# SAFETY DATA SHEET

Castrol Brake Fluid DOT 4

## Section 1. Identification

**Product name** Castrol Brake Fluid DOT 4

**Product code** 466630-AU33

**SDS no.** 466630

**Use of the substance/mixture** Brake fluids.
For specific application advice see appropriate Technical Data Sheet or consult our company representative.

**Product type** Liquid.

**Supplier** Castrol New Zealand Limited
Level 2 - 105 Carlton Gore Road
Newmarket
Auckland, New Zealand

www.castrol.com/nz
Technical Helpline 0800 10 40 60

**Emergency telephone number** 0800 243643 (0800 CHEMHELP) (NZ use only)

**New Zealand National Poisons Centre** 0800 764 766 National Poison Centre

## Section 2. Hazards identification

**HSNO Classification** EYE IRRITATION - Category 2

This material is classified as hazardous according to criteria in the Hazardous Substances (Hazard Classification) Notice 2020.

This material is not classified as DANGEROUS GOODS according to criteria in New Zealand Standard 5433:2012 Transport of Dangerous Goods on Land.

**GHS label elements**

**Signal word** Warning

**Hazard statements** Causes serious eye irritation.

**Precautionary statements**

**Prevention** Wear eye or face protection. Wash hands thoroughly after handling.

**Response** IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

**Storage** Not applicable.

**Disposal** Not applicable.

**Symbol**

**Other hazards which do not result in classification** Defatting to the skin.

# Section 3. Composition/information on ingredients

**Substance/mixture** Mixture

Polyalkylene glycol ethers / glycols. Proprietary performance additives.

| Ingredient name | % (w/w) | CAS number |
|---|---|---|
| 2-[2-(2-butoxyethoxy)ethoxy]ethanol | ≥30 - ≤60 | 143-22-6 |
| 3,6,9,12-tetraoxahexadecan-1-ol | ≥10 - ≤30 | 1559-34-8 |
| 2,2' -oxybisethanol | ≥10 - <25 | 111-46-6 |
| Di-isopropanolamine | ≤3 | 110-97-4 |

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.**

**Occupational exposure limits, if available, are listed in Section 8.**

# Section 4. First aid measures

## Description of necessary first aid measures

**Inhalation** If inhaled, remove to fresh air. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. Get medical attention if symptoms occur.

**Ingestion** Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Get medical attention if adverse health effects persist or are severe. Get medical attention, informing the doctor that a product containing diethylene glycol has been ingested and specific treatment may be required.

**Skin contact** Wash skin thoroughly with soap and water or use recognised skin cleanser. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if symptoms occur. If skin irritation or rash occurs: Get medical advice/attention.

**Eye contact** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Check for and remove any contact lenses. Get medical attention.

## Indication of immediate medical attention and special treatment needed, if necessary

**Notes to physician** In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

**Protection of first-aiders** No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

# Section 5. Firefighting measures

## Extinguishing media

**Suitable** In case of fire, use foam, dry chemical or carbon dioxide extinguisher or spray.

**Not suitable** Do not use water jet.

**Specific hazards arising from the chemical** In a fire or if heated, a pressure increase will occur and the container may burst.

**Hazardous combustion products** Combustion products may include the following:
carbon oxides (CO, $CO_2$) (carbon monoxide, carbon dioxide)
nitrogen oxides (NO, $NO_2$ etc.)

**Hazchem code** Not available.

**Special precautions for fire-fighters** No action shall be taken involving any personal risk or without suitable training. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire.

**Special protective equipment for fire-fighters** Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

**For non-emergency personnel**

Entry into a confined space or poorly ventilated area contaminated with vapour, mist or fume is extremely hazardous without the correct respiratory protective equipment and a safe system of work. Wear self-contained breathing apparatus. Wear a suitable chemical protective suit. Chemical resistant boots. See also the information in "For non-emergency personnel".

**For emergency responders**

Entry into a confined space or poorly ventilated area contaminated with vapour, mist or fume is extremely hazardous without the correct respiratory protective equipment and a safe system of work. Wear self-contained breathing apparatus. Wear a suitable chemical protective suit. Chemical resistant boots. See also the information in "For non-emergency personnel".

**Environmental precautions**

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### Methods and material for containment and cleaning up

**Small spill**

Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

**Large spill**

Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Contaminated absorbent material may pose the same hazard as the spilt product. Dispose of via a licensed waste disposal contractor.

## Section 7. Handling and storage

**Precautions for safe handling**

Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

**Conditions for safe storage, including any incompatibilities**

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Store and use only in equipment/containers designed for use with this product. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. DO NOT ADD NITRITES TO THIS FLUID.

**Not suitable**

Prolonged exposure to elevated temperature

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

| Ingredient name | Exposure limits |
|---|---|
| 2,2' -oxybisethanol | **HSWA 2015 - HSW (GRWM) 2016. Workplace exposure standards (WES) (New Zealand).**<br>WES-TWA: 10 ppm 8 hours. Issued/ Revised: 4/2022 Form: The Inhalable Fraction and Vapour (ifv) notation is used when a material exerts sufficient vapour pressuren such that it may be present in both particle and vapour phases, with each contributing to a significant portion of exposure.<br>WES-TWA: 44 mg/m³ 8 hours. Issued/ Revised: 4/2022 Form: The Inhalable |

| | |
|---|---|
| | Fraction and Vapour (ifv) notation is used when a material exerts sufficient vapour pressuren such that it may be present in both particle and vapour phases, with each contributing to a significant portion of exposure.<br>WES-STEL: 176 mg/m³ 15 minutes. Issued/ Revised: 4/2022 Form: The Inhalable Fraction and Vapour (ifv) notation is used when a material exerts sufficient vapour pressuren such that it may be present in both particle and vapour phases, with each contributing to a significant portion of exposure.<br>WES-STEL: 40 ppm 15 minutes. Issued/ Revised: 4/2022 Form: The Inhalable Fraction and Vapour (ifv) notation is used when a material exerts sufficient vapour pressuren such that it may be present in both particle and vapour phases, with each contributing to a significant portion of exposure. |

**Biological exposure indices**

No exposure indices known.

**Recommended monitoring procedures**

Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

**Appropriate engineering controls**

All activities involving chemicals should be assessed for their risks to health, to ensure exposures are adequately controlled. Personal protective equipment should only be considered after other forms of control measures (e.g. engineering controls) have been suitably evaluated. Personal protective equipment should conform to appropriate standards, be suitable for use, be kept in good condition and properly maintained.
Your supplier of personal protective equipment should be consulted for advice on selection and appropriate standards. For further information contact your national organisation for standards.
Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits.
The final choice of protective equipment will depend upon a risk assessment. It is important to ensure that all items of personal protective equipment are compatible.

**Environmental exposure controls**

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

**Individual protection measures**

**Hygiene measures**

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

**Eye protection**

Safety glasses with side shields.

**Hand protection**

Wear protective gloves if prolonged or repeated contact is likely. Wear chemical resistant gloves. Recommended: Butyl gloves. Neoprene gloves. The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves

## Section 8. Exposure controls/personal protection

should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

**Skin protection**

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

**Respiratory protection**

In case of insufficient ventilation, wear suitable respiratory equipment.
The correct choice of respiratory protection depends upon the chemicals being handled, the conditions of work and use, and the condition of the respiratory equipment. Safety procedures should be developed for each intended application. Respiratory protection equipment should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

## Section 9. Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

**Appearance**

**Physical state** Liquid.

**Colour** Clear

**Odour** Not available.

**pH** 9.8

**Melting point/freezing point** Not available.

**Boiling point, initial boiling point, and boiling range** Not available.

**Drop Point** Not available.

**Flash point**

| Ingredient name | Closed cup | | | Open cup | | |
|---|---|---|---|---|---|---|
| | °C | °F | Method | °C | °F | Method |
| 2-[2-(2-butoxyethoxy) ethoxy]ethanol | | | | 131 | 267.8 | ISO 2719 |
| 2,2' -oxybisethanol | | | | 138 | 280.4 | |
| Di-isopropanolamine | | | | 123.89 | 255 | |

**Auto-ignition temperature**

| Ingredient name | °C | °F | Method |
|---|---|---|---|
| 2-[2-(2-butoxyethoxy)ethoxy]ethanol | 202 | 395.6 | DIN 51794 |
| 2,2' -oxybisethanol | 229 | 444.2 | DIN EN 14522-S |
| Di-isopropanolamine | 374 | 705.2 | |

**Flammability** Not available.

**Vapour pressure**

| Ingredient name | Vapour Pressure at 20˚C | | | Vapour pressure at 50˚C | | |
|---|---|---|---|---|---|---|
| | mm Hg | kPa | Method | mm Hg | kPa | Method |
| 2-[2-(2-butoxyethoxy) ethoxy]ethanol | 0.0075 | 0.001 | | | | |
| 2,2' -oxybisethanol | 0.006 | 0.0008 | | | | |

**Relative vapour density** Not available.

**Density** >1000 kg/m³ (>1 g/cm³) at 20°C

**Solubility(ies)**

| Media | Result |
|---|---|
| water | Soluble |

**Miscible with water** Yes.

**Viscosity** Kinematic: 2.14 $mm^2/s$ (2.14 cSt) at 100°C

**Particle characteristics**

**Median particle size** Not applicable.

## Section 10. Stability and reactivity

**Chemical stability** The product is stable.

**Possibility of hazardous reactions** Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerisation will not occur.

**Conditions to avoid** Avoid all possible sources of ignition (spark or flame).

**Incompatible materials** Reactive or incompatible with the following materials: oxidising materials.

**Hazardous decomposition products** Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### Information on likely routes of exposure

**Inhalation** Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

**Ingestion** Diethylene glycol: Ingestion of diethylene glycol can cause metabolic acidosis, kidney damage, central nervous system depression, and convulsions. The estimated human lethal dose is approximately 100 ml (3.4 ounces for an adult).

**Skin contact** Defatting to the skin. May cause skin dryness and irritation.

**Eye contact** Causes serious eye irritation.

### Symptoms related to the physical, chemical and toxicological characteristics

**Inhalation** May be harmful by inhalation if exposure to vapour, mists or fumes resulting from thermal decomposition products occurs.

**Ingestion** No specific data.

**Skin contact** Adverse symptoms may include the following:
irritation
dryness
cracking

**Eye contact** Adverse symptoms may include the following:
pain or irritation
watering
redness

### Potential chronic health effects

**General** May cause damage to organs through prolonged or repeated exposure. (kidney)

**Inhalation** Not applicable.

**Ingestion** Ingestion of large quantities may cause nausea and diarrhoea.

**Skin contact** Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

**Eye contact** Not applicable.

**Carcinogenicity** No known significant effects or critical hazards.

**Mutagenicity** No known significant effects or critical hazards.

**Teratogenicity** No known significant effects or critical hazards.

**Developmental effects** Birth defects and decreased fetal weight have been observed in laboratory animals fed diethylene glycol in large amounts repeatedly during pregnancy.

**Fertility effects** No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

| Route | ATE value |
|---|---|
| Oral | 3355.7 mg/kg |

## Section 12. Ecological information

**Ecotoxicity** No known significant effects or critical hazards.

**Persistence and degradability**

The biodegradability of this material has not been determined.

**Bioaccumulative potential**

This product is not expected to bioaccumulate through food chains in the environment.

| Product/ingredient name | $LogP_{ow}$ | BCF | Potential |
|---|---|---|---|
| 2-[2-(2-butoxyethoxy)ethoxy] ethanol | 0.51 | - | Low |
| 2,2' -oxybisethanol | -1.98 | - | Low |
| Di-isopropanolamine | -0.82 | - | Low |

**Mobility in soil**

**Mobility** Spillages may penetrate the soil causing ground water contamination.

**Soil/water partition coefficient ($K_{OC}$)** Not available.

**Other ecological information** Miscible in water.

## Section 13. Disposal considerations

**Disposal methods** The generation of waste should be avoided or minimised wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

## Section 14. Transport information

| Regulatory information | UN number | Proper shipping name | Classes | PG* | Label | Additional information |
|---|---|---|---|---|---|---|
| New Zealand Class | Not regulated. | - | - | - | | - |
| ADG Class | Not regulated. | - | - | - | | - |
| IATA Class | Not regulated. | - | - | - | | - |
| IMDG Class | Not regulated. | - | - | - | | - |

PG* : Packing group

## Section 15. Regulatory information

**New Zealand Regulatory Information**

**HSNO Approval Number** HSR002606

**HSNO Group Standard** Lubricants, Lubricant Additives, Coolants and Anti-freeze Agents (Subsidiary Hazard) Group Standard 2020

**HSNO Classification** EYE IRRITATION - Category 2

**Regulation according to other foreign laws**

**REACH Status** For the REACH status of this product please consult your company contact, as identified in Section 1.

## Section 15. Regulatory information

| | |
|---|---|
| **United States inventory (TSCA 8b)** | All components are active or exempted. |
| **Australia inventory (AIIC)** | All components are listed or exempted. |
| **Canada inventory status** | All components are listed or exempted. |
| **China inventory (IECSC)** | All components are listed or exempted. |
| **Japan inventory (CSCL)** | All components are listed or exempted. |
| **Korea inventory (KECI)** | All components are listed or exempted. |
| **Philippines inventory (PICCS)** | All components are listed or exempted. |
| **Taiwan Chemical Substances Inventory (TCSI)** | All components are listed or exempted. |

## Section 16. Other information

**History**

| | |
|---|---|
| **Date of issue/Date of revision** | 10 February 2025 |
| **Date of previous issue** | 18 August 2023. |
| **Version** | 3 |
| **Prepared by** | Not available. |
| **Key to abbreviations** | Varies = may contain one or more of the following 64741-88-4, 64741-89-5, 64741-95-3, 64741-96-4, 64742-01-4, 64742-44-5, 64742-45-6, 64742-52-5, 64742-53-6, 64742-54-7, 64742-55-8, 64742-56-9, 64742-57-0, 64742-58-1, 64742-62-7, 64742-63-8, 64742-65-0, 64742-70-7, 72623-85-9, 72623-86-0, 72623-87-1 |

**Notice to reader**

**Indicates information that has changed from previously issued version.**

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