability:	OSHA/NFPA Class IIIB combustible liquid.
Lower Flammable Limit:	No Data Available.
Upper Flammable Limit:	No Data Available.
Explosive Properties:	No Data Available.
Oxidizing Properties:	No Data Available.
Vapor Pressure:	No Data Available.
Evaporation Rate:	No Data Available.
Relative Density:	1.06

Viscosity:	No Data Available.
Solubility (Water):	Soluble in water.
Partition Coefficient (KOW):	No Data Available.
Additional Physical and Chemical Properties:	No Additional Information Available.

SECTION 10

Stability and Reactivity

Chemical Stability

This product is stable.

Conditions to Avoid

Avoid contact with strong oxidizers, excessive heat, sparks or open flame.

Substances to Avoid

Oxidizers

Decomposition Products

Carbon oxides (CO, CO₂)

Hazardous Polymerization

Will Not Occur.

Reactions with Air and Water

Does not react with air, water or other common materials.

SECTION 11

Toxicological Information

Product Summary

This substance appears to be of low toxicity, except for possible mild irritant effects in humans. A high dose may produce central nervous system depression, but there are no reports of adverse health effects from occupational exposure.

- Triethylene Glycol Monomethyl Borate Ester 71243-41-9

Acute Toxicity-Lethal Doses

LC₅₀ (Inhl) Rat 200 MG/L 1 HOUR

LD₅₀ (Oral) Rat >5 G/KG

LD₅₀ (Skin) Rabbit >2G/KG

Irritation

Skin This substance is a mild skin irritant.

Eye This product is suspected to be a mild eye irritant.

- Triethylene Glycol Monomethyl Ether 112-35-6

Acute Toxicity – Lethal Doses

LD₅₀ (Oral) Rat 11.8 G/KG

LD₅₀ (Skin) Rabbit 7.4 G/KG

Irritation

Skin This substance is a mild skin irritant.

Eye This product is suspected to be a mild eye irritant.

Repeated Dose Toxicity .

In severe overexposure enough material might be absorbed into the skin to cause systemic injury.

Reproductive Effects

Laboratory tests indicate high doses may cause adverse reproductive effects in rats and mice.

Carcinogenicity

No conclusive data found in literature search. Not listed by IARC, NTP, or OSHA.

- Polyethylene Glycol Methyl Ether 9004-74-4

LD50 (Oral) Rat 22-40 G/KG

LD50 (Skin) Rabbit >20 G/KG

Reproductive Effects

Maternally toxic oral doses did not produce malformations and was not selectively toxic to developing conceptus.

- Diethylene Glycol 111-46-6

Acute Toxicity- Lethal Doses

LD50 (Oral) Rat 25,300 MG/KG

Mouse 13,300 MG/KG

LD50(Skin) Rabbit 11,900 MG/KG

Acute Toxicity- Effects

Inhalation None Expected

Irritation

Skin Slight skin irritant. Not expected to be a sensitizer.

Eye May cause minor eye irritation.

Repeated Dose Toxicity

Diethylene glycol given to rats in the diet for two years caused bladder stones, tumors, and kidney and liver damage.

These effects were probably due to contaminating ethylene glycol, and the bladder stones were formed from oxalate crystals.

Reproductive Effects

Reproductive and developmental effects have been noted in animals following very large (>3000 mg/kg bw/day) oral doses. However, comparable internal dose levels are not possible with dermal or inhalation exposures under normal conditions of use. Therefore, Diethylene glycol is not considered a possible reproductive or developmental hazard except during very large oral doses.

Carcinogenicity

Not listed by IARC, NTP, or OSHA. No evidence for carcinogenicity was found with a chronic skin-painting study in mice. No carcinogenic or tumor promoting effects in rats exposed up to 2.5% solutions in drinking water for 108 weeks. Older feed studies utilizing limited number tissues but very high doses also provide no evidence of carcinogenicity. Therefore, this substance should not be considered a concern for carcinogenicity.

- Triethylene Glycol Monobutyl Ether 143-22-6

Acute Toxicity- Lethal Doses

LD50 (Oral) Rat 5300MG/KG

LD50 (Skin) Rabbit 3540UL/KG

Irritation

Skin Repeated or prolonged contact may cause slight skin irritation. No significant signs or symptoms indicative of any health hazard are expected to occur as a result of skin absorption exposure. Not expected to be a sensitizer.

Eyes Contact may cause severe eye irritation, but not expected to cause permanent damage.

Target Organ Effects

Eye, skin.

Repeated Dose Toxicity

No known chronic health effects. Repeated or prolonged contact with skin may cause defatting and drying of the skin which may result in dermatitis.

Reproductive Effects

Not expected to occur.

Developmental Effects

Results from animal studies demonstrate that this material is not a teratogen, nor is it toxic to the developing embryo or fetus at non-maternally toxic doses.

Carcinogenicity

Not listed by IARC, NTP, or OSHA.

- Tetraethylene Glycol 112-60-7

Acute Toxicity- Lethal Doses

LD50 (Oral) Rat 290M/KG

LD50 (Skin) Rabbit >20 MG/KG

Carcinogenicity

Not listed by IARC, NTP, or OSHA.

- Polyethylene Glycol 25322-68-3

Acute Toxicity- Lethal Doses

LD50 (Oral) Rat > 30000 MG/KG

LD50 (Skin) Rabbit > 20000 MG/KG

Carcinogenicity

Not listed by IARC, NTP, or OSHA.

- Tetraethylene Glycol Monobutyl Ether 1559-34-8

Repeated Dose Toxicity

No known chronic health effects.

Carcinogenicity

Not listed by IARC, NTP, or OSHA.

SECTION 12 Ecological Information

Ecotoxicity

This material is highly soluble in water. Laboratory toxicity tests indicate that it is not significantly toxic to fish and aquatic invertebrates, although amphibians may be more sensitive. Wildlife species may be more susceptible since mammals and birds do not readily metabolize this material. The odor and flavor of this material may attract some wildlife and cause them to consume spilled material.

Environmental Fate and Pathway

This material will biodegrade rather rapidly in both soil and water, and will not persist in the environment. Due care should be taken to avoid accidental releases to aquatic or terrestrial systems.

Persistence and Degradability

Bioaccumulation: This material is highly soluble in water and should not bioaccumulate in aquatic or terrestrial organisms.

COMPONENT INFORMATION

- Triethylene Glycol Monomethyl Borate Ester 71243-41-9

Ecotoxicity

No Data Available

Environmental Fate and Pathway

- Triethylene Glycol Monomethyl Ether 112-35-6

Ecotoxicity

This material is highly soluble in water. Laboratory toxicity tests indicate that it is not significantly toxic to fish and aquatic invertebrates, although amphibians may be more sensitive. Wildlife species may be more susceptible since mammals and birds do not readily metabolize this material. The odor and flavor of this material may attract some wildlife and cause them to consume spilled material.

Environmental Fate and Pathway

This material will biodegrade rather rapidly in both soil and water, and will not persist in the environment. Due care should be taken to avoid accidental releases to aquatic or terrestrial systems.

Persistence and Degradability

Bioaccumulation: Because of this materials high solubility and rapid biodegradability, it is unlikely that bioaccumulation will occur in aquatic or terrestrial systems. Models estimate that this material will preferentially partition to water versus air or soil.

- Polyethylene Glycol Methyl Ether 9004-74-4

Ecotoxicity

No data available.

Environmental Fate and Pathway

No data available.

- Diethylene Glycol 111-46-6

Ecotoxicity

Diethylene glycol (DEG) is highly soluble in water. Laboratory tests indicate that DEG is not significantly toxic to fish or aquatic invertebrates. While there is no wildlife toxicity data available on DEG, laboratory tests on rats would indicate that it should not be highly toxic to mammals.

Environmental Fate and Pathway

This material is volatile and water soluble. It is not expected to absorb onto soils or sediments. Expected to have high mobility in soils. This material is expected to exist solely as a vapor in the ambient atmosphere. Vapor-phase is degraded in the atmosphere by reaction with photochemically produced hydroxyl radicals. The particulate phase of this material may be physically removed from the air by wet and dry deposition. This material is not expected to persist in the environment.

Persistence and Degradability

Stability in water: Diethylene glycol (DEG) is highly soluble in water.

Biodegradation: This material is expected to be readily biodegradable.

Bioaccumulation: BCF < 1.0 This material is not expected to bioaccumulate.

- Triethylene Glycol Monobutyl Ether 143-22-6

Ecotoxicity

No data available.

Environmental Fate and Pathway

Expected to have high mobility in soils. It is water soluble and is expected to have low volatility. If released to the atmosphere this material should exist in both the vapor and particulate phases. Vapor-phase is degraded in the atmosphere by reaction with photochemically produced hydroxyl radicals. The particulate phase of this material may be physically removed from the air by wet and dry deposition.

Persistence and Degradability

Stability in soil: The KOC value suggests that this compound would be highly mobile if released onto the soil and would not adsorb to suspended solids or sediments,

Biodegradation: This material is expected to be partially or slowly biodegradable,

Bioaccumulation: BCF < 1.0 This material is not expected to bioaccumulate,

- Tetraethylene Glycol 112-60-7

Ecotoxicity

This material is highly soluble in water. Limited toxicity tests indicate this material should exhibit low toxicity to aquatic organisms. The odor and flavor of this material may attract some wildlife and cause them to consume spilled material.

Environmental Fate and Pathway

No data available.

Other Adverse Effects

No data available,

- Polyethylene Glycol 25322-68-3

Ecotoxicity

This material is practically non-toxic to aquatic organisms.

Environmental Fate and Pathway

No data available.

Persistence and Degradability

Biodegradation: This material is expected to be highly biodegradable.

Bioaccumulation: This material is not expected to bioaccumulate.

- Tetraethylene Glycol Monobutyl Ether 1559-34-8

Ecotoxicity

No data available,

Environmental Fate and Pathway

No data available.

SECTION 13 Disposal Considerations

Dispose of all waste and contaminated equipment in accordance with all applicable federal, state and local health and environmental regulations. Recovery and reuse, rather than disposal, should be the ultimate goal of handling efforts. The materials resulting from clean-up operations may be hazardous wastes and therefore, subject to specific regulations.

SECTION 14 Transport Information

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

U.S. DOT UN/ID Number: Not Regulated
Proper shipping name:
Hazard class:
Packing Group:
Exceptions:
Environmental Hazards:
Transport in Bulk:
Special Precautions:

IMO/IMDG UN/ID Number: Not Regulated
Proper shipping name:
Hazard class:
Packing Group:
Exceptions:
Environmental Hazards:
Transport in Bulk:
Special Precautions:

ICAO/IATA UN/ID Number: Not Regulated
Proper shipping name:
Hazard Class:
Packing Group:
Exceptions:
Environmental Hazards:
Transport in Bulk:
Special Precautions:

**Canada
(TDG)** UN/ID Number: Not Regulated
Proper shipping name:
Hazard class:
Packing Group:

Exceptions:
Environmental Hazards:
Transport in Bulk:
Special Precautions:

Europe (ADR/RID) UN/ID Number: Not Regulated
Proper shipping name:
Hazard class:
Packing Group:
Exceptions:
Environmental Hazards:
Transport in Bulk:
Special Precautions:

SECTION 15 Regulatory Information

Regulatory Status

Country	Inventory
Australia	AICS X
Canada	DSL
Canada	NDSL X = All components are included or are otherwise
China	IECS Exempt from inclusion on this inventory
European Union	EINECS
European Union	ELINCS
European Union	NLP
Japan	ENCS
Korea	ECL
Philippines	PICCS
United States	TSCA X

All components of this product are listed or are exempt from listing on the TSCA 8(b) inventory. If identified components of this product are listed under the TSCA 12(b) Export Notification rule, they will be listed below.

SARA 311/312

Based on available information, this material is classified as the following health and/or physical hazards according to Section 311 & 312.
Immediate Acute Health Hazard
Delayed (Chronic) Health Hazard
Fire Hazard

SARA 313

This material contains the following chemicals with known CAS numbers subject to the reporting requirements of

SARA Title III, Section 313 and 40 CFR 372:

Component Reporting Threshold

State Reporting

This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins under California Proposition 65 at levels which would be subject to the proposition.

SECTION 16

Other Information

The supplier disclaims all expressed or implied warranties of merchantability or fitness for a specific use, with respect to the product or the information provided herein, except for conformation to contracted specifications. All information appearing herein is based upon data obtained from manufacturers and/or recognized technical sources. While the information is believed to be accurate, we make no representations as to its accuracy or sufficiency. Conditions of use are beyond our control, and therefore users are responsible for verifying the data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their use, handling, and disposal of the product. Users also assume all risks in regards to the publication or use of, or reliance upon, information contained herein.

This information relates only to the product designated herein, and does not relate to its use in combination with any other material or process.

ABBREVIATIONS:

NG="NOT GIVEN"

BT="BETWEEN"

<="LESS THAN"

>="GREATER THAN"

ND = Not Determined

NA = Not Applicable