

1. Identification

| | |
|--------------------------------------|---|
| GHS product identifier | FERODO Brake Fluid |
| Other means of identification | |
| Product code | FBE050, FBL100, FBL500, FBZ025, FBZ050, FBZ100, FBZ2000, FBZ500 |
| Synonyms | DOT 5.1 - All grades, DOT 4 - grades with Wet Boiling Points > 165 °C. |
| Recommended use | Hydraulic fluid in automotive brake/clutch system. |
| Recommended restrictions | None known. |
| Manufacturer information | |
| Manufacturer/Supplier | |
| Company name | Federal-Mogul Global Aftermarket EMEA bv |
| Address | Prins Boudewijnlaan 5 B-2550 Kontich Belgium |
| Telephone | +32 3 450 83 10 |
| Contact person | Braking_EMEA@DRiV.com |
| Emergency telephone number | 3E Global Incident Response Hotline +1 760 476 3959 Access code: 335908 |

2. Hazard(s) identification

| | | |
|------------------------------|---|------------|
| Physical hazards | Not classified. | |
| Health hazards | Reproductive toxicity (fertility, the unborn child) | Category 2 |
| Environmental hazards | Not classified. | |
| Label elements | | |



| | |
|--|---|
| Signal word | Warning |
| Hazard statement | Suspected of damaging the unborn child. Suspected of damaging fertility. |
| Precautionary statement | |
| Prevention | If medical advice is needed, have product container or label at hand. Keep out of reach of children. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. |
| Response | IF exposed or concerned: Get medical advice/attention. |
| Storage | Store locked up. |
| Disposal | Dispose of contents/container in accordance with local/regional/national/international regulations. |
| Other hazards which do not result in classification | None known. |
| Supplemental information | None. |

3. Composition/information on ingredients

Mixtures

| Chemical name | CAS number | % |
|--|------------|---------|
| Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate | 30989-05-0 | 80 - 95 |
| Triethylene glycol monobutyl ether | 143-22-6 | 10 - 15 |
| 3,6,9,12-Tetraoxahexadecan-1-ol | 1559-34-8 | 1 - 3 |
| 2-(2-Methoxyethoxy)ethanol | 111-77-3 | < 1 |

| | |
|---|---|
| Composition comments | All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. |
| 4. First-aid measures | |
| Inhalation | Move injured person into fresh air and keep person calm under observation. Get medical attention if any discomfort continues. |
| Skin contact | Remove contaminated clothes and rinse skin thoroughly with water. Get medical attention if irritation develops and persists. |
| Eye contact | Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. |
| Ingestion | Rinse mouth thoroughly with water and give large amounts of milk or water, if person is conscious. Get medical attention if any discomfort continues. |
| Most important symptoms/effects, acute and delayed | Exposed individuals may experience eye tearing, redness, and discomfort. Defats the skin. Central nervous system. Headaches, dizziness and nausea. May cause abdominal discomfort if swallowed. |
| Indication of immediate medical attention and special treatment needed | Provide general supportive measures and treat symptomatically. Symptoms may be delayed. |
| General information | Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. IF exposed or concerned: Get medical advice/attention. |
| 5. Fire-fighting measures | |
| Suitable extinguishing media | Alcohol resistant foam. Dry powder. Carbon dioxide (CO ₂). Water mist. |
| Unsuitable extinguishing media | Water jet. |
| Specific hazards arising from the chemical | During fire, gases hazardous to health may be formed. |
| Special protective equipment and precautions for firefighters | Self-contained breathing apparatus and full protective clothing should be worn when fighting chemical fires. Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace. |
| Fire fighting equipment/instructions | Use standard firefighting procedures and consider the hazards of other involved materials. Containers close to fire should be removed immediately or cooled with water. |
| General fire hazards | Will burn if involved in a fire. |
| 6. Accidental release measures | |
| Personal precautions, protective equipment and emergency procedures | Follow standard emergency procedure. Avoid breathing mist/vapours. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Avoid contact with skin and eyes. Ensure adequate ventilation. Wear appropriate protective equipment and clothing during clean-up. Local authorities should be advised if significant spillages cannot be contained. Wear appropriate personal protective equipment (See Section 8). |
| Methods and materials for containment and cleaning up | Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. |
| | Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. |
| | Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. |
| Environmental precautions | Avoid discharge into drains, water courses or onto the ground. |
| 7. Handling and storage | |
| Precautions for safe handling | Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing mist/vapours. Avoid contact with skin and eyes. Avoid prolonged exposure. Pregnant or breastfeeding women must not handle this product. Provide adequate ventilation. Wear appropriate personal protective equipment. For personal protection, see Section 8 of the SDS. Observe good industrial hygiene practices. |
| Conditions for safe storage, including any incompatibilities | Store locked up. Keep container in a well-ventilated place. Store between 15°C - 30°C (60°F - 86°F). Store away from incompatible materials (see section 10 of the SDS). |
| 8. Exposure controls/personal protection | |
| Occupational exposure limits | No exposure limits noted for ingredient(s). |
| Biological limit values | No biological exposure limits noted for the ingredient(s). |

| | |
|--|--|
| Appropriate engineering controls | Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide easy access to water supply and eye wash facilities. |
| Individual protection measures, such as personal protective equipment | |
| Eye/face protection | Wear safety glasses with side shields (or goggles). |
| Skin protection | |
| Hand protection | Wear appropriate chemical resistant gloves. Full contact: Glove material: Butyl rubber. Use gloves with breakthrough time of >480 minutes. Minimum glove thickness 0.3 mm. Nitrile. Use gloves with breakthrough time of > 480 minutes. Minimum glove thickness 0.2 mm. The most suitable glove must be chosen in consultation with the gloves supplier, who can inform about the breakthrough time of the glove material. |
| Other | Wear appropriate clothing to prevent repeated or prolonged skin contact. |
| Respiratory protection | In case of insufficient ventilation, wear suitable respiratory equipment. Appropriate respirator selection should be made by a qualified professional. |
| Thermal hazards | When material is heated, wear gloves to protect against thermal burns. |
| General hygiene considerations | Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Observe any medical surveillance requirements. |

9. Physical and chemical properties

| | |
|---|---------------------------------|
| Appearance | |
| Physical state | Liquid. |
| Form | Liquid. |
| Colour | Amber. |
| Odour | Mild. |
| Odour threshold | Not available. |
| pH | 7 - 10.5 |
| Melting point/freezing point | < -50 °C (< -58 °F) |
| Initial boiling point and boiling range | > 260 °C (> 500 °F) |
| Flash point | > 120 °C (> 248 °F) |
| Evaporation rate | 0.01 (n-butylacetate = 100) |
| Flammability (solid, gas) | Not applicable. |
| Upper/lower flammability or explosive limits | |
| Explosive limit - lower (%) | Property has not been measured. |
| Explosive limit – upper (%) | Property has not been measured. |
| Vapour pressure | 1 mbar |
| Vapour density | Property has not been measured. |
| Relative density | 1.02 - 1.07 |
| Solubility(ies) | |
| Solubility (water) | Soluble in water. |
| Partition coefficient (n-octanol/water) | 1.5 |
| Auto-ignition temperature | > 280 °C (> 536 °F) |
| Decomposition temperature | 300 °C (572 °F) |
| Viscosity | Property has not been measured. |
| Other information | |
| Explosive properties | Not explosive. |
| Kinematic viscosity | 5 - 10 cSt (20 °C (68 °F)) |
| Oxidising properties | Not oxidising. |

10. Stability and reactivity

| | |
|---------------------------|---|
| Reactivity | The product is stable and non-reactive under normal conditions of use, storage and transport. |
| Chemical stability | Stable under normal temperature conditions. Glycol Ethers can form peroxides on storage – do not distil to dryness. |

| | |
|---|--|
| Possibility of hazardous reactions | Will not occur. |
| Conditions to avoid | Avoid exposure to high temperatures or direct sunlight. Contact with incompatible materials. |
| Incompatible materials | Strong oxidizers, strong acids, and strong bases. Strong reducing agents. |
| Hazardous decomposition products | Fire or high temperatures create: Carbon monoxide. Carbon dioxide. |

11. Toxicological information

Information on likely routes of exposure

| | |
|---|---|
| Inhalation | Glycol does not easily form a vapour at normal temperatures. Therefore, it must be heated or misted before inhalation exposure can occur. |
| Skin contact | Prolonged or repeated contact may dry skin and cause dermatitis. |
| Eye contact | Based on available data, the classification criteria are not met. |
| Ingestion | May cause discomfort if swallowed. |
| Symptoms related to the physical, chemical and toxicological characteristics | Exposed individuals may experience eye tearing, redness, and discomfort. Defats the skin. Central nervous system. Headaches, dizziness and nausea. May cause abdominal discomfort if swallowed. |

Information on toxicological effects

Acute toxicity

| Product | Species | Test Results |
|----------------------------------|---------|--------------|
| FERODO Brake Fluid (CAS Mixture) | | |
| Acute | | |
| Dermal | | |
| LD50 | Rabbit | > 3000 mg/kg |
| Oral | | |
| LD50 | Rat | > 5000 mg/kg |
| Components | Species | Test Results |

2-(2-Methoxyethoxy)ethanol (CAS 111-77-3)

Acute

Dermal

LD50 Rabbit 8980 ml/kg

Oral

LD50 Rat 6700 ml/kg

Triethylene glycol monobutyl ether (CAS 143-22-6)

Acute

Dermal

LD50 Rabbit 3540 mg/kg

Oral

LD50 Rat 5300 mg/kg

Skin corrosion/irritation Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation

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

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

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

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

Reproductive toxicity Suspected of damaging fertility. Suspected of damaging the unborn child.

Specific target organ toxicity - single exposure Based on available data, the classification criteria are not met.

Specific target organ toxicity - repeated exposure Based on available data, the classification criteria are not met.

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

Chronic effects None known.

Further information

Glycol ethers: Some glycol ethers cause adverse effects in animals that include the reproductive system, offspring, blood, kidney and liver.

12. Ecological information

Ecotoxicity

| Components | Species | Test Results |
|---|---|---------------------|
| Triethylene glycol monobutyl ether (CAS 143-22-6) | | |
| Aquatic | | |
| Acute | | |
| Fish | LC50 | Pimephales promelas |
| | | 2400 mg/l, 96 hours |
| Persistence and degradability | Expected to be inherently biodegradable. Expected to be readily biodegradable. (OECD 302B). | |
| Bioaccumulative potential | The product is not expected to bioaccumulate. | |
| Partition coefficient n-octanol / water (log Kow) | | |
| FERODO Brake Fluid | | 1.5 |
| 2-(2-Methoxyethoxy)ethanol (CAS 111-77-3) | | -1.18 |
| Triethylene glycol monobutyl ether (CAS 143-22-6) | | 0.02 |
| Mobility in soil | This product is water soluble and may disperse in soil. | |
| Other adverse effects | None known. | |

13. Disposal considerations

| | |
|--|--|
| Disposal instructions | Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations. |
| Local disposal regulations | Dispose in accordance with all applicable regulations. |
| Waste from residues / unused products | Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions). |
| Contaminated packaging | Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal. |

14. Transport information

ADR

Not regulated as dangerous goods.

RID

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

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

15. Regulatory information

Safety, health and environmental regulations specific for the product in question This product is classified in accordance with SANS 10234: 2019 – Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Hazardous Substances Act, 1973 (Act No. 15 of 1973)

Not listed.

International regulations

Stockholm Convention

Not applicable.

Rotterdam Convention

Not applicable.

Montreal Protocol

Not applicable.

Kyoto Protocol

Not applicable.

Basel Convention

Not applicable.

16. Other information

| | |
|--|---|
| Issue date | 13-May-2024 |
| Revision date | - |
| Version No. | 01 |
| List of abbreviations | ADR: Agreement concerning the International Carriage of Dangerous Goods by Road. CAS: Chemical Abstract Service. EC50: Effective Concentration, 50%. IATA: International Air Transport Association. IBC Code: International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk. IMDG: International Maritime Dangerous Goods. LC50: Lethal Concentration, 50%. LD50: Lethal Dose, 50%. MARPOL: International Convention for the Prevention of Pollution from Ships. NOEC: No observed effect concentration. RID: Regulations concerning the International Carriage of Dangerous Goods by Rail. |
| References | HSDB® - Hazardous Substances Data Bank ECHA: European Chemical Agency. Registry of Toxic Effects of Chemical Substances (RTECS) |
| Disclaimer | The information provided on this data sheet was abstracted from supplier safety data sheets and standard references in occupational health and toxicology. Federal-Mogul makes no representation or warranty with respect to the information obtained from such references. The information is however, as of the date provided, true and accurate to the best of Federal-Mogul's knowledge, and should be used to make an independent determination of the methods to safeguard workers and the environment. |
| This SDS contains revisions in the following section(s): | 1, 2, 3, 4, 6, 7, 8, 9, 11, 12, 15, 16. |