

SAFETY DATA SHEET

REV: 00 DATE: 4 OCTOBER 2016

DOT 3 - HEAVY DUTY BRAKE FLUID (CLEAR)

1. Product & Company Identification

Product Details

Product name: DOT 3 - HEAVY DUTY BRAKE FLUID (CLEAR)
Physical form: Liquid
Odour: Light
CAS No.: Mixture

Company Details

Manufacturer: Mohm Chemical Sdn Bhd
Address: No. 32, Jalan Temenggong, Off Jalan Tampoi,
81100 Johor Bahru, Johor, Malaysia.
Tel: + 60-7-3331222
Fax: + 60-7-3320545/ + 60-7-3337919

2. Hazards Identification

Hazard Pictogram



Signal Word: Danger

Classification

SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
TOXIC TO REPRODUCTION (Unborn child) - Category 2
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
AQUATIC HAZARD (LONG-TERM) - Category 3

Hazard Statement

H318- Causes serious eye damage.
H315- Causes skin irritation.
H361d- Suspected of damaging the unborn child.
H335- May cause respiratory irritation.
H412- Harmful to aquatic life with long lasting effects.

Precautionary Statement – Prevention

P201- Obtain special instructions before use.
P202- Do not handle until all safety precautions have been read and understood.
P281- Use personal protective equipment as required.
P280- Wear protective gloves. Wear eye or face protection.
P271- Use only outdoors or in a well-ventilated area.
P273- Avoid release to the environment.
P261- Avoid breathing vapor.
P264- Wash hands thoroughly after handling.



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Precautionary Statement – Response

P308+P313- IF exposed or concerned: Get medical attention.

P304+P340- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P304+P312- Call a POISON CENTER or physician if you feel unwell.

P302+P352- IF ON SKIN: Wash with plenty of soap and water.

P362- Take off contaminated clothing. Wash contaminated clothing before reuse.

P332+P313- If skin irritation occurs: Get medical attention.

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 or physician.

Precautionary Statement – Storage

P405- Store locked up.

Precautionary Statement – Disposal

P501- Dispose of contents and container in accordance with all local, regional, national and International regulations.

3. Composition / Hazardous Components

Chemical Name	CAS No.	WT%
2-[2-(2-Butoxyethoxy)ethoxy]ethanol	143-22-6	30 - 60
3,6,9,12-Tetraoxatetradecane-1,14-diol	4792-15-8	10 - 30
Poly(oxy-1,2-ethanediyl), α -butyl- ω -hydroxy-	9004-77-7	10 - 30
Polyethylene Glycol	25322-68-3	10 - 30
2-(2-Butoxyethoxy)ethanol	112-34-5	5 - 10
2,2' -Oxybisethanol	111-46-6	1 - 5
Trisodium orthophosphate	7601-54-9	1 - 5
Sodium hydroxide	1310-73-2	0.1 - 1
2,6-Di-tert-Butyl-p-cresol	128-37-0	0.1 - 1
2-(2-Methoxyethoxy)ethanol	111-77-3	0.1 - 1

4. First-aid Measures

Eye Contact : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Chemical burns must be treated promptly by a physician.

Skin Contact : Get medical attention immediately. Call a poison center or physician. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 20 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Inhalation : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest



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Ingestion : occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.
Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person.

5. Fire Fighting Measures

Suitable extinguishing media: Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media: None known.
Special firefighting procedure: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
Hazardous decomposition: Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
phosphorus oxides
metal oxide/oxides
Specific hazards arising from the chemical: This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

6. Accidental release measures

Methods for cleaning up: Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. 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 (see Section 13). Dispose via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product.
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). Water polluting material. May be harmful to the environment if released in large quantities.

7. Handling and Storage

Precautions for safe handling

Protective measures: Put on appropriate personal protective equipment .Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use



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	only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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. Avoid contact with used product. 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. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas.
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 and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure control / Personal protection

Control parameters

Occupational exposure limits:

Polyethylene Glycol

AIHA WEEL (United States, 10/2011). TWA: 10 mg/m³ 8 hours. Form: Aerosol

2-(2-Butoxyethoxy)ethanol

ACGIH TLV (United States, 4/2014). TWA: 10 ppm 8 hours. Form: Inhalable fraction and vapor

2,2' -Oxybisethanol

AIHA WEEL (United States, 10/2011). TWA: 10 mg/m³ 8 hours.

Trisodium orthophosphate

AIHA WEEL (United States, 10/2011). STEL: 5 mg/m³ 15 minutes.

Sodium hydroxide

ACGIH TLV (United States, 4/2014).C: 2 mg/m³

NIOSH REL (United States, 10/2013).CEIL: 2 mg/m³

OSHA PEL (United States, 2/2013).TWA: 2 mg/m³ 8 hours.

2,6-Di-tert-Butyl-p-cresol

ACGIH TLV (United States, 4/2014).TWA: 2 mg/m³ 8 hours. Form: Inhalable fraction and vapor

NIOSH REL (United States, 10/2013). TWA: 10 mg/m³ 10 hours.

OSHA PEL 1989 (United States, 3/1989). TWA: 10 mg/m³ 8 hours.

Appropriate engineering controls:

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls:

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.



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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/face protection:	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/ or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
Hand protection:	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Body protection:	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.
Other 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:	Use a properly fitted, air-purifying or supplied air respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

9. Physical and Chemical Properties

Form:	Liquid
Colour:	clear
Equilibrium Reflux Boiling Point :	
Dry °C (°F)	271 (520)
WET °C (°F)	151 (304)
Kinematic Viscosity ,mm2/s @40°C	1065
Kinematic Viscosity , mm2/s @100°C	2

10. Stability and Reactivity

Reactivity:	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability:	The product is stable.



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Incompatibility (material to be avoid):	Oxidizing materials.
Conditions to be avoid:	Keep away from sources of ignition.
Possibility of hazardous reactions:	Under normal conditions of storage and use, hazardous reactions will not occur.
Hazardous decomposition products:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological Information

Acute toxicity

Product/ingredient name : 2-[2-(2-Butoxyethoxy)ethoxy]ethanol

Result :LD50 Oral

Species :Rat

Dose :5300 mg/kg

Exposure :-

Product/ingredient name : 2-(2-Butoxyethoxy)ethanol

Result :LD50 Dermal ; LD50 Oral

Species :Rabbit ; Rat

Dose :2700 mg/kg ;4500 mg/kg

Exposure :- ; -

Product/ingredient name : 2,2' -Oxybisethanol

Result :LD50 Dermal ; LD50 Oral

Species : Rabbit ; Rat

Dose : 11890 mg/kg ; 12000 mg/kg

Exposure :- ; -

Product/ingredient name : 2,6-Di-tert-Butyl-p-cresol

Result :LD50 Oral

Species :Rat

Dose :890 mg/kg

Exposure :-

Carcinogenicity

Product/ingredient name: 2,2' -Oxybisethanol

OSHA :-

IARC :-

NTP :-

ACGIH :-

EPA :-

NIOSH : None.

Specific target organ toxicity (single exposure)

Name : 3,6,9,12-Tetraoxatetradecane-1,14-diol

Category : Category 3

Route of exposure : Not applicable.

Target organs : Respiratory tract irritation

Name : Polyethylene Glycol

Category : Category 3

Route of exposure : Not applicable.

Target organs : Respiratory tract irritation

Name : Trisodium orthophosphate

Category : Category 3



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Route of exposure : Not applicable.

Target organs : Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

There is no data available.

Irritation/Corrosion

Product/ingredient name : 2-[2-(2-Butoxyethoxy)ethoxy]ethanol

Result : Eyes - Moderate irritant ; Eyes - Severe irritant ; Skin - Mild irritant

Species : Rabbit ; Rabbit ; Rabbit

Score : - ; - ; -

Exposure : 24 hours 20 mg ; 50 mg ; 24 hours 500 mg

Observation : - ; - ; -

Product/ingredient name : Polyethylene Glycol

Result : Eyes - Mild irritant; Eyes - Mild irritant; Skin - Mild irritant; Skin - Mild irritant

Species : Rabbit; Rabbit; Rabbit; Rabbit

Score : -; -; -; -

Exposure : 24 hours 500 mg; 500 mg; 24 hours 500 mg; 500 mg

Observation : -; -; -; -

Product/ingredient name : 2-(2-Butoxyethoxy)ethanol

Result : Eyes - Moderate irritant; Eyes - Severe irritant

Species : Rabbit; Rabbit

Score : -; -

Exposure : 24 hours 20 mg; 20 mg

Observation : -; -

Product/ingredient name : 2,2'-Oxybisethanol

Result : Eyes - Mild irritant; Skin - Mild irritant; Skin - Mild irritant

Species : Rabbit; Human; Rabbit

Score : -; -; -

Exposure : 50 mg; 72 hours 112 mg Intermittent; 500 mg

Observation : -; -; -

Product/ingredient name : Sodium hydroxide

Result : Eyes - Severe irritant; Eyes - Mild irritant; Eyes - Severe irritant; Eyes - Severe irritant; Eyes - Severe irritant; Skin - Mild irritant; Skin - Severe irritant

Species : Monkey; Rabbit; Rabbit; Rabbit; Rabbit; Human; Rabbit

Score : -; -; -; -; -; -

Exposure : 24 hours 1%; 400 µg; 24 hours 50 µg; 1%; 0.5 minutes 1 mg ; 24 hours 2%; 24 hours 500 mg

Observation : -; -; -; -; -; -

Product/ingredient name : 2,6-Di-tert-Butyl-p-cresol

Result : Eyes - Moderate irritant; Skin - Mild irritant; Skin - Moderate irritant

Species : Rabbit; Human; Rabbit

Score : -; -; -

Exposure : 24 hours 100 mg; 48 hours 500 mg ; 48 hours 500 mg

Observation : -; -; -

Product/ingredient name : 2-(2-Methoxyethoxy)ethanol

Result : Eyes - Mild irritant; Eyes - Moderate irritant

Species : Rabbit; Rabbit

Score : -; -

Exposure : 24 hours 500 mg; 500 mg

Observation : -; -



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Sensitization

There is no data available.

Aspiration hazard

There is no data available.

Potential acute health effects

Inhalation : May cause respiratory irritation.
Ingestion : May cause burns to mouth, throat and stomach.
Skin contact : Causes skin irritation.
Eye contact : Causes serious eye damage.

Delayed and immediate effects and also chronic effects from short and long term exposure

No known significant effects or critical hazards.

Potential chronic health effects :

Teratogenicity : Suspected of damaging the unborn child..

Numerical measures of toxicity

Acute toxicity estimates

Route : Oral; Dermal
ATE value : 15433.9 mg/kg; 50931.8 mg/kg

12. Ecological Information

Toxicity

Product/ingredient name : olyethylene Glycol
Result : Acute LC50 >1000000 µg/l Fresh water
Species : Fish - Salmo salar - Parr
Exposure : 96 hours
Product/ingredient name : 2-(2-Butoxyethoxy)ethanol
Result : Acute LC50 1300000 µg/l Fresh water
Species : Fish - Lepomis macrochirus
Exposure : 96 hours
Product/ingredient name : 2,2' -Oxybisethanol
Result : Acute LC50 32000 ppm Fresh water
Species : Fish - Gambusia affinis - Adult
Exposure : 96 hours
Product/ingredient name : Trisodium orthophosphate
Result : Acute LC50 151 ppm Fresh water
Species : Fish - Gambusia affinis - Adult
Exposure : 96 hours
Product/ingredient name : Sodium hydroxide
Result : Acute EC50 40.38 mg/L Fresh water; Acute LC50 125 ppm Fresh water
Species : Crustaceans - Ceriodaphnia dubia - Neonate; Fish - Gambusia affinis - Adult
Exposure : 48 hours; 96 hours
Product/ingredient name : 2,6-Di-tert-Butyl-p-cresol
Result : Acute EC50 1440 µg/l Fresh water
Species : Daphnia - Daphnia pulex - Neonate
Exposure : 48 hours



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Product/ingredient name : 2-(2-Methoxyethoxy)ethanol
Result : Acute EC50 930 ppm Fresh water; Acute LC50 960 ppm Fresh water
Species : Daphnia - Daphnia magna; Fish - Oncorhynchus mykiss
Exposure : 48 hours; 96 hours

Persistence and degradability

There is no data available.

Bioaccumulative potential

Product/ingredient name : 2-[2-(2-Butoxyethoxy)ethoxy]ethanol
LogP_{ow} : 0.51
BCF : -
Potential : low
Product/ingredient name : Poly(oxy-1,2-ethanediyl), α-butyl-ω- hydroxy-
LogP_{ow} : 0.436
BCF : -
Potential : low
Product/ingredient name : Polyethylene Glycol
LogP_{ow} : -
BCF : 3.2
Potential : low
Product/ingredient name : 2-(2-Butoxyethoxy)ethanol
LogP_{ow} : 1
BCF : -
Potential : low
Product/ingredient name : 2,2' -Oxybisethanol
LogP_{ow} : -1.98
BCF : 100
Potential : low
Product/ingredient name : 2,6-Di-tert-Butyl-p-cresol
LogP_{ow} : 5.1
BCF : 330 to 1800
Potential : high
Product/ingredient name : 2-(2-Methoxyethoxy)ethanol
LogP_{ow} : -0.47
BCF : -
Potential : low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : There is no data available.
Other adverse effects : No known significant effects or critical hazards.

13. Disposal Considerations

Waste Disposal Method: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material



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and its container must be disposed of in a safe way. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

14. Transport Information

DOT shipping name : non-regulated
DOT label : not applicable
DOT identification No.: not applicable
Supplemental section 12 information:
IMDG, IATA/ICAO, TDG – non – regulated

15. Regulatory Information

U.S. Federal regulations :

United States inventory (TSCA 8b): All components are listed or exempted.

Clean Water Act (CWA) 311: Trisodium orthophosphate; Sodium hydroxide

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

16. Other Information

These data are offered in good faith as typical values and not as a product specification. No warranty, either expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific content of the intended use and determine whether they are appropriate.

*** End Of SDS ***

