

SAFETY DATA SHEET

Hyundai Antifreeze Coolant

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1. IDENTIFICATION

A. Product name

- Hyundai Antifreeze Coolant

B. Recommended use and restriction on use

- General use : Engine Coolant for Automobiles
 - Restriction on use : Not available

C. Manufacturer / Supplier / Distributor information

- Company name : Hyundai Oilbank Co., Ltd.
 - Address : 20F, Yonsei Severance Bldg., Tongil-ro 10-gil, Jongno-gu, Seoul, Korea
 - Dept. : Production&Technology Team
 - Telephone number : 02-2004-3000
 - Emergency telephone number : 02-2004-3000

2. HAZARD IDENTIFICATION

A. GHS Classification

- Acute toxicity (oral) : Category5
 - Reproductive toxicity : Category1B
 - Specific target organ toxicity(Single exposure) : Category1
 - Specific target organ toxicity(Repeated exposure) : Category1

B. GHS label elements

○ Hazard symbols



○ Signal words

- Danger

○ Hazard statements

- H303 May harmful if swallowed.
 - H360 May damage fertility or the unborn child
 - H370 Causes damage to organs(Refer Section SDS 11)
 - H372 Causes damage to organs through prolonged or repeated exposure (Refer Section SDS 11)

○ Precautionary statements

1) Prevention

- P201 Obtain special instructions before use.
 - P202 Do not handle until all safety precautions have been read and understood.
 - P260 Do not breathe gas/mist/vapours/spray.
 - P264 Wash hands thoroughly after handling.
 - P270 Do not eat, drink or smoke when using this product.
 - P281 Use personal protective equipment as required.

2) Response

- P307+P311 If exposed: Call a POISON CENTER or doctor/physician.
- P308+P313 If exposed or concerned: Get medical advice/attention.
- P312 Call a POISON CENTER or doctor/physician if you feel unwell.
- P314 Get medical advice/attention if you feel unwell.
- P321 Specific treatment

3) Storage

- P405 Store locked up.

4) Disposal

- P501 Dispose of contents/container in accordance with local/regional/national/international regulation

C. Other hazards which do not result in classification : (NFPA Classification)

○ NFPA grade (0 ~ 4 level)

- Health : 0, Flammability : 1, Reactivity : 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
1,2-Ethandiol	1,2-Dihydroxyethane ; Ethylene alcohol ; Ethylene dihydrate ; 2-Hydroxyethanol ; Ethane-1,2-diol ; Monoethylene glycol ;	107-21-1	90~95
Water	Dihydrogen oxide ; Oxidane	7732-18-5	3~8
Dipotassium hydrogenorthophosphate	Potassium hydrogen phosphate ; Potassium phosphate, dibasic ; Dipotassium hydrogen phosphate ; Propanoic acid, 2-hydroxy-, ethyl ester, (2S)- ; Propanoic acid, 2-hydroxy-, ethyl ester, (2S) ; ethyl (S)-2-hydroxypropionate ; Propanoic acid, 2-hydroxy-, ethyl ester, (S)- ; LACTATE, ETHYL, L-(-)- ; (-)-Ethyl 2-hydroxypropanoate ; (-)-Ethyl	7758-11-04	0.5~1.5

4. FIRST AID MEASURES

A. Eye contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.
- Get medical attention immediately.

B. Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.
- Get medical attention immediately.
- Remove contaminated clothing, shoes and isolate.
- Wear gloves when washing the patient, and please avoid contact with contaminated clothing.

C. Inhalation contact

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.
- Get medical attention immediately.
- If breathing is stopped or irregular, give artificial respiration and supply oxygen.

D. Ingestion contact

- About whether I should induce vomiting Take the advice of a doctor.
- Rinse your mouth with water immediately.
- Get medical attention immediately.

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

- Not available

F. Notes to physician

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.
- If exposed or concerned, get medical attention/advice.

5. FIREFIGHTING MEASURES

A. Suitable (Unsuitable) extinguishing media

- Dry chemical, carbon dioxide, regular foam extinguishing agent, spray
- Avoid use of water jet for extinguishing

B. Specific hazards arising from the chemical

- Not available

C. Special protective actions for firefighters

- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Using a unattended and water devices in case of large fire and leave alone to burn if you do not imperative.
- Avoid inhalation of materials or combustion by-products.
- Do not access if the tank on fire.
- Use appropriate extinguishing measure suitable for surrounding fire.
- Keep containers cool with water spray.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

6. ACCIDENTAL RELEASE MEASURES

A. Personal precautions, protective equipment and emergency procedures

- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Do not direct water at spill or source of leak.
- Keep unauthorized people away, isolate hazard area and deny entry.

B. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.

C. Methods and materials for containment and cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.
- Spilled material should be treated as a potential risk of waste collected.

7. HANDLING AND STORAGE

A. Precautions for safe handling

- Avoid direct physical contact.

- Since emptied containers retain product residue(vapor, liquid, solid) follow all MSDS and label warnings even after container is emptied.
- Comply with all applicable laws and regulations for handling
- Dealing only with a well-ventilated place.
- Do not inhale the steam prolonged or repeated.
- Contaminated work clothing should not be allowed out of the workplace.

B. Conditions for safe storage, including any incompatibilities

- Save applicable laws and regulations.
- Do not apply any physical shock to container.
- Avoid direct sunlight.
- Keep in the original container.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Collected them in sealed containers.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limits

- ACGIH TLV**
 - [1,2-Ethanediol] : Ceiling, 100 mg/m³ (39 ppm), Aerosol
- OSHA PEL**
 - Not available

B. Engineering controls

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

C. Individual protection measures, such as personal protective equipment

- Respiratory protection**
 - Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
 - Respiratory protection is ranked in order from minimum to maximum.
 - Consider warning properties before use.
 - Any chemical cartridge respirator with organic vapor cartridge(s).
 - Any chemical cartridge respirator with a full facepiece and organic vaporcartridge(s).
 - Any air-purifying respirator with a full facepiece and an organic vapor canister.
 - For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.
- Eye protection**
 - Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
 - Provide an emergency eye wash station and quick drench shower in the immediate work area.
- Hand protection**
 - Wear appropriate glove.
- Skin protection**
 - Wear appropriate clothing.
- Others**
 - Not available

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance	
- Appearance	Liquid
- Color	Green
B. Odor	Softly peculiar smell
C. Odor threshold	No data available

D. pH	7.0~8.0
E. Melting point/Freezing point	No data available / -34°C
F. Initial Boiling Point/Boiling Ranges	> 180 °C
G. Flash point	> 120 °C
H. Evaporation rate	No data available
I. Flammability(solid, gas)	No data available
J. Upper/Lower Flammability or explosive limits	15.3% / 3.2%
K. Vapour pressure	0.05 mmHg (20°C)
L. Solubility	Soluble(Water)
M. Vapour density	No data available
N. Specific gravity(Relative density)	1.13
O. Partition coefficient of n-octanol/water	No data available
P. Autoignition temperature	No data available
Q. Decomposition temperature	No data available
R. Viscosity	36.01 cSt at 15°C, 18.09 cSt at 25°C
S. Molecular weight	No data available

10. STABILITY AND REACTIVITY

A. Chemical Stability

- This material is stable under recommended storage and handling conditions.

B. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

C. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

D. Incompatible materials

- Not available

E. Hazardous decomposition products

- May emit flammable vapour if involved in fire.

11. TOXICOLOGICAL INFORMATION

A. Information on the likely routes of exposure

- (Respiratory tracts)
 - Not available
- (Oral)
 - May harmful if swallowed.
- (Eye-Skin)
 - Not available

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

- Acute toxicity
 - * Oral - ATE MIX : 2000mg/kg~5000mg/kg
 - [1,2-Ethanediol] : LD50 = 4000 mg/kg Rat
 - [Water] : LD50 > 90000 mg/kg Rat (KOSHA)
 - [Dipotassium hydrogenorthophosphate] : LD50 1700 mg/kg Rat
 - * Dermal - ATE MIX : >5000mg/kg
 - [1,2-Ethanediol] : LD50 = 10600 mg/kg Rabbit
 - * Inhalation - ATE MIX : Not available
 - Not available
- Skin corrosion/irritation

- Not available
- Serious eye damage/irritation**
 - Not available
- Respiratory sensitization**
 - Not available
- Skin sensitization**
 - Not available
- Carcinogenicity**
 - * **IARC**
 - Not available
 - * **OSHA**
 - Not available
 - * **ACGIH**
 - [1,2-Ethanediol] : A4
 - * **NTP**
 - Not available
 - * **EU CLP**
 - Not available
- Germ cell mutagenicity**
 - Not available
- Reproductive toxicity**
 - May damage fertility or the unborn child
- STOT-single exposure**
 - Causes damage to organs(Refer Section SDS 11)
- STOT-repeated exposure**
 - Causes damage to organs through prolonged or repeated exposure (Refer Section SDS 11)
- Aspiration hazard**
 - Not available

12. ECOLOGICAL INFORMATION

A. Ecotoxicity

- Fish**
 - [1,2-Ethanediol] : LC50 = 8050 mg/ℓ 96 hr Pimephales promelas
 - [Dipotassium hydrogenorthophosphate] : LC50 2770000000 mg/ℓ 96 hr
- Crustaceans**
 - [1,2-Ethanediol] : LC50 = 41100 mg/ℓ 48 hr Daphnia magna
 - [Dipotassium hydrogenorthophosphate] : LC50 1730000000 mg/ℓ 48 hr
- Algae**
 - [1,2-Ethanediol] : EC50 = 6500 ~ 13000 mg/ℓ 96 hr Selenastrum capricornutum
 - [Dipotassium hydrogenorthophosphate] : LC50 692000000 mg/ℓ 96 hr

B. Persistence and degradability

- Persistence**
 - [1,2-Ethanediol] : log Kow = -1.93
 - [Water] : log Kow = -1.38
- Degradability**
 - [1,2-Ethanediol] : BOD = 0.78 COD = 1.19 BOD = 5/COD = = 0.66

C. Bioaccumulative potential

- Bioaccumulative potential**
 - [1,2-Ethanediol] : BCF = 200
- Biodegradation**
 - [1,2-Ethanediol] : Biodegradability = 89 (%) 20 day

D. Mobility in soil

- Not available

E. Other adverse effects

- Not available

13. DISPOSAL CONSIDERATIONS

A. Disposal methods

- Since more than two kinds of designaed waste is mixed, it is difficult to treat seperatly, then can be reduction or stabilization by incineration or similar process.
- If water separation is possible, pre-process with Water separation process.
- Dispose by incineration.

B. Special precautions for disposal

- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and dispose, person who establish and operate waste disposal facilities.
- Dispose of waste in accordance with all applicable laws and regulations.

14. TRANSPORT INFORMATION

A. UN No. (IMDG)

- 1993

B. Proper shipping name

- FLAMMABLE LIQUIDS, N.O.S.

C. Hazard Class

- 3

D. IMDG Packing group

- III

E. Marine pollutant

- Not applicable

F. Special precautions for user related to transport or transportation measures

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.
- EmS FIRE SCHEDULE : F-E (Non-water-reactive flammable liquids)
- EmS SPILLAGE SCHEDULE : S-E (Flammable liquids, floating on water)

15. REGULATORY INFORMATION

A. National and/or international regulatory information

- POPs Management Law**
 - Not applicable
- Information of EU Classification**
 - * **Classification**
 - [1,2-Ethanediol] : Xn; R22
 - * **Risk Phrases**
 - [1,2-Ethanediol] : R22
 - * **Safety Phrase**
 - [1,2-Ethanediol] : S2
- U.S. Federal regulations**
 - * **OSHA PROCESS SAFETY (29CFR1910.119)**
 - Not applicable

- * **CERCLA Section 103 (40CFR302.4)**
 - [1,2-Ethanediol] : 2267.995 kg 5000 lb
- * **EPCRA Section 302 (40CFR355.30)**
 - Not applicable
- * **EPCRA Section 304 (40CFR355.40)**
 - Not applicable
- * **EPCRA Section 313 (40CFR372.65)**
 - [1,2-Ethanediol] : Applicable
- Rotterdam Convention listed ingredients**
 - Not applicable
- Stockholm Convention listed ingredients**
 - Not applicable
- Montreal Protocol listed ingredients**
 - Not applicable

16. OTHER INFORMATION

A. Reference

- The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein.
- This Safety Data Sheet was compiled with data and information from the following sources: KOSHA, NITE, ESIS, NLM, SIDS, IPCS

B. Issue date

- 2016-06-29

C. Revision number and Last date revised

- 2 times, 2016-07-19

D. Other

- This SDS is prepared according to the Globally Harmonized System (GHS).