SAFETY DATA SHEET
Brake Fluid DOT 4

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

1.1. Product identifier

Product name Brake Fluid DOT 4

Product number 7833

Internal identification GHS22004

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

Identified uses Hydraulic fluid for use in automotive brake and clutch systems

1.3. Details of the supplier of the safety data sheet

Supplier

Morris Lubricants
Castle Foregate
Shrewsbury
Shropshire
SY1 2EL
+44 (0) 1743 232200
+44 (0) 1743 353584
sds@morris-lubricants.co.uk

1.4. Emergency telephone number

Emergency telephone +44(0)1743 232200 (08.45 - 17.00 GMT)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards Not Classified

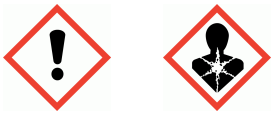
Health hazards Eye Irrit. 2 - H319 STOT RE 2 - H373

Environmental hazards Not Classified

Classification (67/548/EEC or 1999/45/EC) Xi;R36.

2.2. Label elements

Hazard pictograms



Signal word Warning

Hazard statements

H319 Causes serious eye irritation.
H373 May cause damage to organs (Kidneys) through prolonged or repeated exposure.

Brake Fluid DOT 4

Precautionary statements	P260 Do not breathe vapour/ spray. P264 Wash contaminated skin thoroughly after handling. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. 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. P501 Dispose of contents/ container in accordance with national regulations. P301/311 If swallowed, call a poison centre or doctor/physician and have container or label to hand
Contains	2,2'-OXYBISETHANOL
Supplementary precautionary statements	P102 Keep out of reach of children.

2.3. Other hazards

SECTION 3: Composition/information on ingredients

3.2. Mixtures

2-[2-(2-BUTOXYETHOXY)ETHOXY]ETHANOL **30-60%**

CAS number: 143-22-6 EC number: 205-592-6 REACH registration number: 01-2119531322-53-0000

Classification	Classification (67/548/EEC or 1999/45/EC)
Eye Dam. 1 - H318	Xi;R41

2,2'-OXYBISETHANOL **10-30%**

CAS number: 111-46-6 EC number: 203-872-2 REACH registration number: 01-2119457857-21-0000

Classification	Classification (67/548/EEC or 1999/45/EC)
Acute Tox. 4 - H302 STOT RE 2 - H373	Xn;R22

2-(2-METHOXYETHOXY)ETHANOL **1-5%**

CAS number: 111-77-3 EC number: 203-906-6 REACH registration number: 01-2119475100-52-0000

Classification	Classification (67/548/EEC or 1999/45/EC)
Repr. 2 - H361d	Repr. Cat. 3;R63

2-(2-butoxyethoxy)ethanol **1-5%**

CAS number: 112-34-5 EC number: 203-961-6 REACH registration number: 01-2119475104-44-0000

Classification	Classification (67/548/EEC or 1999/45/EC)
Eye Irrit. 2 - H319	Xi;R36.

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

Brake Fluid DOT 4

General information First aid personnel should wear appropriate protective equipment during any rescue.

Inhalation Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Get medical attention if any discomfort continues.

Ingestion Get medical attention immediately. If patient is conscious, wash out mouth with water and give plenty of water to drink. If medical attention is delayed and an adult has swallowed several ounces, give 90-120ml of hard liquor such as 40%v/v spirits. For children give proportionally less at a rate of 2ml/kg bodyweight. Never give anything by mouth to an unconscious person. Do not induce vomiting unless under the direction of medical personnel.

Skin contact Remove contaminated clothing. Wash skin thoroughly with soap and water. Get medical attention if irritation persists after washing.

Eye contact Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyelids widely. If irritation persists: Seek medical attention and bring along these instructions.

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

General information See Section 11 for additional information on health hazards.

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

Notes for the doctor Medical personnel seeking to administer first aid are referred to the services of the Poisons Information Service who can advise in such instances. There is no specific antidote and treatment of over exposure should be directed at control of symptoms and the patient's clinical condition. Due to the diethylene glycol content this material may have a mechanism of intoxication similar to ethylene glycol and treatment similar to that for ethylene glycol poisoning may help.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards No special risk - combustion products may contain harmful or irritant fumes. Containers can burst violently or explode when heated, due to excessive pressure build-up.

5.3. Advice for firefighters

Protective actions during firefighting Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk.

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Keep unnecessary and unprotected personnel away from the spillage. Avoid contact with skin, eyes and clothing. Take care as floors and other surfaces may become slippery. Wear protective clothing as described in Section 8 of this safety data sheet.

6.2. Environmental precautions

Environmental precautions Avoid discharge into drains or watercourses or onto the ground. Inform the relevant authorities if environmental pollution occurs (sewers, waterways, soil or air).

Brake Fluid DOT 4

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Contain spillage with sand, earth or other suitable non-combustible material. Small Spillages: Wipe up with an absorbent cloth and dispose of waste safely. Collect and dispose of spillage as indicated in Section 13. Flush contaminated area with plenty of water.

6.4. Reference to other sections

Reference to other sections For personal protection, see Section 8. For waste disposal, see Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Avoid the formation of mists.

Advice on general occupational hygiene Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Suitable bulk storage vessels are mild/stainless steel tanks fitted with a dry air breathing system or tight head steel drums. Do not store in lined tanks or drums. Brake fluid absorbs water from the atmosphere - always keep containers tightly closed. Avoid contamination with any other substances and in particular with mineral oils which are incompatible.

7.3. Specific end use(s)

Specific end use(s) Users are referred to the Specification SAE J1701 'Service Maintenance of Brake Fluids'

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Occupational exposure limits

2,2'-OXYBISETHANOL

Long-term exposure limit (8-hour TWA): WEL 23 ppm 101 mg/m³
Short-term exposure limit (15-minute): WEL

2-(2-METHOXYETHOXY)ETHANOL

8 hrs TWA 10ppm; 15 mins 50.1 mg/m3

2-(2-butoxyethoxy)ethanol

Long-term exposure limit (8-hour TWA): WEL 10 ppm 67.5 mg/m³
Short-term exposure limit (15-minute): WEL 15 ppm 101.2 mg/m³
WEL = Workplace Exposure Limit

2-[2-(2-BUTOXYETHOXY)ETHOXY]ETHANOL (CAS: 143-22-6)

DNEL

Workers - Dermal; Long term systemic effects: 50 mg/kg/day
Workers - Inhalation; Long term systemic effects: 195 mg/m³
Consumer - Dermal; Long term systemic effects: 25 mg/kg/day
Consumer - Inhalation; Long term systemic effects: 117 mg/m³
Consumer - Oral; Long term systemic effects: 2.5 mg/kg/day

Brake Fluid DOT 4

PNEC

- Water, Fresh water; 1.5 mg/l
- Water, marine water; 0.25 mg/l
- Water, Intermittent release; 50 mg/l
- STP; 200 mg/l
- Sediment (Freshwater); 5.77 mg/kg/sediment dw
- Sediment (Marinewater); 0.13 mg/kg/sediment dw
- Soil; 0.45 mg/kg

Oral - ; 111 mg/kg

2,2'-OXYBISETHANOL (CAS: 111-46-6)

DNEL

Workers - Dermal; Long term systemic effects: 106 mg/kg/day
Workers - Inhalation; Long term systemic effects: 60 mg/m³
Consumer - Dermal; Long term systemic effects: 53 mg/kg/day
Consumer - Inhalation; Long term systemic effects: 12 mg/m³

PNEC

- Water, Fresh water; 10 mg/l
- Water, marine water; 1 mg/l
- Water, Intermittent release; 10 mg/l
- STP; 199.5 mg/l
- Sediment (Freshwater); 20.9 mg/kg/sediment dw
- Soil; 1.53 mg/kg

2-(2-butoxyethoxy)ethanol (CAS: 112-34-5)

DNEL

Workers - Inhalation; Short term local effects: 101.2 mg/m³
Workers - Dermal; Long term systemic effects: 20 mg/kg/day
Workers - Inhalation; Long term systemic effects: 67 mg/m³
Consumer - Inhalation; Short term local effects: 50.6 mg/m³
Consumer - Dermal; Long term systemic effects: 10 mg/kg/day
Consumer - Inhalation; Long term systemic effects: 34 mg/m³
Consumer - Oral; Long term systemic effects: 1.25 mg/kg/day

PNEC

- Water, Fresh water; 1.0 mg/l
- Water, marine water; 0.1 mg/l
- Water, Intermittent release; 3.9 mg/l
- STP; 200 mg/l
- Sediment (Freshwater); 4.0 mg/kg/sediment dw
- Sediment (Marinewater); 0.4 mg/kg/sediment dw
- Soil; 0.4 mg/kg

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

DNEL

Workers - Dermal; Long term systemic effects: 0.53 mg/kg/day
Workers - Inhalation; Long term systemic effects: 50.1 mg/m³
Consumer - Dermal; Long term systemic effects: 0.27 mg/kg/day
Consumer - Inhalation; Long term systemic effects: 25 mg/m³

PNEC

- Water, Fresh water; 12 mg/l
- Water, marine water; 1.2 mg/l
- Water, Intermittent release; 12 mg/l
- STP; 10000 mg/l
- Sediment (Freshwater); 44.4 mg/kg/sediment dw
- Sediment (Marinewater); 0.44 mg/kg/sediment dw
- Soil; 2.44 mg/kg

8.2. Exposure controls

Brake Fluid DOT 4

Appropriate engineering controls	Not necessary under normal conditions. If fluid is being heated or atomised, local exhaust ventilation with filter/scrubber is recommended.
Eye/face protection	Personal protective equipment for eye and face protection should comply with European Standard EN166. Provide eyewash station.
Hand protection	To protect hands from chemicals, gloves should comply with European Standard EN374. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. The selected gloves should have a breakthrough time of at least 8 hours.
Other skin and body protection	Appropriate footwear and additional protective clothing complying with an approved standard should be worn if a risk assessment indicates skin contamination is possible.
Hygiene measures	Good personal hygiene procedures should be implemented.
Respiratory protection	Not necessary under normal conditions.
Environmental exposure controls	Keep container tightly sealed when not in use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Clear liquid.
pH	7.0 to 11.50
Melting point	<-50°C
Initial boiling point and range	>250°C @
Flash point	> 93°C Pensky-Martens closed cup.
Vapour pressure	<2 mbar @ 20°C
Relative density	1.010-1.060 @ 20°C
Solubility(ies)	Miscible with water. Miscible with the following materials: Ethanol.
Partition coefficient	: < 2
Auto-ignition temperature	>300°C
Decomposition Temperature	>300°C
Viscosity	5-10 cSt @ 20°C
Explosive properties	Not considered to be explosive.
Oxidising properties	Does not meet the criteria for classification as oxidising.

9.2. Other information

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	There are no known reactivity hazards associated with this product.

10.2. Chemical stability

Stability	Stable at normal ambient temperatures and when used as recommended.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	Glycol Ethers can form peroxides on storage. Glycol Ethers can react with light metals with the evolution of hydrogen.

Brake Fluid DOT 4

10.4. Conditions to avoid

Conditions to avoid Do not distil to dryness without testing for peroxide formation.

10.5. Incompatible materials

Materials to avoid Strong oxidising agents. For user safety, brake fluid should never be contaminated with any other substance.

10.6. Hazardous decomposition products

Hazardous decomposition products None known.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

Acute toxicity oral (LD_{50} mg/kg) 5,000.0

Species Rat

Notes (oral LD_{50}) Product is of low acute oral toxicity. However, if any significant amount is ingested, there is a risk of renal damage which in extreme cases could lead to kidney failure, coma or death. Other symptoms of overexposure include Central Nervous System effects, abdominal discomfort, metabolic acidosis, headache and nausea.

Acute toxicity - dermal

Acute toxicity dermal (LD_{50} mg/kg) 3,000.0

Species Rabbit

Notes (dermal LD_{50}) Acute percutaneous toxicity is low however massive contact with damaged skin could result in the absorption of harmful amounts.

Acute toxicity - inhalation

Notes (inhalation LC_{50}) The product is unlikely to present any significant inhalation hazard at ambient temperatures and under normal conditions of use.

Skin corrosion/irritation

Human skin model test Based on available data the classification criteria are not met. Repeated contact may de-fat the skin and cause dermatitis.

Serious eye damage/irritation

Serious eye damage/irritation Serious eye irritation

Respiratory sensitisation

Respiratory sensitisation Based on available data the classification criteria are not met.

Skin sensitisation

Skin sensitisation Based on available data the classification criteria are not met.

Germ cell mutagenicity

Genotoxicity - in vitro Based on available data the classification criteria are not met.

Genotoxicity - in vivo Based on available data the classification criteria are not met.

Carcinogenicity

Carcinogenicity Based on available data the classification criteria are not met.

Brake Fluid DOT 4

Reproductive toxicity

Reproductive toxicity - fertility Major ingredients have not been shown to cause significant fertility or development problems at levels which are not themselves toxic to the animal concerned.

Reproductive toxicity - development One minor ingredient - methyl diglycol - has been shown to affect foetus development in some studies and is classified as H631d.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure There are no reports of long term adverse effects in man. For one ingredient - diethylene glycol - human STOT effects on the kidney and gastrointestinal tract have been reported.

Aspiration hazard

Aspiration hazard Not anticipated to present an aspiration hazard, based on chemical structure.

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic toxicity

Acute toxicity - fish LC_{50}, 96 hours: >100 mg/l, Oncorhynchus mykiss (Rainbow trout)

Acute toxicity - aquatic invertebrates Not determined but expected to be virtually non toxic.

Acute toxicity - microorganisms Not determined but expected to be virtually non toxic.

12.2. Persistence and degradability

Persistence and degradability Product is inherently biodegradable and is expected to be readily biodegradable based on ingredients.

Biodegradation Water - Degradation 100%: 21 days

12.3. Bioaccumulative potential

Bioaccumulative potential The product is not bioaccumulating.

Partition coefficient : < 2

12.4. Mobility in soil

Mobility The product is soluble in water. Soluble in water and will partition to aqueous phase. Volatilisation from water to air not expected. Mobile in soil until degraded.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current EU criteria.

12.6. Other adverse effects

Other adverse effects Not relevant.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

Disposal methods Controlled incineration or recycling is recommended. Do not dispose of to landfill or drains. It is recommended that contaminated packaging is either incinerated or cleaned and sent for recycling.

Waste class European Waste Catalogue (EWC) number: 16 01 13

Brake Fluid DOT 4

SECTION 14: Transport information

General The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.1. UN number

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

No transport warning sign required.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant
No.

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

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

SECTION 15: Regulatory information

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

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

Inventories

EU - EINECS/ELINCS
All the ingredients are listed or exempt.

Canada - DSL/NDSL
All the ingredients are listed or exempt.

US - TSCA
All the ingredients are listed or exempt.

Australia - AICS
All the ingredients are listed or exempt.

Japan - ENCS
All the ingredients are listed or exempt.

Korea - KECI
All the ingredients are listed or exempt.

Brake Fluid DOT 4

China - IECSC
All the ingredients are listed or exempt.

Philippines – PICCS
All the ingredients are listed or exempt.

New Zealand - NZIOC
All the ingredients are listed or exempt.

SECTION 16: Other information

Revision date	24/02/2020
Revision	3
Supersedes date	05/06/2017
SDS number	22004
Risk phrases in full	R22 Harmful if swallowed. R36 Irritating to eyes. R41 Risk of serious damage to eyes. R63 Possible risk of harm to the unborn child.
Hazard statements in full	H302 Harmful if swallowed. H318 Causes serious eye damage. H319 Causes serious eye irritation. H361d Suspected of damaging the unborn child. H373 May cause damage to organs (Kidneys) through prolonged or repeated exposure. H373 May cause damage to organs (Kidneys) through prolonged or repeated exposure if swallowed.