

## Section 1. Identification

|  |   |
|--|---|
| <b>GHS product identifier</b>  | Castrol Brake Fluid DOT 4   |
| <b>Product code</b>  | 466630-TH06   |
| <b>SDS #</b>   | 466630  |
| <b>Relevant identified uses of the substance or mixture and uses advised against</b> |   |
| <b>Use of the substance/<br/>mixture</b>   | Brake fluids.<br>For specific application advice see appropriate Technical Data Sheet or consult our company representative.  |
| <b>Manufacturer</b>  | BP - Castrol (Thailand) Limited<br>Samut Sakon Industrial Estate, 39/77-78 Moo 2 Rama II Road,<br>Bangkachao Amphur Muang, Samut Sakorn 74000<br>Tel. +66 34 419666, Fax. +66 34 419666 |
| <b>Supplier</b>  | BP - Castrol (Thailand) Limited<br>3 Rajanakarn Building, 23rd Floor<br>South Sathon Road Yannawa,<br>Sathon Bangkok 10120<br>Tel. +66 02 6843555, Fax. +66 02 684 3646                 |
| <b>EMERGENCY TELEPHONE<br/>NUMBER</b>  | Carechem: 001800 1 2066 6751 (tollfree, access from Thailand only)  |

## Section 2. Hazards identification

**GHS Classification** REPRODUCTIVE TOXICITY - Category 2

**GHS label elements**  
**Hazard pictograms**



|  |   |
|--|---|
| <b>Signal word</b>   | Warning   |
| <b>Hazard statements</b>                                   | H361 - Suspected of damaging fertility or the unborn child.   |
| <b>Precautionary statements</b>                            |   |
| <b>General</b>   | P102 - Keep out of reach of children.<br>P101 - If medical advice is needed, have product container or label at hand.   |
| <b>Prevention</b>  | P201 - Obtain special instructions before use.<br>P202 - Do not handle until all safety precautions have been read and understood.<br>P281 - Use personal protective equipment as required. |
| <b>Response</b>  | P308 + P313 - IF exposed or concerned: Get medical attention.   |
| <b>Storage</b>   | P405 - Store locked up.   |
| <b>Disposal</b>  | P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.  |
| <b>Other hazards which do not result in classification</b> | Defatting to the skin.  |

## Section 3. Composition/information on ingredients

**Substance/mixture** Mixture  
polyethylene glycol Proprietary performance additives.

| Ingredient name                                      | %         | CAS number |
|--|-----------|------------|
| tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate | ≥25 - ≤50 | 30989-05-0 |
| 2-[2-(2-butoxyethoxy)ethoxy]ethanol                  | ≥10 - ≤25 | 143-22-6   |
| 2,2' -oxybisethanol                                  | ≤10       | 111-46-6   |
| Di-isopropanolamine                                  | ≤3        | 110-97-4   |

## Section 3. Composition/information on ingredients

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

|                     |   |
|---------------------|---|
| <b>Inhalation</b>   | 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.   |
| <b>Ingestion</b>    | 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.   |
| <b>Skin contact</b> | In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognised skin cleanser. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention. |
| <b>Eye contact</b>  | 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.   |

### Most important symptoms/effects, acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

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

|                                   |   |
|-----------------------------------|---|
| <b>Specific treatments</b>        | No specific treatment.  |
| <b>Notes to physician</b>         | Treatment should in general be symptomatic and directed to relieving any effects. 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. |
| <b>Protection of first-aiders</b> | 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

|                                       |  |
|---------------------------------------|--|
| <b>Suitable extinguishing media</b>   | In case of fire, use foam, dry chemical or carbon dioxide extinguisher or spray. |
| <b>Unsuitable extinguishing media</b> | Do not use water jet.  |

### Specific hazards arising from the chemical

|   |   |
|---|---|
| <b>Hazardous thermal decomposition products</b> | In a fire or if heated, a pressure increase will occur and the container may burst.<br>Combustion products may include the following:<br>carbon oxides (CO, CO <sub>2</sub> ) (carbon monoxide, carbon dioxide)<br>nitrogen oxides (NO, NO <sub>2</sub> etc.) |
|---|---|

### Special protective actions for fire-fighters

|   |   |
|---|---|
| <b>Special protective equipment for fire-fighters</b> | 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.<br>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

|                                    |   |
|------------------------------------|---|
| <b>For non-emergency personnel</b> | Contact emergency personnel. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Put on appropriate personal protective equipment. Floors may be slippery; use care to avoid falling. |
| <b>For emergency responders</b>    | 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".   |

## Section 6. Accidental release measures

**Environmental precautions** Avoid dispersal of spilled 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 spilled product. Dispose of via a licensed waste disposal contractor.

## Section 7. Handling and storage

### Precautions for safe handling

**Protective measures** Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapour or mist. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. 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.

**Advice on general occupational hygiene** Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash thoroughly after handling. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

**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. Store locked up. 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

| <b>Ingredient name</b>        | <b>Exposure limits</b>  |
|-------------------------------|---|
| 2,2'-(ethylenedioxy)diethanol | <b>ACGIH TLV (United States)</b><br>TWA 8 hours: 10 mg/m <sup>3</sup> . Form: Inhalable fraction and vapor. Issued/Revised: 1/2025. |

#### Biological exposure indices

No exposure indices known.

**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

## Section 8. Exposure controls/personal protection

|  |  |
|--|--|
|  | <p>organisation for standards.</p> <p>Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits.</p> <p>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.</p>  |
| <b>Environmental exposure controls</b> | <p>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.</p>  |
| <b>Eye protection</b>                  | <p>Safety glasses with side shields.</p>   |
| <b>Skin protection</b>                 |  |
| <b>Hand protection</b>                 | <p>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 should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.</p> |
| <b>Skin protection</b>                 | <p>Use of protective clothing is good industrial practice.</p> <p>Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.</p> <p>Cotton or polyester/cotton overalls will only provide protection against light superficial contamination that will not soak through to the skin. Overalls should be laundered on a regular basis. When the risk of skin exposure is high (e.g. when cleaning up spillages or if there is a risk of splashing) then chemical resistant aprons and/or impervious chemical suits and boots will be required.</p>   |
| <b>Respiratory protection</b>          | <p>In case of insufficient ventilation, wear suitable respiratory equipment.</p> <p>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.</p>   |

## Section 9. Physical and chemical properties

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

### Appearance

|   |  |
|---|--|
| <b>Physical state</b>   | Liquid.                                      |
| <b>Colour</b>   | Yellow.                                      |
| <b>Odour</b>  | Characteristic.                              |
| <b>Odour threshold</b>  | Not available.                               |
| <b>pH</b>   | 7.5 to 9 [Conc. (% w/w): 100%]               |
| <b>Melting point/freezing point</b>                             | <-70°C (<-94°F)                              |
| <b>Boiling point or initial boiling point and boiling range</b> | >260°C (>500°F)                              |
| <b>Drop Point</b>   | Not available.                               |
| <b>Flash point</b>  | Closed cup: >125°C (>257°F) [Pensky-Martens] |
| <b>Evaporation rate</b>   | Not available.                               |
| <b>Flammability</b>   | Not available.                               |
| <b>Lower and upper explosion limit/flammability limit</b>       | Lower: 1.5%                                  |
| <b>Vapour pressure</b>  | <0.13 kPa (<1 mm Hg) [20°C (68°F)]           |
|   | <0.01 kPa                                    |
| <b>Relative vapour density</b>                                  | Not available.                               |
| <b>Relative density</b>   | Not available.                               |

## Section 9. Physical and chemical properties

**Density** >1000 kg/m<sup>3</sup> (>1 g/cm<sup>3</sup>) at 20°C

### **Solubility(ies)**

| Media | Result             |
|-------|--------------------|
| water | Miscible in water. |

**Miscible with water** Yes.

**Partition coefficient: n-octanol/water** Not applicable.

### **Auto-ignition temperature**

| Ingredient name                                       | °C  | °F    | Method         |
|---|-----|-------|----------------|
| ethanol, 2-methoxy-, manufacture of, by-products from | 210 | 410   |                |
| 2-[2-(2-butoxyethoxy)ethoxy]ethanol                   | 202 | 395.6 | DIN 51794      |
| 2,2'-oxybisethanol                                    | 229 | 444.2 | DIN EN 14522-S |
| 2-(2-(2-methoxyethoxy)ethoxy)ethanol                  | 210 | 410   |                |
| 2,2'-(ethylenedioxy)diethanol                         | 347 | 656.6 |                |

**Decomposition temperature** Not available.

**Viscosity** Kinematic: 16 mm<sup>2</sup>/s (16 cSt) at 20°C

### **Particle characteristics**

**Median particle size** Not applicable.

## Section 10. Stability and reactivity

**Reactivity** No specific test data available for this product. Refer to Conditions to avoid and Incompatible materials for additional information.

**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 toxicological effects**

#### **Acute toxicity**

##### **Product/ingredient name**

Di-isopropanolamine

##### **Result**

**Rat - Oral - LD50**

>2000 mg/kg

**Rabbit - Dermal - LD50**

16000 mg/kg

#### **Skin corrosion/irritation**

Not available.

#### **Serious eye damage/eye irritation**

Not available.

#### **Respiratory corrosion/irritation**

Not available.

#### **Respiratory or skin sensitization**

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## Section 11. Toxicological information

Not available.

### Germ cell mutagenicity

Not available.

### Carcinogenicity

Not available.

### Reproductive toxicity

Not available.

### Specific target organ toxicity (single exposure)

Not available.

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

Not available.

### Information on likely routes of exposure

Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

### Potential acute health effects

#### **Eye contact**

No known significant effects or critical hazards.

#### **Inhalation**

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

#### **Skin contact**

Defatting to the skin. May cause skin dryness and irritation.

#### **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).

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

#### **Eye contact**

No specific data.

#### **Inhalation**

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

#### **Skin contact**

Adverse symptoms may include the following:

irritation  
dryness  
cracking  
reduced foetal weight  
increase in foetal deaths  
skeletal malformations

#### **Ingestion**

Adverse symptoms may include the following:

reduced foetal weight  
increase in foetal deaths  
skeletal malformations

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

#### **Eye contact**

Potential risk of transient stinging or redness if accidental eye contact occurs.

#### **Skin contact**

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

#### **Ingestion**

Ingestion of large quantities may cause nausea and diarrhoea.

### Potential chronic health effects

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## Section 11. Toxicological information

Not available.

**Conclusion/Summary[Product]** Not available.

**General** May cause damage to organs through prolonged or repeated exposure. (kidney)  
**Carcinogenicity** No known significant effects or critical hazards.  
**Mutagenicity** 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** Suspected of damaging fertility.

## Section 12. Ecological information

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

**Product/ingredient name**

Di-isopropanolamine

**Result**

**Acute - LC50**

Fish  
>980 mg/l [96 hours]

**Acute - EC50**

Daphnia  
277.8 mg/l [48 hours]

**Acute - EC50**

Algae  
266 mg/l [72 hours]

**Persistence and degradability**

Expected to be biodegradable.

Not available.

**Bioaccumulative potential**

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

| Product/ingredient name              | LogP <sub>ow</sub> | BCF | Potential |
|--------------------------------------|--------------------|-----|-----------|
| 2-[2-(2-butoxyethoxy)ethoxy] ethanol | 0.51               | -   | Low       |
| 2,2' -oxybisethanol                  | -1.98              | -   | Low       |
| Di-isopropanolamine                  | -0.82              | -   | Low       |

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

**Other adverse effects** No known significant effects or critical hazards.

**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 spill material and runoff and contact with soil, waterways, drains and sewers.

## Section 14. Transport information

|                            | UN             | IMDG           | IATA           |
|----------------------------|----------------|----------------|----------------|
| UN number                  | Not regulated. | Not regulated. | Not regulated. |
| UN proper shipping name    | -              | -              | -              |
| Transport hazard class(es) | -              | -              | -              |
| Packing group              | -              | -              | -              |
| Environmental hazards      | No.            | No.            | No.            |

**Special precautions for user** Not available.

**Transport in bulk according to IMO instruments** Not available.

## Section 15. Regulatory information

### Regulation according to other foreign laws

|  |   |
|--|---|
| <b>Australia inventory (AIC)</b>                   | All components are listed or exempted.  |
| <b>Canada inventory status</b>                     | At least one component is not listed in DSL but all such components are listed in NDSL.               |
| <b>China inventory (IECSC)</b>                     | All components are listed or exempted.  |
| <b>REACH Status</b>                                | For the REACH status of this product please consult your company contact, as identified in Section 1. |
| <b>Japan inventory (CSCL)</b>                      | All components are listed or exempted.  |
| <b>Korea inventory (KECI)</b>                      | At least one component is not listed.   |
| <b>Philippines inventory (PICCS)</b>               | All components are listed or exempted.  |
| <b>United States inventory (TSCA 8b)</b>           | All components are active or exempted.  |
| <b>Taiwan Chemical Substances Inventory (TCSI)</b> | All components are listed or exempted.  |
| <b>Harmful Chemicals List</b>                      | Listed  |

### International regulations

#### Montreal Protocol

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

#### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

## Section 16. Other information

### History

|                                       |                     |
|---------------------------------------|---------------------|
| <b>Date of issue/Date of revision</b> | 02/01/2026.         |
| <b>Date of previous issue</b>         | 17/11/2023.         |
| <b>Prepared by</b>                    | Product Stewardship |

## Section 16. Other information

### Key to abbreviations

ACGIH = American Conference of Industrial Hygienists  
CAS Number = Chemical Abstracts Service Registry Number  
GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
IATA = International Air Transport Association  
IMDG = International Maritime Dangerous Goods  
OEL = Occupational Exposure Limit  
REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation [Regulation (EC) No. 1907/2006]  
SDS = Safety Data Sheet  
STEL = Short term exposure limit  
TWA = Time weighted average  
UN Number = United Nations Number, a four digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods. 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

### References

Not available.

✔ Indicates information that has changed from previously issued version.

### Notice to reader

All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.

The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from BP Group.

It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. The BP Group shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. Employers have a duty to tell employees and others who may be affected of any hazards described in this sheet and of any precautions that should be taken. You can contact the BP Group to ensure that this document is the most current available. Alteration of this document is strictly prohibited.