



# SAFETY DATA SHEET

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

### 1.1. Product identifier

Trade name or designation of the mixture	Comma Brake Fluid DOT 4
Registration number	-
Synonyms	None.
Product code	BF4*
Issue date	02-November-2018
Version number	21
Revision date	08-October-2020
Supersedes date	02-October-2020

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

Identified uses	Brake fluid
Uses advised against	None known.

### 1.3. Details of the supplier of the safety data sheet

Address	Manufactured by Moove Lubricants Dering Way, Gravesend, Kent DA12 2QX UK
Telephone	+44 (0) 1474 564 311
Address	Operations Plant Dering Way, Gravesend, Kent DA12 2QX UK
Telephone	+44 (0) 1474 564 311
Email	technical@uk.moovelub.com

### 1.4. Emergency telephone

Asia Pacific	+ (1) 760 476 3960
China	+ (86) 4001 2001 74
Europe	+ (44) 8 08 189 0979
Middle East/Africa	+ (1) 760 476 3959

Access Code 334498

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

#### Classification according to Regulation (EC) No 1272/2008 as amended


##### Health hazards

Serious eye damage/eye irritation	Category 2	H319 - Causes serious eye irritation.
Reproductive toxicity (the unborn child)	Category 2	H361d - Suspected of damaging the unborn child.

**Hazard summary** Causes serious eye irritation. Possible reproductive hazard. Occupational exposure to the substance or mixture may cause adverse health effects.

### 2.2. Label elements

#### Label according to Regulation (EC) No. 1272/2008 as amended

UFI	EG50-80U7-X00D-R5HW
Contains:	Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] Orthoborate
Hazard pictograms	

**Signal word** Warning

##### Hazard statements

H319	Causes serious eye irritation.
H361d	Suspected of damaging the unborn child.

## Precautionary statements

### Prevention

P102 Keep out of reach of children.  
P264 Wash thoroughly after handling.

### Response

P101 If medical advice is needed, have product container or label at hand.  
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTRE/doctor.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P337 + P313 If eye irritation persists: Get medical advice/attention.

### Storage

Not available.

### Disposal

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**Supplemental label information** None.

**2.3. Other hazards** This mixture does not meet vPvB / PBT criteria of Regulation (EC) No 1907/2006, Annex XIII. Not a PBT or vPvB substance or mixture.

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

#### General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Butyl Triglycol	20 - < 30	143-22-6 205-592-6	-	603-183-00-0	
<b>Classification:</b>	Eye Dam. 1;H318				
Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] Orthoborate	20 - < 30	30989-05-0 250-418-4	-	-	
<b>Classification:</b>	Repr. 2;H361d				
Butyl Polyglycol	5 - < 10	9004-77-7 500-012-0	-	-	
<b>Classification:</b>	Eye Irrit. 2;H319				
2,2'-OXYBISETHANOL	3 - < 5	111-46-6 203-872-2	-	603-140-00-6	
<b>Classification:</b>	Acute Tox. 4;H302				
2-(2-METHOXYETHOXY) ETHANOL	1 - < 3	111-77-3 203-906-6	-	603-107-00-6	#
<b>Classification:</b>	Repr. 2;H361d				
Butyl Diglycol	1 - < 3	112-34-5 203-961-6	-	603-096-00-8	#
<b>Classification:</b>	Eye Irrit. 2;H319				
Other components below reportable levels	30 - < 40				

#### List of abbreviations and symbols that may be used above

#: This substance has been assigned Union workplace exposure limit(s).  
M: M-factor  
PBT: persistent, bioaccumulative and toxic substance.  
vPvB: very persistent and very bioaccumulative substance.  
All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

**Composition comments** The full text for all H-statements is displayed in section 16.

## SECTION 4: First aid measures

#### General information

IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

#### 4.1. Description of first aid measures

**Inhalation** Move to fresh air. Call a physician if symptoms develop or persist.  
**Skin contact** Wash off with soap and water. Get medical attention if irritation develops and persists.  
**Eye contact** Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.  
**Ingestion** Rinse mouth. Get medical attention if symptoms occur.

<b>4.2. Most important symptoms and effects, both acute and delayed</b>	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.
<b>4.3. Indication of any immediate medical attention and special treatment needed</b>	Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

## SECTION 5: Firefighting measures

<b>General fire hazards</b>	No unusual fire or explosion hazards noted.
<b>5.1. Extinguishing media</b>	
<b>Suitable extinguishing media</b>	Alcohol resistant foam. Powder. Carbon dioxide (CO2).
<b>Unsuitable extinguishing media</b>	Do not use water jet as an extinguisher, as this will spread the fire.
<b>5.2. Special hazards arising from the substance or mixture</b>	During fire, gases hazardous to health may be formed.
<b>5.3. Advice for firefighters</b>	
<b>Special protective equipment for firefighters</b>	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
<b>Special fire fighting procedures</b>	Move containers from fire area if you can do so without risk.
<b>Specific methods</b>	Use standard firefighting procedures and consider the hazards of other involved materials.

## SECTION 6: Accidental release measures

<b>6.1. Personal precautions, protective equipment and emergency procedures</b>	
<b>For non-emergency personnel</b>	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
<b>For emergency responders</b>	Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.
<b>6.2. Environmental precautions</b>	Avoid discharge into drains, water courses or onto the ground.
<b>6.3. Methods and material for containment and cleaning up</b>	Use water spray to reduce vapours or divert vapour cloud drift.  Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.  Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.  Never return spills to original containers for re-use.
<b>6.4. Reference to other sections</b>	For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.

## SECTION 7: Handling and storage

<b>7.1. Precautions for safe handling</b>	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid contact with eyes. Avoid prolonged exposure. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.
<b>7.2. Conditions for safe storage, including any incompatibilities</b>	Store locked up. Store in tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).
<b>7.3. Specific end use(s)</b>	Brake fluid

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Occupational exposure limits

##### UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value
2-(2-METHOXYETHOXY)	TWA	50.1 mg/m3
ETHANOL (CAS 111-77-3)		10 ppm

**UK. EH40 Workplace Exposure Limits (WELs)**

Components	Type	Value
2,2'-OXYBIS(ETHANOL (CAS 111-46-6))	TWA	101 mg/m3
		23 ppm
Butyl Diglycol (CAS 112-34-5)	STEL	101.2 mg/m3
		15 ppm
	TWA	67.5 mg/m3
		10 ppm

**EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU**

Components	Type	Value
2-(2-METHOXYETHOXY) ETHANOL (CAS 111-77-3)	TWA	50.1 mg/m3
		10 ppm
Butyl Diglycol (CAS 112-34-5)	STEL	101.2 mg/m3
		15 ppm
	TWA	67.5 mg/m3
		10 ppm

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

**Recommended monitoring procedures** Follow standard monitoring procedures.

**Derived no effect levels (DNELs)** Not available.

**Predicted no effect concentrations (PNECs)** Not available.

**Exposure guidelines****UK EH40 WEL: Skin designation**

2-(2-METHOXYETHOXY) ETHANOL (CAS 111-77-3) Can be absorbed through the skin.

**8.2. Exposure controls**

**Appropriate engineering controls** Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station.

**Individual protection measures, such as personal protective equipment**

**General information** Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

**Eye/face protection** Chemical respirator with organic vapour cartridge and full facepiece.

**Skin protection****- Hand protection**

Wear appropriate chemical resistant gloves.

**- Other**

Wear suitable protective clothing. Use of an impervious apron is recommended.

**Respiratory protection**

Chemical respirator with organic vapour cartridge and full facepiece.

**Thermal hazards**

Wear appropriate thermal protective clothing, when necessary.

**Hygiene measures**

Observe any medical surveillance requirements. 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.

**Environmental exposure controls**

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. Fume scrubbers, filters or engineering modifications to the process equipment may be necessary to reduce emissions to acceptable levels.

**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties****Appearance**

<b>Physical state</b>	Liquid.
<b>Form</b>	Liquid.
<b>Colour</b>	Yellow-orange.
<b>Odour</b>	Characteristic.
<b>Odour threshold</b>	Not available.
<b>pH</b>	9 - 10
<b>Melting point/freezing point</b>	< -50 °C (< -58 °F)
<b>Initial boiling point and boiling range</b>	> 260 °C (> 500 °F)
<b>Flash point</b>	143.3 °C (290.0 °F)
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not applicable.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	Not available.
<b>Flammability limit - upper (%)</b>	Not available.
<b>Vapour pressure</b>	0.6 hPa estimated
<b>Vapour density</b>	Not available.
<b>Relative density</b>	1.04
<b>Relative density temperature</b>	20 °C (68 °F)
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Not available.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Explosive properties</b>	Not explosive.
<b>Oxidising properties</b>	Not oxidising.
<b>9.2. Other information</b>	
<b>Density</b>	1.07 g/cm3

## SECTION 10: Stability and reactivity

<b>10.1. Reactivity</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
<b>10.2. Chemical stability</b>	Material is stable under normal conditions.
<b>10.3. Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>10.4. Conditions to avoid</b>	Avoid temperatures exceeding the decomposition temperature. Contact with incompatible materials.
<b>10.5. Incompatible materials</b>	Strong oxidising agents.
<b>10.6. Hazardous decomposition products</b>	No hazardous decomposition products are known.

## SECTION 11: Toxicological information

<b>General information</b>	Occupational exposure to the substance or mixture may cause adverse effects.
<b>Information on likely routes of exposure</b>	
<b>Inhalation</b>	Prolonged inhalation may be harmful.
<b>Skin contact</b>	No adverse effects due to skin contact are expected.
<b>Eye contact</b>	Causes serious eye irritation.
<b>Ingestion</b>	May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.
<b>Symptoms</b>	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.
<b>11.1. Information on toxicological effects</b>	
<b>Acute toxicity</b>	Not known.

Product	Species	Test Results
Comma Brake Fluid DOT 4		
<b><u>Acute</u></b>		
<b>Dermal</b>		
LD50	Rabbit	14770 mg/kg, 24 Hours
<b>Inhalation</b>		
LC50	Rat	12000 mg/m3, 8 Hours
<b>Oral</b>		
LD50	Rat	21010 mg/kg
Components	Species	Test Results
2-(2-METHOXYETHOXY) ETHANOL (CAS 111-77-3)		
<b><u>Acute</u></b>		
<b>Dermal</b>		
LD50	Rabbit	6540 mg/kg
<b>Oral</b>		
LD50	Rat	5500 mg/kg
2,2'-OXYBISETHANOL (CAS 111-46-6)		
<b><u>Acute</u></b>		
<b>Dermal</b>		
LD50	Rabbit	11890 mg/kg
<b>Oral</b>		
LD50	Rat	12570 mg/kg
Butyl Diglycol (CAS 112-34-5)		
<b><u>Acute</u></b>		
<b>Dermal</b>		
LD50	Rabbit	2700 mg/kg
<b>Oral</b>		
LD50	Rat	3306 mg/kg
Butyl Polyglycol (CAS 9004-77-7)		
<b><u>Acute</u></b>		
<b>Dermal</b>		
LD50	Rat	> 2000 mg/kg, 24 Hours
<b>Oral</b>		
LD50	Rat	> 5000 mg/kg
Butyl Triglycol (CAS 143-22-6)		
<b><u>Acute</u></b>		
<b>Dermal</b>		
LD50	Rabbit	3540 mg/kg, 24 Hours
<b>Oral</b>		
LD50	Rat	> 5000 mg/kg
Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] Orthoborate (CAS 30989-05-0)		
<b><u>Acute</u></b>		
<b>Dermal</b>		
LD50	Rat	> 340 mg/kg, 24 Hours
<b>Oral</b>		
LD50	Rat	> 850 mg/kg
<b>Skin corrosion/irritation</b>	Due to partial or complete lack of data the classification is not possible.	
<b>Serious eye damage/eye irritation</b>	Causes serious eye irritation.	
<b>Respiratory sensitisation</b>	Due to partial or complete lack of data the classification is not possible.	
<b>Skin sensitisation</b>	Due to partial or complete lack of data the classification is not possible.	
<b>Germ cell mutagenicity</b>	Due to partial or complete lack of data the classification is not possible.	
<b>Carcinogenicity</b>	Due to partial or complete lack of data the classification is not possible.	
<b>Reproductive toxicity</b>	Suspected of damaging the unborn child.	

<b>Specific target organ toxicity - single exposure</b>	Due to partial or complete lack of data the classification is not possible.
<b>Specific target organ toxicity - repeated exposure</b>	Due to partial or complete lack of data the classification is not possible.
<b>Aspiration hazard</b>	Due to partial or complete lack of data the classification is not possible.
<b>Mixture versus substance information</b>	No information available.
<b>Other information</b>	Not available.

## SECTION 12: Ecological information

**12.1. Toxicity** Based on available data, the classification criteria are not met for hazardous to the aquatic environment.

Product	Species		Test Results
Comma Brake Fluid DOT 4			
<b>Aquatic</b>			
Fish	LC50	Fish	83490.8516 mg/l, 96 hours estimated
Components	Species		Test Results
2-(2-METHOXYETHOXY) ETHANOL (CAS 111-77-3)			
<b>Aquatic</b>			
Fish	LC50	Bluegill ( <i>Lepomis macrochirus</i> )	7500 mg/l, 96 hours
2,2'-OXYBISETHANOL (CAS 111-46-6)			
<b>Aquatic</b>			
Fish	LC50	Western mosquitofish ( <i>Gambusia affinis</i> )	> 32000 mg/l, 96 hours
Butyl Diglycol (CAS 112-34-5)			
<b>Aquatic</b>			
Fish	LC50	Bluegill ( <i>Lepomis macrochirus</i> )	1300 mg/l, 96 hours

**12.2. Persistence and degradability** No data is available on the degradability of any ingredients in the mixture.

### 12.3. Bioaccumulative potential

**Partition coefficient n-octanol/water (log Kow)**

Butyl Diglycol 0.56

**Bioconcentration factor (BCF)** Not available.

**12.4. Mobility in soil** No data available.

**12.5. Results of PBT and vPvB assessment** Not a PBT or vPvB substance or mixture. This mixture does not meet vPvB / PBT criteria of Regulation (EC) No 1907/2006, Annex XIII.

**12.6. Other adverse effects** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

<b>Residual waste</b>	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
<b>Contaminated packaging</b>	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.
<b>EU waste code</b>	The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
<b>Disposal methods/information</b>	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Special precautions</b>	Dispose in accordance with all applicable regulations.

## SECTION 14: Transport information

### ADR

14.1. - 14.6.: Not regulated as dangerous goods.

### RID

14.1. - 14.6.: Not regulated as dangerous goods.

## ADN

14.1. - 14.6.: Not regulated as dangerous goods.

## IATA

14.1. - 14.6.: Not regulated as dangerous goods.

## IMDG

14.1. - 14.6.: Not regulated as dangerous goods.

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

## SECTION 15: Regulatory information

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

#### EU regulations

**Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended**

Not listed.

**Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended**

Not listed.

**Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended**

Not listed.

**Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA**

Not listed.

**UFI** EG50-80U7-X00D-R5HW

#### Authorisations

**Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended**

Not listed.

#### Restrictions on use

**Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended**

2-(2-METHOXYETHOXY) ETHANOL (CAS 111-77-3)

Butyl Diglycol (CAS 112-34-5)

**Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.**

Not listed.

#### Other EU regulations

**Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended**

Not listed.

#### Other regulations

The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

#### National regulations

According to Directive 92/85/EEC as amended, pregnant women should not work with the product, if there is the least risk of exposure.

Young people under 18 years old are not allowed to work with this product according to EU Directive 94/33/EC on the protection of young people at work, as amended. Follow national regulation for work with chemical agents in accordance with Directive 98/24/EC, as amended.

#### 15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

## SECTION 16: Other information

#### List of abbreviations

ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.



ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.  
CAS: Chemical Abstract Service.  
CEN: European Committee for Standardization.  
IATA: International Air Transport Association.  
IBC: Intermediate Bulk Container.  
IMDG: International Maritime Dangerous Goods.  
MARPOL: International Convention for the Prevention of Pollution from Ships.  
PBT: Persistent, bioaccumulative, toxic.  
RID: Regulations concerning the International Carriage of Dangerous Goods by Rail.  
STEL: Short term exposure limit.  
TWA: Time Weighted Average.  
vPvB: Very persistent and very bioaccumulative.  
Not available.

#### References

#### Information on evaluation method leading to the classification of mixture

The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.

#### Full text of any H-statements not written out in full under Sections 2 to 15

H302 Harmful if swallowed.  
H318 Causes serious eye damage.  
H319 Causes serious eye irritation.  
H361d Suspected of damaging the unborn child.

#### Revision information

None.

#### Training information

Follow training instructions when handling this material.

#### Disclaimer

Moove Lubricants Ltd. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.