



# Material Safety Data Sheet

PRODUCT

HYUNDAI SUPER DOT 4 BRAKE FLUID

## 1. CHEMICAL PRODUCT /COMPANY IDENTIFICATION

- a. Product : HYUNDAI SUPER DOT 4 BRAKE FLUID
- b. Restrictions on the Use of purpose and recommendations
- Advisory purposes : Automotive Brake System
  - Restrictions on the Use : No data
- c. Manufacturer / supplier / distributors information
- Supply Company : DASCO CHEMICAL LTD.
  - Address : 293-14, Gieopdanji-ro, Wongok-Myeon, Anseong-si, Gyeonggi-do, 17557, Korea
  - Provide emergency contact telephone information service : +82-31-652-1301

## 2. HEALTH HAZARD IDENTIFICATION

- a. Risk category
- Serious eye damage / eye irritation : Category 2
  - Acute toxicity (inhalation: dust/mist) : category 4
  - Reproductive toxicity substances Category 1B
  - Target organ systemic toxicity (single exposure) category 1
  - Target organ systemic toxicity (repeated exposure) category 1

- b. Warning phrase to cover topics including prevention measures

- Symbol



- Signal Word

Danger

- Hazard Statement:

H332 Harmful if inhaled  
H360 May damage fertility or unborn child  
H370 Cause damage to organs  
H372 Cause damage to organs through prolonged or repeated exposure

- Phrases precautions

- Prevention

P201 Obtain special instruction before use.  
P202 Don't handle all safety precautions have been read & understood .  
P260 Don't breathe dust/fume/mists.vapors/spray.  
P261 Avoid breathing dust/fume/mists.vapors/spray..  
P264 Wash... thoroughly after handling.  
P270 Do not eat, drink, or smoke when using this product.  
P271 Use only outdoors or in a well- ventilated area.  
P281 Use personal protective equipment as requiredf.

- Response

P304+P340 IF INHALAED: Remove victim to fresh air and keep at rest in a position comfotable for breathing  
P307+P311 IF exposed: Call a POISON CENTER or doctor/ physician.  
P308+P313 If exposed or concerned, Get medical advice/attention .

- Response P312 Call a POISON CENTER or doctor/ physician if you feel unwell  
P314 Get medical advise/ attention if you feel unwell  
P321 Specific treatment (see.. On this lable)
- Storage P405 Store locked up.
- Obsolete P501 Dispose of contents/ container to...

c. Hazardous. Risk category does not include other criteria, the risk remains (NFPA)

ETHYLENE GLYCOL

Health	2
Flammability	1
Reactivity	0

POTASSIUM PHOSPHATE DIBASIC

Health	1
Flammability	0
Reactivity	0

BENZOTRIAZOLE

Health	2
Flammability	1
Reactivity	3

BENZOIC ACID, SODIUM SALT

Health	0
Flammability	1
Reactivity	0

SODIUM MOLYBDATE

Health	2
Flammability	0
Reactivity	0

WATER

Health	0
Flammability	0
Reactivity	0

4-TERT-BUTYLBENZOIC ACID

Health	2
Flammability	1
Reactivity	0

**3. INGREDIENTS**

물질명	이명(관용명)	CAS 번호	함량
ETHYLENE GLYCOL	1,2-ETHANDIOL	107-21-1	88~92
4-TERT-BUTYLBENZOIC ACID	PTBBA;P-T-BUTYLBENZOIC ACID;P-TERT-BUTYLBENZOIC ACID;4-(1,1-DIMETHYLETHYL)	98-73-7	1~3
POTASSIUM PHOSPHATE DIBASIC	PHOSPHORIC ACID, DIPOTASSIUM SALT	7758-11-4	1~3
BENZOTRIAZOLE	1H-BENZOTRIAZOLE	95-14-7	0.2~0.4
BENZOIC ACID, SODIUM SALT	BENZOIC ACID, SODIUM SALT	532-32-1	2~4
SODIUM MOLYBDATE	SODIUM MOLYBDATE, DIHYDRATE	10102-40-6	0.1~0.3

#### 4. FIRST AID MEASURES

##### 4.1 Description of first aid measures

- |  |  |
|--|--|
| a. On contacts with eyes                                       | Wash affects eyes for at least 20minutes under running water with eyelids held open  |
| b. On skin contact   | Call a POISON CENTER or doctor/ physician<br>Remove contaminatwd clothing and clothing and shoes<br>Wash affects eyes for at least 20minutes under running water with eyes and skin<br>Rinse skin with water |
| c. IF inhaled  | If difficulties occur after vapor/aerosol has been inhaled, remove to fresh air and seed medical attention..   |
| d. On digestion  | Rinse mouth immediately and then drink plenty of water, seek medical attention.  |
| e. Self-protection of the first aider/<br>Note for the doctor. | request the medical advice if you feel unwell.   |

##### 4.2 Most important symptoms and effects, both acute and delayed

- |                            |  |
|----------------------------|--|
| a. In case of Inhalation:  | Short term exposure : Irritation, headache, sleepiness, dizziness, adjustment (feature) loss, a blood disorder<br>Long-term exposure : Irritation, headache  |
| b. In case of skin contact | Short term exposure: Allergic reactions<br>Long-term exposure: Irritation, Allergic reactions  |
| c. In case of eyes contact | Short term exposure: Irritation<br>Long-term exposure: Allergic reactions.   |
| d. In case of ingestion    | Short term exposure : vomiting, shortness of breath, headache, sleepiness, dizziness, emotional disorders, trembling, adjust (feature) loss, impaired vision, a heart condition, convulsions, lethargy<br>Long-term exposure : |

#### 5. FIRE FIGHTING MEASURES

##### a. Suitable(Unsuitable) extinguishing media

Suitable(Unsuitable) extinguishing media

Dry chemical, Carbon dioxide, water spray, AFFF foam.  
alcohol-resistant foam

##### b. Arise from a partcular chemical toxicity

NEFA RATING: Health:2 Flammability:1 REACTIVITY: 0

Arise from a partcular chemical toxicity

Highly dependent on combustion condition , a complex mixture airborne solids, liquids, and gases including CO,CO2, and unidentified organic compounds will be evolved when this materials undergoes combustion.

##### c. Advise for fire-fighters

This material will burn, although it is not easily ignited

If you can do without the risk of fire, the courage to move from the area. Spray some substance to the pressurized water leakage, preventing them from scattering.

Wear fire /flame resistant/ retardant clothing

Fight fire with normal precautions from a reasonable distance

Do not fight fire when fire reaches explosive

Fight fire remotely due to the risk of expulsion

Eliminate all ignition sources if safe to do so.

## 6. ACCIDENTAL RELEASE MEASURES

- a. Personal precautions, protective equipment and emergency procedures
- keep away from dust, hume, gas, mist, vapor.
  - use personal protective equipment as required
  - Eliminate all ignition sources
  - Stop leak if safe to do
  - Avoid release to the enviroment.
- b. Environmental precautions: Do not abdon your product to rivers
- c. Methods and material for containment and cleaning up: Use appropriate techniques such aas applying non-combustible materials or pumping  
Clean up spill as soon as possible  
After absorbing material to absor using the disposal, burning

## 7. HANDLING AND STORAGE

- a. Precautions for safe handling
- Do not get in eyes
  - Do not breath vapor or hume
  - Wash throughly after handling
  - Do not taste or swallow antifreeze or solution.
- b. Conditions for safe storage, including any incompatibilities
- Do not store in open or unlabled containers.
  - Empty containers should be compltely drained , properly closed, and promptly returned to a drum reconditioner or disposed of properly
  - Store in a cool , dry place.

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

- a. Exposure Limits / Exposed to biological criteria.

Domestic Policy

STEL - C 40ppm C 100mg/m3 Hume or Mist

ACGIH

C 100 mg/m3(aerosol only)

Exposrd to biological criteria

No data

- b. Appropriate engineering controls

Use process enclosure, local exhaust ventilation , or other engineering control airborne levels belows the recommended exposure limils.

- c. Personal protective equipment

Eye/face protection

Wear protective equipment to prevent eye contact - safety goggles, face shields, chemical goggles,...

Skin protection

No special protective clothing is normally required .Suggested materials for protective gloves include: Natural rubber, Neoprene, Nitrile Rubber, Polyvinyl Chloride (PVC or Vinyl).

Respiratory protection

Determine if airborne concentrations are below the recommended exposure limits. If not, wear an approved respirator that provides adequate protection from measured concentrations of this material, such as: Air-Purifying Respirator for Organic Vapors, Dusts and Mists.  
Consider the potential hazards of this material , applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or

work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed upper below is recommended

## 9. PHYSICAL AND CHEMICAL PROPERTIES (Information on basic physical and chemical properties)

Appearance	
- Physical state	LIQUID,
- Color	GREEN,
Odour	Faint or Mild
Odour thershold	No data
pH	7~9 (Vol 50% solution)
Melting point/freezing point	No data / <-34°C (50 VOL% In water)
Initial boiling point and boiling range	>163°C (1 ATM)
Flash point.	>110°C
Evaporation rate	No data
Flammability (solid, gas)	No data
Upper/lower flammability or explosive	No data
Vapour pressure	<0.09mmHg
Vapour density	2.02 (Air=1)
Solubility(ies)	SOLUBLE IN WATER
Specific gravity	1.136 (20°C)
Partition coefficient n-octanol/water (Log Kow)	No data
Auto-ignition temperature	No data
Decomposition temperature	No data
Viscosity	15~30mm <sup>2</sup> /s (40°C)
Explosives properties	No data
Oxidising properties	No data
Molecular weight	No data

## 10. STABILITY AND RELIABILITY

- Chemical stability : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
- Hazardous reactions : No hazardous reactions when stored and handled according to instructions.
- Condition to avoid (electrostatic discharge, shock, vibration, etc.): heat, lights, fire works .
- Incompatibility With Other Materials: May react with strong oxidizing agents, such as chlorates, nitrates, peroxides, etc
- When hazardous substances produced by decomposition  
corrosion, toxic fume, irritation
- Hazardous Polymerization : Hazardous polymerization will not occur.

## 11. TOXICOLOGICAL INFORMATION

- Information regarding the most likely route of exposure
  - Ingested through the mouth : No data
  - Skin contact : No data
  - Eye contact : No data
- Delays caused by exposure to short-term and long-term, chronic and acute impact
  - Acute toxic .- Oral : LD50 3490 mg/kg Rat

<input type="checkbox"/> Skin Corrosion / Irritation	.- Dermal : LD50 10153 mg/kg Rabbit
<input type="checkbox"/> Serious Eye Damage / Eye Irritation	.- Inhalation : LC50 475 mg/ℓ(rat)
<input type="checkbox"/> Respiratory Sensitizer:	Not classified- rabbit, Weak stimulus
<input type="checkbox"/> Skin Sensitizer:	Category 2A
<input type="checkbox"/> Carcinogenicity	No data
IARC	No data
OSHA	No data
ACGIH	A4
NTP	No data
EU CLP	No data
<input type="checkbox"/> Toxicity for reproduction	May cause harmful
<input type="checkbox"/> STOT-Single exposure	May cause drowsiness or dizziness
<input type="checkbox"/> STOT-repeated exposure	May cause drowsiness or dizziness
<input type="checkbox"/> Aspiration hazard	No data

## 12. ECOLOGICAL INFORMATION

### a. Toxicity

- fish  
LC50 2439 mg/ℓ 96 hr Pimephales promelas
- Daphnia  
LC50 3110 mg/ℓ 48 hr Daphnia magna
- Algae  
EC50 11017 mg/ℓ 96 hr Selenastrum capricornutum

### b. Persistence and degradability

- Persistence  
log Kow -1.93
- Degradabilit  
BOD 0.78 mg/ℓ  
COD 1.19 mg/ℓ  
BOD5 / COD 0.66

### c. Bioaccumulative potential

- Bioconcentration factor (BCF)  
BCF 200
- Biodegradation

89 (%) 21 day

### d. Mobility in soil

No data

### e. Other adverse effects

No data

## 13. DISPOSAL CONSIDERATIONS

### a. Waste treatment method

- Use material for its intended purpose or recycle if possible.
- This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by disposal regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, law requires disposal at a licensed hazardous waste disposal facility.
- Obsolete applied in accordance with regulations

## 14. TRANSPORT INFORMATION

a. UN number	
b. UN proper shipping name	
c. Transport hazard class	3
d. Packing group:	
e. Environmental hazard:	No data
f. Special precautions for user:	Not applicable

## 15. REGULATORY INFORMATION

Domestic regulation	Not applicable
National regulation	Not applicable
OSHA	2267.995 kg 4999 lb
CRCLA	Not applicable
EPCRA 302	Not applicable
EPCRA 304	Not applicable
Montreal Protocol	applicable
EPCRA 313	
-- Ethylene Glycol	Xn; R22
EU	R22
EU Classified Information ( Danger phrase)	S2
EU Classified Information (Safety phrase)	Not applicable

## 16 OTHER INFORMATION

### a. Key literature references and sources for data

Ethylene Glycol

ICSC(Appearance , color, odour, Melting point/freezing point, IBP/BP, Upper/lower flammability or explosive limits)

ICSC(Vapor pressure, Solubility, Vopar density, specific gravity, Partition coefficient n-octanol/water (Log Kow)

ICSC(Auto-ignition temperature, viscosity, Flash point, )

IUCLID( Oral, Dermal, Skin sensitisation )

ECOTOX (Fish, Daphnia)

IUCLID( Algae)

ICSC (Persistence)

IUCLID (Degradability)

IUCLID (Concentration)

IUCLID (Bioconcentration)

14303 chemical product (Japan)

ECOTOX (Fish)

WATER

NLM

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- Revision No / date

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