1. IDENTIFICATION

PRODUCT NAME
BRAKE FLUID DOT – 3 Plus

OTHER MEANS OF IDENTIFICATION

RECOMMENDED USE OF THE SUBSTANCES AND RESTRICTION ON USE
This fluids is used as coolant for engine as mentioned in the PDS (Product Data Sheets) application recommendation.

SUPPLIER'S DETAILS
Company Name : PERTAMINA
Address : Gedung Oil Center
           JL. MH. Thamrin Kav. 55
           Central Jakarta Post Code 10350
           Phone : 021-31907195
           Facsimile : 021-31907992

EMERGENCY PHONE NUMBER
Phone : 021-31907195 (Monday-Friday, 7:00 am - 3:30 pm)

2. HAZARDS IDENTIFICATION

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE
Classification required according to GHS is Flammable Liquid Category 1 and Irritant

GHS LABEL ELEMENTS

Irritant          Flammable

OTHER HAZARD
Hazardous Material Decomposition: Oxides of carbon, oxides of nitrogen (NOx), toxic gases/vapours

3. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL IDENTITY OF THE MIXTURES
Glycol, Glycol ethers

CHEMICAL MIXTURES COMPONENTS
Mixture of polyalkylene glycols, polyalkylene glycols monoalkylethers, and polyoxyalkylene glycols with a trace amount of antioxidant and inhibitor.

4. FIRST AID MEASURES

Eye contact
Immediately flush eyes with large amounts of water for at least 15 minutes forcibly holding lids apart to ensure complete irrigation to all eye and lid tissue. Seek medical attention immediately.

Skin contact
Immediately remove contaminated clothing and shoes. Flush skin thoroughly with cool water; wash thoroughly with soap and water. Wash clothing before reuse. Discard non-rubber shoes, if irritation occurs, get medical attention.

Inhalation
Remove to fresh air. If breathing is difficult, have trained personnel administer oxygen. If respiration stops, give mouth-to-mouth resuscitation. Get medical attention.
5. FIRE FIGHTING MEASURE

**Fire Extinguisher**
Carbon dioxide, foam, powder and water spray

**Fire Extinguished Procedure**
Will choke with spraying or cooling, with extinguishing media. Wear full protective clothing and self-contained breathing apparatus.

**Flash point, °C**
143 (ASTM D-92)

**Hazardous Material Decomposition**
Carbon monoxide, and or oxygenated hydrocarbon.

**Special Protector Equipment**
The fireman have to wear *Self Contained Breathing Apparatus* (SCBA)

6. ACCIDENTAL RELEASE MEASURE

**Personal Precautions**
Remove all sources of ignition. Avoid contact with skin, eyes, and clothing. (see Section 8 for detailed)

**Procedure note**
Report the spill happened according to system and procedure decided. If the spill could be enter the aqueduct or river, please report to authority officer as soon as possible.

**Environmental Precautions**
Do not flush into surface water, sanitary sewer or ground water system

**Leakage and Spill Procedure**
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect the spilled product into suitable containers, which must be tightly sealed and properly labeled.

7. HANDLING AND STORAGE

**Handling**
There is no special action. See section 8 for the suggestion of wearing protection equipment when handling this product. Container must be closed if not in used.

**Storage**
Store in cool, dry, well ventilated area away from incompatible materials. Do not mix with strong oxidants. Keep away from heat, sparks, and flames. Keep material container closed as material is hygroscopic.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

**Ventilation**
Local exhaust recommended to control vapors, mists, or spray.

**Breath Protection**
Air purifying with organic cartridges, air supplied if other protective measures do not adequately control exposure to vapors. For emergencies and unknown concentrations, use positive pressure self-contained breathing apparatus.

**Eye Protection**
Wear chemical safety goggle or full face shield and chemical goggles to protect against splashing.

**Skin Protection**
Regulation for personnel hygiene still have to give a notice. Wear chemical gloves, such as butyl rubber of PVC coated.

**Exposure limit**
Not tested
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific Gravity at 20°C</td>
<td>1.07 g/cm³</td>
</tr>
<tr>
<td>Equilibrium Reflux Boiling Point (ERBP)</td>
<td>255 °C</td>
</tr>
<tr>
<td>Wet ERBP</td>
<td>150 °C</td>
</tr>
<tr>
<td>Kinematic Viscosity at 100 °C, mm²/s</td>
<td>2.1</td>
</tr>
<tr>
<td>Color</td>
<td>Yellowish</td>
</tr>
<tr>
<td>pH, Value</td>
<td>9.5</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

**Situation/condition have to avoid**
Not determined

**Material have to avoid**
Strong oxidizing materials and high oxygen concentration

**Hazardous decomposition products**
Incomplete combustion can generate carbon monoxide and/or oxygenated hydrocarbons.

11. TOXICOLOGICAL INFORMATION

---------------- ROUTES OF EXPOSURE-----------------

**Eye Contact**
May cause moderate to severe irritation and moderate transient corneal injury depending upon the concentration of the glycol ether.

**Skin Contact**
May cause irritation if left in contact with skin. Contact with large areas of skin for extended periods of time may result in the absorption of toxic amounts.

**Ingestion**
May cause irritation of the gastrointestinal tract and central nervous system disturbances

**Inhalation**
Inhalation of mists may cause respiratory tract irritation, and central nervous system effects including headache, narcosis, weakness, slurred speech and blurred vision. On the basis of the low vapor pressure of the product, inhalation of vapor is unlikely except at elevated temperatures.

---------------- ACUTE EXPOSURE-----------------

May cause severe to moderate eye irritation and transient corneal injury. Slight irritation to the skin with prolonged contact. Ingestion may produce central nervous system and gastrointestinal disturbances. Due to low vapor pressure, exposure by inhalation is minimal under normal handling conditions.

---------------- CARCINOGENICITY-----------------

**NTP**
None

**IARC Monograph**
None

**OSHA Regulation**
None

12. DISPOSAL CONSIDERATIONS

**Waste disposal**
Treat with burning or biological decomposition of the fluid. Entrust the disposal of the industrial waste to a trader concerned.
13. TRANSPORTATION INFORMATION

Not regulated

14. REGULATION INFORMATION

Material is mixture of polyalkylene glycols, polyalkylene glycols monoalkylethers, and polyoxyalkylene glycols with a trace amount of antioxidant and inhibitor.

**OSHA PEL**
Not applicable

**ACGIH TLV**
Not Applicable

15. ANOTHER INFORMATION

Product condition and product fitting on special application out of company guarantee; all of the using risk will be the user responsibility. User and officer that handling this product must have the warning and product handling procedure. It’s forbidden to change this document, except with law legacy.