Material Safety Data Sheet (MSDS)

1. CHEMICAL PRODUCT /COMPANY IDENTIFICATION

a. Product **: Volvo AF Coolant**

b. Restrictions on the Use of purpose and recommendations :

- ○ Advisory purposes : The internal combustion engine corrosion prevention and anti-freeze
- ○ Restrictions on the Use :

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

Skin Sensitization Category 1
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 :

Contact with the eyes causes irritation.
May cause damage to the Embryos or reproductive abilities
Causes damage to the viscera
When the long-term or repeated exposure causes damage to viscera

- ○ Phrases precautions

- Prevention

Treat yourself to secure the documentation before use.
Phrase to read and understand all safety precautions before handling does not do it.
Dust, Hume, gas, mist, steam, spray, do not try to inhalation.
After use wash your hands thoroughly treated.
When using this product to eat, drink or smoke, do not try.
Protection gloves, and eye protection. Facial padding to wear it
Wearing appropriate reserves

- Response
  Request the medical advice if they feel uncomfortable.
  When exposed to medical institutions (the doctor) to receive help.
  Carefully wash with water if you touch your eyes for a few minutes.
  If possible, remove contact lenses. Wash continues.
- Storage
  Seal and store it.
- Obsolete
  Depending on the contents of the regulations set forth in the relevant laws.

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

NFPA / Material	Health	Flammability	Reactivity
1. Ethylene glycol	2	1	0
2. Potassium Benzoate	1	1	0
3. Tri ethanol amine	2	1	1
4. Toly triazol	1	1	0
5 Potassium Phosphate Debasic	1	0	0
6. Ionized water	0	0	0

3. INGREDIENTS

component	Common name	CAS Number	Amount (%)
1. Ethylene glycol	1,2-DIHYDROXYETHANE	107-21-1	93~95
2. Potassium Benzoate	BENZOIC ACID, Sodium salt	582-25-2	0.1~0.3
3. Tri ethanol amine	2,2′,2‴-Nitrilotrisethaon	102-71-6	2~4
4. Toly triazol	Methyl-1H-Benzotriazol	29385-43-1	0.1~0.2
5 Potassium Phosphate Debasic	Phosphate acid, Diptassium salt	7758-11-4	1~2
6. Ionized water	Dihydrogen Oxide	7732-18-5	2~4

4. FIRST AID MEASURES

a. On contact with eyes:
  Wash affected eyes for at least 15 minutes under running water with eyelids held open.

b. On skin contact:
  Wash thoroughly with soap and water.
  Remove contaminated clothing and shoes

c. If inhaled:
  If difficulties occur after vapor/aerosol has been inhaled, remove to fresh air and seed medical attention.

d. On ingestion:
  Rinse mouth immediately and then drink plenty of water, seek medical attention.

e. Acute sincerity and delay important influence :

Inhalation : Short term exposure : Irritation, headache, sleepiness, dizziness, adjustment (feature) loss, a blood disorder

Long-term exposure : Irritation, headache

Skin contact : Short term exposure : Allergic reactions.

Long-term exposure : Irritation, Allergic reactions.

Eye contact : Short term exposure : Irritation

Long-term exposure : Allergic reactions.

On ingestion : Short term exposure : vomiting, shortness of breath, headache, sleepiness, dizziness, emotional disorders, trembling, adjust (feature) loss, impaired vision, a heart condition, convulsions, lethargy

Long-term exposure :

5. FIRE FIGHTING MEASURES

a. Suitable extinguishing media:

○ Suitable extinguishing media : Dry extinguishing media, carbon dioxide, water spray, alcohol-resistant foam

○ Large fires : No Data. Water spray, alcohol-resistant foam

b. Arises from a particular chemical toxicity

○ Thermal decomposition generate substances :

: No Data

○ An explosion and fire risk :

: No Data.

c. Special protective equipment

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.

6. ACCIDENTAL RELEASE MEASURES

a. Measures and safeguards to protect the human body.

: Eliminate all sources of ignition, adequate ventilation,

b. Measures for environmental protection : Do not abandon your product to rivers.

c. How to remove or purification: After absorbing material to absorb using the disposal, burning.

7. STORAGE AND HANDLING

a. Safe handling tricks: Store away from excessive heat and ignition sources.

b. Safe storage methods: Stored in a cool, dry place.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

a. Exposure limits

	Domestic Policy	ACGIH	Exposed to biological criteria
1.Ethylene glycol	TWA-C40ppmC100㎎/㎥	No Data	No Data
2. Sodium Benzoate	No Data	No Data	No Data
3. Tri ethanol amine	No Data	TWA-5㎎/㎥	No Data
4. Sodium Nitrate	No Data	No Data	No Data
5 Potassium Phosphate ebasic	No Data	No Data	No Data
6. Ionized water	No Data	No Data	Not aplicable

b. Proper engineering management:

Ventilation : local exhaust ventilation system, install and maintain appropriate control over the wind speed to make it.

c. Personal Protection Equipment:

○ Respiratory Protection : Ethylene glycol: A mask poison prevention

○ Eye protection : Safety glasses with side-shields(frame goggles)

○ Hand Protection : Chemical resistance protective gloves

○ Physical protection : Wearing of closed work clothing is recommended.

9. PHYSICAL PROPERTIES

a. Appearance : Blue or Green liquid

b. Odor : Little or No Odor

c. Odor threshold value : No data

d. pH : pH : 8~9 (30% Solution)

e. Melting point / Freezing point: : >-24℃

f. Boiling point : >165℃

g. Flash point : >110℃

h. Evaporation rates: No data

i. Flammability (solid, gas): No data

j. Explosive limit (LEL 3.2/ UEL 15.2)

k. Vapor pressure (mmHg): 0.09 mmHg (20℃)

l. Solubility: Complete

m. Vapor density(Air=1) : 2.02 (at 760mmHg)

n. Specific Gravity: 1.120±0.01 g/ ㎖ (20℃)

o. N- Octhanol / water distribution coefficient : No data

p. Auto ignition temperature: No data

q. Decomposition temperature: No data

r. Viscosity: 15 ~ 18 ㎟/s (20℃), 8.52㎟/s (40℃)

s. Molecular weight: No data

10. STABILITY AND REACTIVITY

a. Chemical stability: stable at room temperature.

b Hazardous reactions **:** No hazardous reactions when stored and handled according to instructions.

c. Condition to avoid (electrostatic discharge, shock, vibration, etc.): heat, lights, fire works

d. Materials to avoid: Oxidizers

e. When hazardous substances produced by decomposition: carbon oxides

11. TOXICOLOGICAL INFORMATION

11-1 . Information regarding the most likely route of exposure

- ○ Ingested through the mouth: No data
- ○ Skin contact: No data
- ○ Eye contact: No data

11-2 . Delays caused by exposure to short-term and long-term, chronic and acute impact

○ Acute toxic	.- Oral: LD50 3902. ㎎/kg(rat) .- Dermal: LD50 10000 ㎎/kg(rat) .- Inhalation: No Data
○ Skin Corrosion / Irritation	Not classified- rabbit, Weak stimulus
○ Serious Eye Damage / Eye Irritation	Category 2A
○ Respiratory Sensitization :	No data
○ Skin Sensitization :	slight irritation at the room temparture
○ Carcinogenicity	
IARC	No data
OSHA	No data
ACGIH	A4
NTP	No data
EU CLP	No data
○ Toxicity for reproduction	
May cause harmful	
○ STOT-Single exposure	May cause drowsiness or dizziness
○ STOT-repeated exposure	May cause drowsiness or dizziness
○ Aspiration hazard	No data

12. ECOLOGICAL INFORMATION

12.1 Toxicity

○ fish	LC50 6976 ㎎/ℓ 96 hr Pimephales promelas
○ Daphnia	LC50 13277 ㎎/ℓ 48 hr Daphnia magna
○ Algae	EC50 3469 ㎎/ℓ 96 hr Selenastrum capricornutum

12.2 Persistence and degradability

○ Persistence	log Kow -1.92
○ Degradabilit	BOD 0.78 ㎎/ℓ COD 1.19 ㎎/ℓ BOD5 / COD 0.66

12.3 Bioaccumulative potential

○ Bioconcentration factor (BCF)	BCF 200

○ Biodegradation 89 (%) 20 day

12.4 Mobility in soil No data
12.5 Other adverse effects No data

13. DISPOSAL CONSIDERATIONS

13.1 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 dispoal 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

14.1 UN number
14.2 UN proper shipping name
14.3 Transport hazard class(es
14.4 Packing group:
14.5 Environmental hazard: No data
14.6 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	Xn; R22
EU	R22
EU Classified Information (Danger pharse)	S2
EU Classified Information (Safety pharse)	Not applicable

16. OTHER INFORMATION

16.1 Key literature references and sources for data

○ Ethylene Glycol

ICSC(Apperance , 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, Derrmal, Skin sensitization)

ECOTOX(Fish, Daphnia)

IUCLID(Algae)

ICSC (Persistence, degradability)

IUCLID (Degradability)

IUCLID (Concentration)

IUCLID (Bioconcentration)

14303 chemcal product (Japan)

○ WATER

NLM

16.2 . Date of publication 15/10/2012

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16.3 . Further information