Safety Data Sheet

According to Annex II of Reg. EC 1907/2006, as amended by Reg. EU 878/2020

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Commercial name: **BRAKE FLUID GREENANCE**

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: Brake fluid.

Uses advised against: Uses other than those identified as relevant.

1.3. Details of the supplier of the safety data sheet

Company: **Brembo N.V.**

Address: Registered office: Amsterdam (Netherlands)
Business and Corporate Address:
Via Stezzano, 87 ▪ 24126 Bergamo (BG) Italy

Telephone number: +39 035 605 1111 (8.30 – 17.30 IT, EN)

E-mail address for a competent person responsible for the Safety Data Sheet: SDS@brembo.com

1.4. Emergency telephone number

Company emergency number: +39 035 605 1111 from 8.30 to 17.30 (CET - Italian and English)

If the person should lose consciousness, call the single emergency number **112**.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The mixture is not classified as hazardous according to Regulation EC 1272/2008 (CLP) and its amendments.

2.2. Label elements

Label in accordance with Regulation (EC) No 1272/2008 and its amendments:

Hazard pictogram(s): None

Signal word(s): None

Hazard statement(s): None

Precautionary statement(s): None

Supplemental hazard statement(s) **EUH210** Safety data sheet available on request.

2.3. Other hazards

The mixture does not contain substances at a concentration equal to or greater than 0,1% by weight, known to be:

- PBT and/or vPvB according to Annex XIII of REACH ;
- included in the Candidate list for having endocrine disrupting properties (art. 59(1));
- identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation EU 2100/2017 or Commission Regulation EU 605/2018.

SECTION 3: Composition/information on ingredients

3.1. Substances

Not relevant.

3.2. Mixtures

Substance	*Concentration % w/w (Conc. = X)*	*Classification according to Reg. EC 1272/2008 (CLP) and its amendments*
Diethylene glycol	5 ≤ X < 10	**Acute Tox. 4, H302 (Oral)**
INDEX Number: 603-140-00-6		
EC Number: 203-872-2		
CAS Number: 111-46-6		
REACH Registration Number: 01-2119457857-21-XXXX		
Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol	5 ≤ X < 10	**Eye Dam. 1, H318** *Specific concentration limit:* **Eye Irrit. 2; H319: 20 ≤ X < 30,0 %** **Eye Dam. 1; H318: ≥ 30,0 %**
REACH Registration Number: 01-2119531322-53-XXXX		
2-(2-(2-butoxyethoxy)ethoxy)ethanol *(Amount coming from reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol")*	3 ≤ X < 5	**Eye Dam. 1, H318** *Specific concentration limit:* **Eye Irrit. 2; H319: 20 ≤ X < 30,0 %** **Eye Dam. 1; H318: ≥ 30,0 %**
INDEX Number: 603-183-00-0		
EC Number: 205-592-6		
CAS Number: 143-22-6		
3,6,9,12-tetraoxahexadecan-1-ol *(Amount coming from reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol")*	1 ≤ X < 2,5	**Eye Irrit. 2, H319**
EC Number: 216-322-1		
CAS Number: 1559-34-8		

The full text of the hazard statements is available in section 16.

The product also contains the following substances, which are not classified as hazardous under Regulation EC 1272/2008 (CLP) and its amendments:

- Triethylene glycol monomethyl ether (CAS Number: 112-35-6)
- Triethylene glycol (CAS Number: 112-27-6)

However, these substances are included in Section 8 of this Safety Data Sheet because they have established national occupational exposure limits in certain Countries.

The mixture does not contain any other relevant substances classified as hazardous pursuant to Reg. EC 1272/2008 (CLP) and its amendments or, if present, they are so in such a quantity that they do not have to be declared pursuant to Annex II of Reg. EC 1907/2006 (REACH), as amended by Regulation EU 878/2020.

SECTION 4: First aid measures

4.1. Description of first aid measures

In case of exposure, refer to the following first aid measures:

Route of exposure via inhalation:	Ventilate the room. If a person feels sick, immediately remove the patient from the contaminated environment and keep him at rest in a well-ventilated environment. If recovery is not rapid, seek medical attention.
Route of exposure via skin:	Remove contaminated clothing. In case of contact, immediately flush skin with soap and plenty of water. If skin irritation, get medical advice/attention.
Route of exposure via eyes:	Rinse immediately with plenty of water and seek medical advice.
Route of exposure via ingestion:	Exposure by ingestion is unlikely in normal conditions of use. However, if this should happen, consult a doctor. Do not induce vomiting. Seek medical advice and show safety datasheet or label.

In all cases of doubt, or when symptoms persist, seek medical attention.

4.2. Most important symptoms and effects, both acute and delayed

No acute and/or delayed effects are known.

4.3. Indication of any immediate medical attention and special treatment needed

Treat it symptomatically. In case of symptoms and illness due to exposure to the product, contact a doctor. Bring this safety data sheet and/or the label.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:	Alcohol-resistant foam, dry chemical powder, carbon dioxide, water mist.
Unsuitable extinguishing media:	Water in a jet.

5.2. Special hazards arising from the substance or mixture

Exposure to combustion products may be harmful. Closed containers, which are exposed to fire, should be cooled with water. Do not allow fire-extinguishing water to enter the sewage system and nearby surface waters. In case of combustion, avoid breathing the fumes as harmful gases could be released (CO_x).

5.3. Advice for firefighters

Use respiratory protection. Safety helmet and full protective clothing. Water spray can be used to protect people engaged in firefighting. It is also advisable to use self-contained breathing apparatus, especially if you work in closed and poorly ventilated places and in any case if you use halogenated extinguishers (fluobrene, solkane 123, naf, etc.). It is possible to cool the containers with jets of water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel:	Move away from the area surrounding the spill or release. Do not smoke. Wear a mask, gloves, and protective clothing according to section 8.
For emergency responders:	Wear a mask, gloves, and protective clothing. Eliminate all open flames and possible sources of ignition. Do not smoke. Provide adequate ventilation. Evacuate the danger area and, if necessary, consult an expert.

6.2. Environmental precautions

The product should not be allowed to enter drains, water courses or the soil. Advise authorities if spilled material has entered water courses or sewer or has contaminated soil or vegetation.

6.3. Methods and material for containment and cleaning up

Containment:	Limit liquid spillage and collect using inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Treat recovered material as described in Section 13. Collect and place in a labelled sealable

container for subsequent safe disposal, as possible.

Clean-up: Flush contaminated area with plenty of water. Put leaking containers in a labelled drum or overdrum. Do not pour the water used to clean the contaminated material and the site where the product spill occurred directly into the sewer. Follow the local regulations in force.

6.4. Reference to other sections

Refer to sections 7, 8 and 13 for further information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

When used and handled appropriately, no special measures are needed. Avoid any handling methods that generate mists or aerosols. Avoid direct contact with the product. Do not eat, drink or smoke while handling this product. Wash hands before breaks and at the end of workday. Apply protective skin cream before handling the product. Take off immediately all contaminated clothing and wash it before reuse. See section 8 for information on personal protection.

7.2. Conditions for safe storage, including any incompatibilities

Keep it in the original container tightly closed. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in open or unlabeled containers. Keep the containers in a vertical and safe position avoiding the possibility of falls or collisions. Store in well-ventilated place, avoid moisture, and keep far away from sources of heat and direct sunlight. Keep containers away from any incompatible materials, see section 10 for details.

7.3. Specific end use(s)

The product is intended for vehicles. It is a brake fluid.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

EU-OEL – European Occupational Exposure Limits:

The product does not contain substances with an European occupational exposure limit.

National Occupational Exposure Limits:

	Diethylene glycol *CAS Number 111-46-6*				***Triethylene glycol monomethyl ether*** *CAS Number: 112-35-6*				***Triethylene glycol*** *CAS-No.: 112-27-6*			
	TWA-8h		STEL-15min		TWA-8h		STEL-15min		TWA-8h		STEL-15min	
Country	ppm	mg/m^3	ppm	mg/m^3	ppm	mg/m^3	ppm	mg/m^3	ppm	mg/m^3	ppm	mg/m^3
Australia	23	100										
Austria	10	44	40	176								
Denmark	2,5	11	5	22								
Germany (AGS)	10 *(Inhalable aerosol and vapour)*	44 *(Inhalable aerosol and vapour)*	40 *(Inhalable aerosol and vapour)*	176 *(Inhalable aerosol and vapour)*		50 *(inhalable aerosol)*		100 *(inhalable aerosol)*		1000 *(Inhalable aerosol and vapou)*		2000 *(Inhalable aerosol and vapou)*
Germany (DFG)	10 *(Inhalable fraction and vapour)*	44 *(Inhalable fraction and vapour)*	40 *(Inhalable aerosol and vapour)*	176 *(Inhalable aerosol and vapour)*		50 *(inhalable fraction and vapour)*		100 *(inhalable fraction and vapour)*		1000 *(Inhalable fraction and vapour)*		2000 *(Inhalable fraction and vapour)*
Ireland	23	100										

Latvia		10										
New Zealand	10 *(Inhalable fraction and vapour)*	44 *(Inhalable fraction and vapour)*	40 *(Inhalable aerosol and vapour)*	176 *(Inhalable aerosol and vapour)*								
Poland		10 *(Inhalable fraction)*										
Romania	115	500	184	800					114	700	163	1000
South Africa Mining	23	100										
Sweden	10	45	20	90								
Switzerland	10	44	40	176						1000 *(inhalable aerosol)*		2000 *(inhalable aerosol)*
United Kingdom	44	101										

DNEL and PNEC:

Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol (EC number907-996-4)		
Workers		
Route of exposure	***Type of effect***	***DNEL – Derived No Effect Level***
Inhalation	Systemic effects - Long term exposure	No hazard identified
	Systemic effects - Acute/short term exposure	No hazard identified
	Local effects - Long term exposure	No hazard identified
	Local effects - Acute/short term exposure	No hazard identified
Dermal	Systemic effects - Long term exposure	No hazard identified
	Systemic effects - Acute/short term exposure	No hazard identified
	Local effects - Long term exposure	No hazard identified
	Local effects - Acute/short term exposure	No hazard identified
Eyes	Local effects	Medium hazard (no threshold derived)
General population		
Route of exposure	***Type of effect***	***DNEL – Derived No Effect Level***
Inhalation	Systemic effects - Long term exposure	No hazard identified
	Systemic effects - Acute/short term exposure	No hazard identified
	Local effects - Long term exposure	No hazard identified
	Local effects - Acute/short term exposure	No hazard identified
Dermal	Systemic effects - Long term exposure	
	Systemic effects - Acute/short term exposure	No hazard identified
	Local effects - Long term exposure	No hazard identified
	Local effects - Acute/short term exposure	No hazard identified

Oral	Systemic effects - Long term exposure	No hazard identified
	Systemic effects - Acute/short term exposure	No hazard identified
Eyes	Local effects	medium hazard (no threshold derived)
Environment		
Target		***PNEC – Predicted No Effect Concentration***
Freshwater		No hazard identified
Marine water		No hazard identified
Sediment (freshwater)		No hazard identified
Sediment (marine water)		No hazard identified
STP (Sewage Treatment Plant)		No hazard identified
Air		No hazard identified
Soil		No hazard identified
Secondary poisoning		No potential for bioaccumulation

8.2. Exposure controls

Do not eat, drink or smoke while handling this product.

INDIVIDUAL PROTECTION MEASURES, SUCH AS PERSONAL PROTECTIVE EQUIPMENT

Observe the usual safety measures when handling chemicals. Personal protective equipment must bear the CE marking which certifies their compliance with current regulations on safety, health, and protection.

Personal Protective Equipment:

Eye/face protection: It is a good practice to wear airtight protective goggles (see standard EN 166).

Skin protection:

- *Hand protection*: It is recommended to protect the hands with chemical-resistant gloves (see standard EN374-1/EN374-2/EN374-3). For the final choice of the work glove material should be considered: compatibility, degradation, failure time and permeability. Gloves must be replaced immediately in case of damage or signs of wear.
  Recommended gloves:
  - For Long-term exposure: Impervious butyl rubber gloves (Break through time: 480 min and Glove thickness: 0,7 mm)
  - For short-term exposure (splash protection): Nitrile rubber gloves (Break through time: 30 min and Glove thickness: 0,4 mm)

  These types of protective gloves are offered by various manufacturers. Please note the manufacturers´ detailed statements, especially about the minimum thickness and the minimum breakthrough time. Consider also the particular working conditions under which the gloves are being used.
- *Other*: During the handling of the product, it is a good practice to wear category professional chemical resistant long-sleeved overalls and safety footwear (see Regulation 2016/425 and standard EN ISO 20344).

Respiratory protection: Use only in well-ventilated areas. If the occupational exposure limits cannot be met, in exceptional cases suitable respiratory equipment should be worn only for a short period of time. In the case of vapour formation use a respirator with an approved filter (Organic vapour type (A)). Equipment should conform to EN 14387.

Thermal hazards: In case of fire, avoid breathing combustion products (CO_x, NO_x).

ENVIRONMENTAL EXPOSURE CONTROLS:

Use according to good working practices, avoiding dispersal of the product in the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical and chemical properties	*Value*	*Determination method / Note*
Physical state	Liquid	
Colour	Yellow to Amber	
Odour	Characteristic	
Melting point/freezing point	No data available	
Boiling point or initial boiling point and boiling range	> 260 °C	At 1013,25 hPa
Flammability	No data available	
Lower and upper explosion limit	No data available	
Flash point	134°C	
Auto-ignition temperature	Not determined	
Decomposition temperature	Not determined	The product does not contain any chemical groups which suggest self-reactive properties, nor is the estimated SADT less than 75 °C, nor is the exothermic decomposition energy higher than 300 J/g.
pH	7,5 – 10	At 25°C Concentration: 50 g/L
Kinematic viscosity	11 mm^2/s	At 20°C
Solubility	Soluble	
Partition coefficient n-octanol/water (log value)	Not applicable.	The product is a mixture.
Vapour pressure	< 10 hPa	At 20°C
Density and/or relative density	1,05 - 1,07 g/cm^3 g/cm^3	At 20°C
Relative vapour density	No data available	
Particle characteristics	Not applicable	The product is liquid.

9.2. Other information

Pour point: -68°C

OTHER SAFETY CHARACTERISTICS

Information not available.

SECTION 10: Stability and reactivity

10.1. Reactivity

There are no particular risks of reaction with other substances in normal conditions of use.

10.2. Chemical stability

The product is stable in normal conditions of use and storage.

10.3. Possibility of hazardous reactions

At the normal conditions of use, possible hazardous reactions are not known.

10.4. Conditions to avoid

At the normal conditions of use, conditions to avoid are not known.

10.5. Incompatible materials

None known.

10.6. Hazardous decomposition products

Due to thermal decomposition or in case of fire, irritating and / or toxic fumes can be released (CO_x, NO_x).

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

ACUTE TOXICITY:	The mixture does not meet the classification criteria for this hazard class. *ATE Mix oral* > 2000 mg/kg *ATE Mix inhalation* = ∞ No components classified for Acute Tox., inhalation. *ATE Mix dermal* = ∞ No components classified for Acute Tox., dermal. *Please note: "No components" may refer to the absence of substances classified for acute toxicity or classified ones with a concentration below the applicable cut-off limits.*
SKIN CORROSION/IRRITATION:	The mixture does not meet the classification criteria for this hazard class.
SERIOUS EYE DAMAGE/IRRITATION:	The mixture does not meet the classification criteria for this hazard class.
RESPIRATORY OR SKIN SENSITISATION:	The mixture does not meet the classification criteria for this hazard class.
GERM CELL MUTAGENICITY:	The mixture does not meet the classification criteria for this hazard class.
CARCINOGENICITY:	The mixture does not meet the classification criteria for this hazard class.
REPRODUCTIVE TOXICITY:	The mixture does not meet the classification criteria for this hazard class.
SINGLE TARGET ORGAN TOXICITY (STOT) — SINGLE EXPOSURE:	The mixture does not meet the classification criteria for this hazard class.
SINGLE TARGET ORGAN TOXICITY (STOT) — REPEATED EXPOSURE:	The mixture does not meet the classification criteria for this hazard class.
ASPIRATION HAZARD:	The mixture does not meet the classification criteria for this hazard class.

11.2. Information on other hazards

ENDOCRINE DISRUPTING PROPERTIES

The mixture does not contain substances at a concentration equal to or greater than 0,1% by weight, known to be:

- included in the Candidate list for having endocrine disrupting properties (art. 59(1));
- identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation EU 2100/2017 or Commission Regulation EU 605/2018.

SECTION 12: Ecological information

12.1. Toxicity

The product is not toxic to aquatic organisms.

12.2. Persistence and degradability

	Degradability	
	Method / Source	Result(s)
Diethylene glycol	OECD 301B	Readily biodegradable
Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol:	OECD 301D	Readily biodegradable

12.3. Bioaccumulative potential

Information not available.

12.4. Mobility in soil

	Soil adsorption coefficient
Diethylene glycol	LogKoc = 0 (calculated)

12.5. Results of PBT and vPvB assessment

The mixture does not contain substances at a concentration equal to or greater than 0,1% by weight, known to be PBT and/or vPvB according to Annex XIII of REACH.

12.6. Endocrine disrupting properties

The mixture does not contain substances at a concentration equal to or greater than 0,1% by weight, known to be:
- included in the Candidate list for having endocrine disrupting properties (art. 59(1));
- identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation EU 2100/2017 or Commission Regulation EU 605/2018.

12.7. Other adverse effects

Information not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal must be entrusted to a company authorized to manage waste, in compliance with national and possibly local regulations.

CONTAMINATED PACKAGING
Contaminated packaging must be sent for recovery or disposal in compliance with national regulations on the management of waste.

SECTION 14: Transport information

14.1. UN number or ID number

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

Not applicable.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Not applicable.

14.6. Special precautions for user

Not applicable.

14.7. Maritime transport in bulk according to IMO instruments

Not relevant.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Seveso – Directive EC 18/2012	None	
Restrictions relating to the product or the contained substances according to Title VIII and Annex XVII of Regulation EC 1907/2006 (REACH) and its amendments	***Substance***	***Entry(ies)***
	Diethylene glycol (CAS 111-46-6) 2-(2-(2-butoxyethoxy)ethoxy)ethanol (CAS 143-22-6)	75
	The uses of the product do not fall under the restriction conditions of the single substance.	
Substances of Very High Concern (SVHC) in Candidate List (Art. 59 REACH)	None	
Substances subject to authorization according to Title VII and Annex XIV of Regulation EC 1907/2006 (REACH) and its amendments	None	
Chemicals subject to export notification – Reg. EU 649/2012 (PIC) and its amendments	None	
Persistent Organic Pollutants (POPs) – Reg. EU 1021/2019 and its amendments.	None	
Substances that deplete the Ozone layer – Reg. EC 1005/2009 and its amendments	None	
Chemical weapons convention - OPCW	None	
Explosives precursors – Reg EU 1148/2019	None	
Drug precursors – Reg. EU 273/2004 and Reg. EU 111/2005 and their amendments	None	

15.2. Chemical safety assessment

No chemical safety assessment has been performed for the mixture and the substances within the product.

SECTION 16: Other information

Full text of relevant hazard statements and precautionary statements:

Acute tox., 4	Acute toxicity, category 4
Eye Dam. 1	Serious damage to eyes, category 1
Eye Irrit. 2	Eye irritation, category 2
H302	Harmful if swallowed.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.

Acronyms:

- ACGIH: American Conference of Governmental Industrial Hygienists
- ADR: Agreement concerning the carriage of Dangerous goods by Road
- AGS: Ausschuss für Gefahrstoffe - German Committee on Hazardous Substances
- BMD: Benchmark Dose
- BMDL05: Benchmark Dose Lower Confidence Limit
- BW: body weight
- CAS NUMBER: Chemical Abstract Service number
- CE NUMBER: Identifier in EINECS (European Inventory of Existing Commercial Chemical Substances) / ELINCS (European List of Notified Chemical Substances)
- CFR: Code of Federal Regulations (USA)
- CLP: Regulation EC 1272/2008
- DFG: Deutsche Forschungsgemeinschaft - German Research Foundation
- DNEL: Derived No Effect Level
- DW: dry weight
- EC50: Concentration that affects 50% of the test population
- EmS: Emergency Schedule
- FHSLA: Federal Hazardous Substances Labeling Act
- FIFRA: Federal Insecticide, Fungicide, and Rodenticide Act (USA)
- GHS: Globally Harmonized System of Classification and Labeling of Chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration that affects 50% of the test population
- IMDG: International Maritime Code for Dangerous Goods
- IMO: International Maritime Organization
- INDEX NUMBER: Identifier in Annex VI of CLP
- JSOH: Japan Society for Occupational Health
- LC50: Lethal Concentration that affects 50% of the test population
- LD50: Lethal Dose that affects 50% of the test population
- LOAEL: Lowest Observed Adverse Effect Level
- NIOSH: National Institute for Occupational Safety and Health
- NOAEC: No Observed Adverse Effect Level
- NOEC: No Observed Effect Concentration
- NOEL: No Observed Effect Level
- OEL: Occupational Exposure Level
- OPCW: Organization for the Prohibition of Chemical Weapons
- OSHA: Occupational Safety and Health Administration
- PBT: Persistent, Bioaccumulative, and Toxic according to REACH Regulation
- PEC: Predicted Environmental Concentration
- PEL: Predicted Exposure Level
- PNEC: Predicted No Effect Concentration
- REACH: Regulation EC 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- STEL: Short-Term Exposure Limit
- TLV: Threshold limit value
- TWA: Time-Weighted Average
- vPvB: Very Persistent and very Bioaccumulative according to REACH Regulation

Key literature:

1. Regulation EC 1907/2006 (REACH) of the European Parliament and its amendments;
2. Regulation EC 1272/2008 (CLP) of the European Parliament and its amendments;
3. Regulation EU 878/2020 of the European Parliament;
4. Delegated Regulation EU 2100/2017 of European Commissions;
5. Regulation EU 605/2018 of European Commissions;
6. IFA GESTIS website;
7. ECHA website.

Methods of evaluating information:

Application of the criteria for classification for each hazard class or differentiation in Parts 2 to 5 of Annex I of Reg. EC 1272/2008 and its amendments.