

SAFETY DATA SHEET

Shell Brake and Clutch Fluid DOT 4

Version 3.1

Revision Date 07.10.2024

Print Date 08.10.2024

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Shell Brake and Clutch Fluid DOT 4
Product code : 001B0641

Manufacturer or supplier's details

Supplier : Shell Singapore Pte. Ltd.
(196000089G)
The Metropolis Tower 1,
9 North Buona Vista Drive, #07-01
Singapore 138588
Singapore
Telephone : (+65) 62632975
Telefax : (+65) 62632049
Emergency telephone number : +65 6263 2975
Contact for Safety Data Sheet : If you have any enquiries about the content of this SDS please email lubricantSDS@shell.com

Recommended use of the chemical and restrictions on use

Recommended use : Brake fluid

2. HAZARDS IDENTIFICATION

GHS Classification

Serious eye damage : Category 1

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : PHYSICAL HAZARDS:
Not classified as a physical hazard under GHS criteria.
HEALTH HAZARDS:
H318 Causes serious eye damage.
ENVIRONMENTAL HAZARDS:
Not classified as an environmental hazard under GHS criteria.

Precautionary statements : **Prevention:**
P280 Wear protective gloves/ protective clothing/ eye

SAFETY DATA SHEET

Shell Brake and Clutch Fluid DOT 4

Version 3.1

Revision Date 07.10.2024
protection/ face protection.

Print Date 08.10.2024

Response:

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER/doctor.

Storage:

No precautionary phrases.

Disposal:

No precautionary phrases.

Hazardous components which must be listed on the label:
Contains Triethylene glycol monobutyl ether.

Other hazards which do not result in classification

Intentional abuse, misuse or other massive exposure may cause multiple organ damage and or death.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

3.2 Mixtures

Chemical nature : Mixture of polyalkylene glycol monoalkyl ethers and ester derivatives.
Contains corrosion inhibitor and anti-oxidant formulation.

Components

Chemical name	CAS-No.	Classification	Concentration (% w/w)
Triethylene glycol monobutyl ether	143-22-6	Eye Dam.1; H318	60 - 70

For explanation of abbreviations see section 16.

4. FIRST-AID MEASURES

General advice : Not expected to be a health hazard when used under normal conditions.

SAFETY DATA SHEET

Shell Brake and Clutch Fluid DOT 4

Version 3.1

Revision Date 07.10.2024

Print Date 08.10.2024

If inhaled	: No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.
In case of skin contact	: Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention.
In case of eye contact	: Immediately flush eye(s) with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. Transport to the nearest medical facility for additional treatment.
If swallowed	: In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.
Most important symptoms and effects, both acute and delayed	: Corrosive to eyes. Contact can cause severe eye damage including chemical burns, pain, clouding of the eye surface, inflammation of the eye, and may result in permanent loss of vision. Not considered to be an inhalation hazard under normal conditions of use. Possible respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing, and/or difficulty breathing. No specific hazards under normal use conditions. Skin irritation signs and symptoms may include a burning sensation, redness, or swelling. No specific hazards under normal use conditions. Ingestion may result in nausea, vomiting and/or diarrhoea.
Protection of first-aiders	: When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury and surroundings.
Notes to physician	: IMMEDIATE TREATMENT IS EXTREMELY IMPORTANT! Call a doctor or poison control center for guidance. Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	: Alcohol-resistant foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Unsuitable extinguishing	: Do not use water in a jet.

SAFETY DATA SHEET

Shell Brake and Clutch Fluid DOT 4

Version 3.1
media

Revision Date 07.10.2024

Print Date 08.10.2024

- Specific hazards during firefighting : Material will not burn unless preheated.
Hazardous combustion products may include:
A complex mixture of airborne solid and liquid particulates and gases (smoke).
Carbon monoxide may be evolved if incomplete combustion occurs.
Unidentified organic and inorganic compounds.
- Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Special protective equipment for firefighters : Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469).

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Avoid contact with skin and eyes.
- Environmental precautions : Use appropriate containment to prevent uncontrolled release. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.
- Local authorities should be advised if significant spillages cannot be contained.
- Methods and materials for containment and cleaning up : Slippery when spilt. Avoid accidents, clean up immediately. Prevent from spreading by making a barrier with sand, earth or other containment material.
- For small liquid spills (< 1 drum), transfer by mechanical means to a labeled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.
- For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.

SAFETY DATA SHEET

Shell Brake and Clutch Fluid DOT 4

Version 3.1

Revision Date 07.10.2024

Print Date 08.10.2024

Additional advice

: For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet.
For guidance on disposal of spilled material see Section 13 of this Safety Data Sheet.

Local authorities should be advised if significant spillages cannot be contained.

7. HANDLING AND STORAGE

General Precautions

: Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols.
Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.

Advice on safe handling

: Avoid prolonged or repeated contact with skin.
Avoid inhaling vapour and/or mists.
When handling product in drums, safety footwear should be worn and proper handling equipment should be used.
Properly dispose of any contaminated rags or cleaning materials in order to prevent fires.

Avoidance of contact

: Mineral oils.
Water vapour.

Product Transfer

: Keep containers closed when not in use. Do not pressurize drum containers to empty.

Storage

Other data

: Tanks must be clean, dry and rust-free.
Keep container tightly closed.
Must be stored in a diked (bunded) well-ventilated area, away from sunlight, ignition sources and other sources of heat.
Cleaning, inspection and maintenance of storage tanks is a specialist operation, which requires the implementation of strict procedures and precautions.
Drums should be stacked to a maximum of 3 high.

Store at ambient temperature.
60 °C maximum

Packaging material

: Suitable material: For containers or container linings, use mild steel or high density polyethylene., Stainless steel, Carbon steel
Unsuitable material: PVC.

Container Advice

: Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

SAFETY DATA SHEET

Shell Brake and Clutch Fluid DOT 4

Version 3.1

Revision Date 07.10.2024

Print Date 08.10.2024

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Components with workplace control parameters

Biological occupational exposure limits

No biological limit allocated.

Monitoring Methods

Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.

Validated exposure measurement methods should be applied by a competent person and samples analysed by an accredited laboratory.

Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.

National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods
<http://www.cdc.gov/niosh/>

Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods
<http://www.osha.gov/>

Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances
<http://www.hse.gov.uk/>

Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA) , Germany
<http://www.dguv.de/inhalt/index.jsp>

L'Institut National de Recherche et de Sécurité, (INRS), France <http://www.inrs.fr/accueil>

Engineering measures

: The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include:
Adequate ventilation to control airborne concentrations.

Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.

General Information:

Define procedures for safe handling and maintenance of controls.

Educate and train workers in the hazards and control measures relevant to normal activities associated with this product.

Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation.

Drain down system prior to equipment break-in or maintenance.

SAFETY DATA SHEET

Shell Brake and Clutch Fluid DOT 4

Version 3.1

Revision Date 07.10.2024

Print Date 08.10.2024

Retain drain downs in sealed storage pending disposal or subsequent recycle.

Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

Personal protective equipment

Protective measures

Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Respiratory protection : No respiratory protection is ordinarily required under normal conditions of use.
In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for the combination of organic gases and vapours and particles [Type A/Type P boiling point >65°C (149°F)].

Hand protection
Remarks : Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection. PVC, neoprene or nitrile rubber gloves Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same but recognize that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time maybe acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not

SAFETY DATA SHEET

Shell Brake and Clutch Fluid DOT 4

Version 3.1

Revision Date 07.10.2024

Print Date 08.10.2024

a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Glove thickness should be typically greater than 0.35 mm depending on the glove make and model.

- Eye protection : Wear goggles for use against liquids and gas, combined with face shield.
- Skin and body protection : Skin protection is not ordinarily required beyond standard work clothes.
It is good practice to wear chemical resistant gloves.
- Thermal hazards : Not applicable

Environmental exposure controls

- General advice : Take appropriate measures to fulfill the requirements of relevant environmental protection legislation. Avoid contamination of the environment by following advice given in Section 6. If necessary, prevent undissolved material from being discharged to waste water. Waste water should be treated in a municipal or industrial waste water treatment plant before discharge to surface water.
Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour.

9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : Liquid at room temperature.
- Colour : amber, May be dyed
- Odour : Ethereal
- Odour Threshold : Data not available
- pH : 7 - 11.5, As 50% volume aqueous ethanol solution.
- Melting point/freezing point : Data not available
- Initial boiling point and boiling range : > 238 °C / 460 °F
- Flash point : ≥ 100 °C / ≥ 212 °F
Method: Unspecified
- Evaporation rate : Data not available
- Flammability (solid, gas) : Data not available
- Upper explosion limit : Data not available
- Lower explosion limit : Data not available
- Vapour pressure : Data not available (50 °C / 122 °F)

SAFETY DATA SHEET

Shell Brake and Clutch Fluid DOT 4

Version 3.1

Revision Date 07.10.2024

Print Date 08.10.2024

Relative vapour density	: Data not available
Relative density	: 1.000 - 1.088 (15 °C / 59 °F)
Density	: 1,000 - 1,088 kg/m ³ (15.0 °C / 59.0 °F) Method: ASTM D4052
	1,050 - 1,100 kg/m ³ (20 °C / 68 °F) Method: ASTM D4052
Solubility(ies)	
Water solubility	: Miscible.
Solubility in other solvents	: Data not available
Partition coefficient: n-octanol/water	: Data not available
Auto-ignition temperature	: > 300 °C / 572 °F
Viscosity	
Viscosity, dynamic	: Data not available
Viscosity, kinematic	: >= 1.5 mm ² /s (100 °C / 212 °F) Method: FMVSS 116
	<= 1500 mm ² /s (-40 °C / -40 °F) Method: FMVSS 116
Particle characteristics	
Particle size	: Data not available
Explosive properties	: Classification Code: Not classified
Oxidizing properties	: Data not available
Conductivity	: This material is not expected to be a static accumulator.

10. STABILITY AND REACTIVITY

Chemical stability : Stable.

SAFETY DATA SHEET

Shell Brake and Clutch Fluid DOT 4

Version 3.1

Revision Date 07.10.2024

Print Date 08.10.2024

Remarks: Causes serious eye damage.

Respiratory or skin sensitisation

Product:

Remarks: Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Product:

: Remarks: Based on available data, the classification criteria are not met., Not considered a mutagenic hazard.

Carcinogenicity

Product:

Remarks: Based on available data, the classification criteria are not met., Not a carcinogen.

Material	GHS/CLP Carcinogenicity Classification
Triethylene glycol monobutyl ether	No carcinogenicity classification.

Reproductive toxicity

Product:

: Remarks: Based on available data, the classification criteria are not met., Does not impair fertility., Not a developmental toxicant.

STOT - single exposure

Product:

Remarks: Based on available data, the classification criteria are not met.

STOT - repeated exposure

Product:

Remarks: Based on available data, the classification criteria are not met.

Aspiration toxicity

Product:

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

SAFETY DATA SHEET

Shell Brake and Clutch Fluid DOT 4

Version 3.1

Revision Date 07.10.2024

Print Date 08.10.2024

Further information

Product:

Remarks: Slightly irritating to respiratory system.

12. ECOLOGICAL INFORMATION

Basis for assessment : Ecotoxicological data have not been determined specifically for this product.
Information given is based on a knowledge of the components and the ecotoxicology of similar products.
Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s). (LL/EL/IL50 expressed as the nominal amount of product required to prepare aqueous test extract).

Ecotoxicity

Product:

Toxicity to fish (Acute toxicity) : Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l

Toxicity to crustacean (Acute toxicity) : Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l

Toxicity to algae/aquatic plants (Acute toxicity) : Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l

Toxicity to fish (Chronic toxicity) : Remarks: Data not available

Toxicity to crustacean (Chronic toxicity) : Remarks: Data not available

Toxicity to microorganisms (Acute toxicity) : Remarks: Data not available

Persistence and degradability

Product:

Biodegradability : Remarks: Major constituents are expected to be inherently biodegradable, but contains components that may persist in the environment.

Bioaccumulative potential

Product:

Bioaccumulation : Remarks: Contains components with the potential to

SAFETY DATA SHEET

Shell Brake and Clutch Fluid DOT 4

Version 3.1

Revision Date 07.10.2024

Print Date 08.10.2024

bioaccumulate.

Partition coefficient: n-octanol/water

: Remarks: Data not available

Mobility in soil

Product:

Mobility

: Remarks: Liquid under most environmental conditions., If it enters soil, it will adsorb to soil particles and will not be mobile.

Remarks: Dissolves in water.

Other adverse effects

no data available

Product:

Additional ecological information

: Does not have ozone depletion potential, photochemical ozone creation potential or global warming potential., Product is a mixture of non-volatile components, which will not be released to air in any significant quantities under normal conditions of use.

Poorly soluble mixture., Causes physical fouling of aquatic organisms.

13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues

: Recover or recycle if possible.

It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses.

Waste product should not be allowed to contaminate soil or ground water, or be disposed of into the environment. Waste, spills or used product is dangerous waste.

Contaminated packaging

: Dispose in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor should be established beforehand. Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Local legislation
Remarks

: Disposal should be in accordance with applicable regional, national, and local laws and regulations.

SAFETY DATA SHEET

Shell Brake and Clutch Fluid DOT 4

Version 3.1

Revision Date 07.10.2024

Print Date 08.10.2024

14. TRANSPORT INFORMATION

International Regulations

ADR

Not regulated as a dangerous good

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

Maritime transport in bulk according to IMO instruments

Pollution category : Not applicable
Ship type : Not applicable
Product name : Not applicable
Special precautions : Not applicable

Special precautions for user

Remarks : Special Precautions: Refer to Section 7, Handling & Storage, for special precautions which a user needs to be aware of or needs to comply with in connection with transport.

15. REGULATORY INFORMATION

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

Local Regulations

Workplace Safety and Health Act & Workplace Safety and Health (General Provision) Regulations	This product is subject to the SDS, Labelling, PEL and other requirements in the Act/Regulations.
Fire Safety Act and Fire Safety (Petroleum & Flammable Materials) Regulations	This product is not subject to the requirements in the Act/Regulations.
Maritime and Port Authority of Singapore (Dangerous Goods, Petroleum and Explosives) Regulations	This product is not subject to the requirements in the Act/Regulations.
Environmental Protection and Management Act and Environmental Protection and Management (Hazardous Substances) Regulations	This product is not subject to control under this Act/Regulation.

Other international regulations

SAFETY DATA SHEET

Shell Brake and Clutch Fluid DOT 4

Version 3.1

Revision Date 07.10.2024

Print Date 08.10.2024

The components of this product are reported in the following inventories:

TSCA : Not all components listed.

16. OTHER INFORMATION

Full text of H-Statements

H318 Causes serious eye damage.

Full text of other abbreviations

Eye Dam. Serious eye damage

Abbreviations and Acronyms

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECL - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

Further information

Other information : A vertical bar (|) in the left margin indicates an amendment from the previous version.

SAFETY DATA SHEET

Shell Brake and Clutch Fluid DOT 4

Version 3.1

Revision Date 07.10.2024

Print Date 08.10.2024

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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