

BRAKEFLUID

Version	Revision Date:	SDS Number:	Date of last issue: 09/25/2018
6.0	09/25/2018	876690-00005	Date of first issue: 06/23/2006

SECTION 1. IDENTIFICATION

Product name : BRAKEFLUID

Product code : B 000750M2

Other means of identification : No data available

Manufacturer or supplier's details

Company name of supplier : Volkswagen Canada, Inc.

Address : 777 Bayly Street West
Ajax Ontario Canada, L1S 7G7

Telephone : 248 754 4944

Telefax : 248 754 4943

Emergency telephone : 631 996 6666

Recommended use of the chemical and restrictions on use

Recommended use : Brake fluid

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the Hazardous Products Regulations

Reproductive toxicity : Category 2

GHS label elements

Hazard pictograms	: 
Signal Word	: Warning
Hazard Statements	: H361d Suspected of damaging the unborn child.
Precautionary Statements	: Prevention: P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. Response: P308 + P313 IF exposed or concerned: Get medical advice/ attention. Storage:

BRAKEFLUID

Version 6.0 Revision Date: 09/25/2018 SDS Number: 876690-00005 Date of last issue: 09/25/2018
Date of first issue: 06/23/2006

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
2-[2-(2-Butoxyethoxy)ethoxy]ethanol	143-22-6	$\geq 5 - < 10$
Diisopropanolamine	110-97-4	$\geq 1 - < 5$
Diethylene glycol methyl ether	111-77-3	$\geq 1 - < 5$

Actual concentration or concentration range is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

- General advice : In the case of accident or if you feel unwell, seek medical advice immediately.
When symptoms persist or in all cases of doubt seek medical advice.
- If inhaled : If inhaled, remove to fresh air.
Get medical attention.
- In case of skin contact : In case of contact, immediately flush skin with soap and plenty of water.
Remove contaminated clothing and shoes.
Get medical attention.
Wash clothing before reuse.
Thoroughly clean shoes before reuse.
- In case of eye contact : Flush eyes with water as a precaution.
Get medical attention if irritation develops and persists.
- If swallowed : If swallowed, DO NOT induce vomiting.
Get medical attention.
Rinse mouth thoroughly with water.
- Most important symptoms and effects, both acute and delayed : Suspected of damaging the unborn child.
- Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists.
- Notes to physician : Treat symptomatically and supportively.

BRAKEFLUID

Version	Revision Date:	SDS Number:	Date of last issue: 09/25/2018
6.0	09/25/2018	876690-00005	Date of first issue: 06/23/2006

SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
- Unsuitable extinguishing media : None known.
- Specific hazards during fire fighting : Exposure to combustion products may be a hazard to health.
- Hazardous combustion products : Carbon oxides
Metal oxides
Nitrogen oxides (NO_x)
- Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use water spray to cool unopened containers.
Remove undamaged containers from fire area if it is safe to do so.
Evacuate area.
- Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Follow safe handling advice and personal protective equipment recommendations.
- Environmental precautions : Discharge into the environment must be avoided.
Prevent further leakage or spillage if safe to do so.
Prevent spreading over a wide area (e.g., by containment or oil barriers).
Retain and dispose of contaminated wash water.
Local authorities should be advised if significant spillages cannot be contained.
- Methods and materials for containment and cleaning up : Soak up with inert absorbent material.
For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container.
Clean up remaining materials from spill with suitable absorbent.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.

BRAKEFLUID

Version	Revision Date:	SDS Number:	Date of last issue: 09/25/2018
6.0	09/25/2018	876690-00005	Date of first issue: 06/23/2006

Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

SECTION 7. HANDLING AND STORAGE

- | | | |
|---------------------------------|---|--|
| Technical measures | : | See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section. |
| Local/Total ventilation | : | Use only with adequate ventilation. |
| Advice on safe handling | : | Avoid inhalation of vapor or mist.
Do not swallow.
Avoid contact with eyes.
Avoid prolonged or repeated contact with skin.
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment
Take care to prevent spills, waste and minimize release to the environment. |
| Conditions for safe storage | : | Keep in properly labeled containers.
Store in accordance with the particular national regulations. |
| Materials to avoid | : | Do not store with the following product types:
Strong oxidizing agents |
| Recommended storage temperature | : | < 40 °C |
| Storage period | : | 36 Months |

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Ingredients with workplace control parameters**

Contains no substances with occupational exposure limit values.

- | | | |
|-----------------------------|---|---|
| Engineering measures | : | Ensure adequate ventilation, especially in confined areas.
Minimize workplace exposure concentrations. |
|-----------------------------|---|---|

Personal protective equipment

- | | | |
|------------------------|---|---|
| Respiratory protection | : | Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines. |
| Filter type | : | Combined particulates and organic vapor type |
| Hand protection | : | |
| Material | : | butyl-rubber |
| Break through time | : | > 30 min |
| Glove thickness | : | 0.7 mm |
| Directive | : | DIN EN 374 |

BRAKEFLUID

Version	Revision Date:	SDS Number:	Date of last issue: 09/25/2018
6.0	09/25/2018	876690-00005	Date of first issue: 06/23/2006

Protective index : Class 2

Material : Nitrile rubber
Break through time : > 30 min
Glove thickness : 0.4 mm
Directive : DIN EN 374
Protective index : Class 2

Remarks : Choose gloves to protect hands against chemicals depending on the concentration specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.

Eye protection : Wear the following personal protective equipment:
Safety glasses

Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.
Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

Hygiene measures : Ensure that eye flushing systems and safety showers are located close to the working place.
When using do not eat, drink or smoke.
Wash contaminated clothing before re-use.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Color : yellow

Odor : characteristic

Odor Threshold : No data available

pH : 7 - 8.5

Melting point/freezing point : No data available

Solidification / Setting point : < -50 °C
Method: ISO 3016

Initial boiling point and boiling range : 265 °C
Method: ASTM D 1120-72

Flash point : 135.5 °C
Method: ISO 2719

BRAKEFLUID

Version	Revision Date:	SDS Number:	Date of last issue: 09/25/2018
6.0	09/25/2018	876690-00005	Date of first issue: 06/23/2006

Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable
Flammability (liquids)	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	1 hPa (20 °C) 1 hPa (50 °C)
Relative vapor density	:	No data available
Density	:	ca. 1.06 g/cm ³ (20 °C)
Solubility(ies)		
Water solubility	:	completely soluble
Solubility in other solvents	:	soluble Solvent: polar solvents
Partition coefficient: n-octanol/water	:	Not applicable
Autoignition temperature	:	> 200 °C
Decomposition temperature	:	No data available
Viscosity		
Viscosity, kinematic	:	No data available
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Particle size	:	Not applicable

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Can react with strong oxidizing agents.
Conditions to avoid	:	None known.

BRAKEFLUID

Version	Revision Date:	SDS Number:	Date of last issue: 09/25/2018
6.0	09/25/2018	876690-00005	Date of first issue: 06/23/2006

Incompatible materials	:	Oxidizing agents
Hazardous decomposition products	:	No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity

Not classified based on available information.

Product:

Acute oral toxicity	:	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method
Acute dermal toxicity	:	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method

Components:**2-[2-(2-Butoxyethoxy)ethoxy]ethanol:**

Acute oral toxicity	:	LD50 (Rat): 5,170 mg/kg
Acute dermal toxicity	:	LD50 (Rabbit): 3,540 mg/kg

Diisopropanolamine:

Acute oral toxicity	:	LD50 (Rat): > 2,000 mg/kg Method: OECD Test Guideline 401
Acute inhalation toxicity	:	LC0 (Mouse): 2069 mg/m3 Exposure time: 3 h Test atmosphere: dust/mist
Acute dermal toxicity	:	LD50 (Rabbit): 8,000 mg/kg

Diethylene glycol methyl ether:

Acute oral toxicity	:	LD50 (Rat): 7,128 mg/kg
Acute inhalation toxicity	:	LC0 (Rat): > 1.2 mg/l Exposure time: 6 h Test atmosphere: vapor Method: OECD Test Guideline 403
Acute dermal toxicity	:	LD50 (Rabbit): 9,404 mg/kg

Skin corrosion/irritation

Not classified based on available information.

BRAKEFLUID

Version	Revision Date:	SDS Number:	Date of last issue: 09/25/2018
6.0	09/25/2018	876690-00005	Date of first issue: 06/23/2006

Components:**2-[2-(2-Butoxyethoxy)ethoxy]ethanol:**

Species	: Rabbit
Result	: No skin irritation

Diisopropanolamine:

Species	: Rabbit
Method	: OECD Test Guideline 404
Result	: No skin irritation

Diethylene glycol methyl ether:

Species	: Rabbit
Result	: No skin irritation

Serious eye damage/eye irritation

Not classified based on available information.

Components:**2-[2-(2-Butoxyethoxy)ethoxy]ethanol:**

Species	: Rabbit
Result	: Irreversible effects on the eye
Method	: OECD Test Guideline 405
Remarks	: Based on data from similar materials

Diisopropanolamine:

Species	: Rabbit
Result	: Irritation to eyes, reversing within 21 days
Method	: OECD Test Guideline 405

Diethylene glycol methyl ether:

Species	: Rabbit
Result	: No eye irritation

Respiratory or skin sensitization**Skin sensitization**

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Components:**2-[2-(2-Butoxyethoxy)ethoxy]ethanol:**

Test Type	: Maximization Test
Routes of exposure	: Skin contact
Species	: Guinea pig
Result	: negative
Remarks	: Based on data from similar materials

BRAKEFLUID

Version	Revision Date:	SDS Number:	Date of last issue: 09/25/2018
6.0	09/25/2018	876690-00005	Date of first issue: 06/23/2006

Diisopropanolamine:

Test Type	: Buehler Test
Routes of exposure	: Skin contact
Species	: Guinea pig
Method	: OECD Test Guideline 406
Result	: negative

Diethylene glycol methyl ether:

Test Type	: Maximization Test
Routes of exposure	: Skin contact
Species	: Guinea pig
Method	: OECD Test Guideline 406
Result	: negative

Germ cell mutagenicity

Not classified based on available information.

Components:**2-[2-(2-Butoxyethoxy)ethoxy]ethanol:**

Genotoxicity in vitro	: Test Type: Bacterial reverse mutation assay (AMES)
	Method: OECD Test Guideline 471
	Result: negative

Diisopropanolamine:

Genotoxicity in vitro	: Test Type: Chromosome aberration test in vitro
	Method: OECD Test Guideline 473
	Result: negative
	Test Type: Bacterial reverse mutation assay (AMES)
	Method: OECD Test Guideline 471
	Result: negative
	Test Type: In vitro mammalian cell gene mutation test
	Method: OECD Test Guideline 476
	Result: negative

Diethylene glycol methyl ether:

Genotoxicity in vitro	: Test Type: Bacterial reverse mutation assay (AMES)
	Method: OECD Test Guideline 471
	Result: negative

Carcinogenicity

Not classified based on available information.

Components:**Diisopropanolamine:**

Species	: Rat
Application Route	: Ingestion
Exposure time	: 94 weeks
Result	: negative

BRAKEFLUID

Version	Revision Date:	SDS Number:	Date of last issue: 09/25/2018
6.0	09/25/2018	876690-00005	Date of first issue: 06/23/2006

Reproductive toxicity

Suspected of damaging the unborn child.

Components:**2-[2-(2-Butoxyethoxy)ethoxy]ethanol:**

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Mouse
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

Effects on fetal development : Test Type: Embryo-fetal development
Species: Rat
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

Diisopropanolamine:

Effects on fertility : Test Type: One-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion
Result: negative

Effects on fetal development : Test Type: Embryo-fetal development
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 414
Result: negative

Diethylene glycol methyl ether:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 416
Result: negative
Remarks: Based on data from similar materials

Effects on fetal development : Test Type: Embryo-fetal development
Species: Rat
Application Route: Ingestion
Result: positive
Remarks: Based on data from similar materials

Reproductive toxicity - Assessment : Some evidence of adverse effects on development, based on animal experiments.

STOT-single exposure

Not classified based on available information.

STOT-repeated exposure

Not classified based on available information.

BRAKEFLUID

Version	Revision Date:	SDS Number:	Date of last issue: 09/25/2018
6.0	09/25/2018	876690-00005	Date of first issue: 06/23/2006

Repeated dose toxicity**Components:****2-[2-(2-Butoxyethoxy)ethoxy]ethanol:**

Species	: Rat
NOAEL	: 250 mg/kg
Application Route	: Ingestion
Exposure time	: 90 Days
Method	: OECD Test Guideline 408
Remarks	: Based on data from similar materials

Diethylene glycol methyl ether:

Species	: Rat
NOAEL	: 900 mg/kg
Application Route	: Ingestion
Exposure time	: 6 Weeks

Aspiration toxicity

Not classified based on available information.

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Components:****2-[2-(2-Butoxyethoxy)ethoxy]ethanol:**

Toxicity to fish	: LC50 (Leuciscus idus (Golden orfe)): 2,200 - 4,600 mg/l Exposure time: 96 h Method: DIN 38412
Toxicity to daphnia and other aquatic invertebrates	: EC50 (Daphnia magna (Water flea)): 2,210 mg/l Exposure time: 48 h
Toxicity to algae	: ErC50 (Desmodesmus subspicatus (green algae)): > 612.6 mg/l Exposure time: 72 h EC10 (Desmodesmus subspicatus (green algae)): 612.6 mg/l Exposure time: 72 h
Toxicity to microorganisms	: EC10: > 1,995 mg/l Exposure time: 30 min

Diisopropanolamine:

Toxicity to fish	: LC50 (Brachydanio rerio (zebrafish)): 1,466 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	: EC50 (Daphnia magna (Water flea)): 277.7 mg/l Exposure time: 48 h

BRAKEFLUID

Version	Revision Date:	SDS Number:	Date of last issue: 09/25/2018
6.0	09/25/2018	876690-00005	Date of first issue: 06/23/2006

Toxicity to algae : EC50 (Desmodesmus subspicatus (green algae)): 339 mg/l
Exposure time: 72 h

NOEC (Desmodesmus subspicatus (green algae)): 125 mg/l
Exposure time: 72 h

Diethylene glycol methyl ether:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 5,741 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1,192 mg/l
Exposure time: 48 h

Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): > 1,000 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 201

Toxicity to microorganisms : EC50: > 1,000 mg/l
Exposure time: 30 min
Method: OECD Test Guideline 209

Persistence and degradability**Components:****2-[2-(2-Butoxyethoxy)ethoxy]ethanol:**

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 85 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

Diisopropanolamine:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 94 %
Exposure time: 28 d
Method: OECD Test Guideline 301

Diethylene glycol methyl ether:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 100 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Bioaccumulative potential**Components:****2-[2-(2-Butoxyethoxy)ethoxy]ethanol:**

Partition coefficient: n-octanol/water : log Pow: 0.51

BRAKEFLUID

Version	Revision Date:	SDS Number:	Date of last issue: 09/25/2018
6.0	09/25/2018	876690-00005	Date of first issue: 06/23/2006

Diisopropanolamine:

Partition coefficient: n-octanol/water : log Pow: -0.88

Diethylene glycol methyl ether:

Partition coefficient: n-octanol/water : log Pow: -0.47

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : Dispose of in accordance with local regulations.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
If not otherwise specified: Dispose of as unused product.**SECTION 14. TRANSPORT INFORMATION****International Regulations****UNRTDG**

Not regulated as a dangerous good

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation**TDG**

Not regulated as a dangerous good

SECTION 15. REGULATORY INFORMATION**Volatile organic compounds (VOC) content**CANADIAN ENVIRONMENTAL PROTECTION ACT, 1999 -
Guidelines for VOC in Consumer Products
VOC content: 1.44 % / 15.26 g/l**The ingredients of this product are reported in the following inventories:**

DSL : All chemical substances in this product comply with the CEPA 1999 and NSNR and are on or exempt from listing on the

BRAKEFLUID

Version	Revision Date:	SDS Number:	Date of last issue: 09/25/2018
6.0	09/25/2018	876690-00005	Date of first issue: 06/23/2006

Canadian Domestic Substances List (DSL).

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; CPR - Controlled Products Regulations; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

Sources of key data used to compile the Material Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

Revision Date : 09/25/2018

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided

BRAKEFLUID

Version	Revision Date:	SDS Number:	Date of last issue: 09/25/2018
6.0	09/25/2018	876690-00005	Date of first issue: 06/23/2006

relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

CA / Z8