



Material Safety Data Sheet

Product:**TOTAL HI-CONCENTRATE COOLANT**

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Product Code: TERMIID0509011

Issue: 2

Date: 12/02/2008

Supersedes MSDS of: 30/10/2003

PRODUCT LABELS

LABELLING (standard or EU): Required

Symbols: Xn - Harmful

R phrases: R22 - Harmful if swallowed

S phrases: S2 - Keep out of reach of children
S46 - If swallowed, seek medical advice immediately and show this container or label

TRANSPORT LABELLING: Not Applicable

1. Product and company identification

Commercial name: **TOTAL HI-CONCENTRATE COOLANT**

Product application: Anti-freeze / Cooling Liquid

Company name: Total Oil Asia-Pacific Pte. Ltd.

Address: 10 Pandan Avenue Singapore 609385

Telephone: (65) 6266 2800

Fax: (65) 6266 3800

2. Composition / information on ingredients**PREPARATION:**

Chemical nature: Product with ethylene-glycol base

Substances contributing to hazards: Monoethylene glycol CAS 107-21-1 (Xn ; R22)max. 95%

3. Hazard identification

-Adverse human health effects: Accidental ingestion may be harmful to the central nervous system
This product contains an approved repellent (bitter) for the purpose of avoiding the risk of accidental ingestion

-Environmental effects: Do not discard this product into the environment

-Physical and chemical hazards: No specific risk of fire or explosion under normal conditions of use

4. First-aid measures

IN CASE OF SERIOUS MANIFESTATIONS, CALL IN A DOCTOR OR EMERGENCY MEDICAL CARE

Route of exposure:

-Inhalation: Inhalation of heavy concentrations of vapour, fumes or spray, may cause mild irritation



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- of the throat.
Transport the person into fresh air, keep warm and allow to rest
- Contact with the skin: Immediately remove all soiled or stained clothing
Wash the affected area immediately and repeatedly with soap and water
- Contact with the eyes: Keep eyes open and rinse immediately and repeatedly with water for at least 15 minutes
- Ingestion: Possible risk of vomiting and diarrhea
Do not induce vomiting to avoid risk of aspiration into the respiratory tract
Give nothing to drink
- Aspiration: If the product is believed to have entered the lungs (in case of vomiting, for example),
take the person to hospital for immediate care
-

5. Fire-fighting measures

- Flash Point: See heading 9
- Fire extinguishers:
- suitable: Foam, carbon dioxide (CO₂), powder
- not suitable: Do not use water jet (stick jets) for extinguishing fire since they could help to spread the flames.
- Specific hazards: Take precautions to protect against the risk of the ethylene-glycol decomposing into acetaldehyde at 500 - 600 °C
- Firefighter protection: An insulated breathing apparatus must be worn in confined premises with heavy concentrations of fumes and gases
-

6. Accidental release measures

- See also heading 8 and 13
- After spillage / leakage
- on soil Surfaces on which the product has been spilled may become slippery
Avoid discharge of the material in a stream or a sewer or cause ground contamination.
Recovery by physical means
Contain and collect the spilled product with sand or any other inert material.
In the even of major spill, inform the competent authorities if the situation cannot be brought under control rapidly and efficiently.
- on water If the material has been discharged into a stream or a sewer, inform the authorities
-

7. Handling and storage

HANDLING



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- Technical measures:

. Prevention of user exposure

Provide adequate ventilation in case of the potential formation of vapour, fumes, mist or spray
Take all measures to reduce the risk of exposure, in particular to used or waste product
Keep away from flammable material
Keep away from food and beverages

. Prevention of fire and explosion

Empty containers may contain flammable or explosive vapours
There is a fire hazard associated with rags, papers or any other material used to remove spills which become soaked with product.
Avoid accumulate of these; they are to be disposed off safely after use

- Precautions:

Avoid static electricity build up with connection to earth.
Set up machinery and equipment so as to avoid the risk of accidental spills or splashes onto hot machine parts and electrical contacts (on joints failure, for example).

- Safety handling advice:

Avoid contact with strong oxidizing agents
Use only containers, joints, pipes etc...made in material suitable for use with water and glycol

STORAGE

- Technical measures:

Make the necessary arrangements and take all measures to prevent water and ground pollution

- Storage conditions:

. Suitable:

Store at room temperature, protect against contact with water and moisture, and away from any source of ignition.
Keep containers closed when not in use

. To be avoided:

Do not store exposed to the elements

- Incompatible products:

Dangerous reaction with strong oxidizing agents

- Packaging materials

. Recommended:

Use only containers, joints, pipes etc...made in material suitable for use with water and glycol
Keep in original container if possible
Otherwise, transfer all indications on the regulatory label to the new container

8. Exposure controls / personal protection

Engineering measures:

Use in well ventilated premises
When working in enclosed place (tanks, reservoirs,..), make sure that atmosphere is no suffocating and/ or wear appropriate equipment

Control parameters:

. Occupational exposure limit:

OSHA PEL Ceiling value 50 ppm (125 mg/cu m)

.Recommended control procedures:

Measurement of ethylene glycol in the blood, and of oxalic acid in the urine

Personal protection equipment :



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- Hand protection:	Glycol resistant gloves. Breakthrough times of approximately an hour or more for natural rubber, neoprene, nitrile rubber, polyethylene, polyvinyl chloride
- Eye protection:	Goggles, in case of splashing
- Skin and body protection:	As required, wear face mask, clothing, and safety boots proof against glycol Avoid wearing accessories (ring, watch, etc..) which will hold the product and may give rise to some skin diseases
Industrial Hygiene	Avoid prolonged and repeated contact with the skin, especially with used or waste product Immediately remove all soiled or stained clothing If the product comes into contact with the skin, wash the affected area immediately and repeatedly with soap and water Use no abrasives, solvents or petroleum spirit Do not use cloths stained with the product to dry hands Do not put the product-soaked rags in the pockets of working clothes Do not eat, drink or smoke while handling the product

9. Physical and chemical properties

Appearance:

- Physical state	Clear Liquid
- Colour	Blue/green
Odour:	Mild
pH:	about 8.6 (33% in water)
Specific temperatures of change in state:	-
Temperature of decomposition:	between 500 and 600°C
Flash point:	>110°C (ASTM D93)
Auto-ignition temperature:	>410°C (ASTM E 659)
Explosion limits:	LEL: about 3.2% UEL: about 15.3%
Density:	about 1130 kg/m ³ at 20°C
Relative vapour density:	> 2 (air = 1)
Solubility:	
- in water:	Soluble in all proportions
Viscosity:	Kinematic viscosity at 20°C : about 20 mm ² /s

10. Stability and reactivity



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Stability:	The product is stable under normal temperatures of storage, handling and use
Dangerous reactions:	Not dangerous reaction known under normal conditions of use, to refer to technical notice
- Condition to avoid:	Heat (temperatures above flash point), sparks, ignition points, flames, static electricity
- Materials to avoid:	Avoid contact with strong oxidizing agents
Dangerous decomposition products:	Acetaldehyde at temperatures around 500-600°C

11. Toxicological information

ACUTE TOXICITY / LOCAL EFFECTS:

- Inhalation: This product is not volatile
Risk is improbable under normal conditions of use
Inhalation of important concentration of vapour or aerosols may cause irritation of the upper respiratory tract.
Ethylene Glycol: LD50 (Inhalation, Rat, 4h): 10,876 mg/m³
- Contact with skin: Risk is improbable under normal conditions of use
However, major and prolonged contact is to be avoided, in particular by persons with extensive dermatosis
Ethylene Glycol: LD50 (Dermal, Rabbit): 9530mg/kg
- Ingestion: Ingestion constitutes the main danger because of the toxicity of the ethylene glycol
Acute intoxication is particularly dangerous for the children
Ingestion is followed by digestive disorders (nausea, vomiting, abdominal pain), then by loss of muscular coordination, convulsions, headaches and dizzy spells, preceding serious nervous disorders. This develops into a state of torpor and then coma, at times accompanied by convulsions.
High metabolic acidosis (oxalic acid) leads to affliction of the renal ducts, with anuresis
Intoxication can lead to a coma with metabolic acidosis that may be fatal
For man, the lowest oral lethal dose known is 1-1.5 ml/kg
Ethylene Glycol: LD50 (Oral, Rat): 4700 mg/kg

SENSITIZATION: To our knowledge, the product do not induce sensitization

CHRONIC TOXICITY / LONG TERM TOXICITY:

- Carcinogenicity: The ingredient(s) of this product is (are) not classed as carcinogenic by ACGIH, IARC, OSHA or NTP.

12. Ecological information

Mobility:

- Air: There is a slow loss by evaporation
- Ground: Given its physical and chemical characteristics, the product generally mobile



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- Water in the ground.
Soluble in all proportions

Persistence and degradability: The product is biodegradable
Degradation is expected in the atmospheric environment within days to weeks.

Ecotoxicity: LC50 (Rainbow Trout/96h): 18-46 g/l
EC50 (24 hours-Daphnia magna): 46-51 g/l
EC50 Algae (Selenastrum capricornutum): 10 g/l
Can be dangerous if allowed to enter drinking water intakes. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers.

13. Disposal information

Waste disposal: Dispose in a safe manner in accordance with local / national regulations.
If need be, collection by an authorized waste collector and regeneration or incineration in an approved installation

Used packaging disposal: Conform to the regulation in effect.

Industrial waste number EU: 07.01.99 (wastes not otherwise specified)

14. Transport information

UN classification number: Unregulated

Road (ADR)/Rail (RID)/River (ADNR): Not restricted for transportation

Marine (IMO-IMDG): Not restricted for transportation

Airline (ICAO / IATA): Not restricted for transportation

15. Regulatory information

EUROPEAN REGULATIONS

- EC labeling

- Symbol (s) Harmful: Xn

- Contains: Monoethylene glycol

- R Phrase(s) R22

- S Phrase(s) S2 , S46

16. Other information

This data conforms to standards defined by directives 91/155, 93/112/EEC & 2001/58/EC Data sheet required pursuant to Art.14 of directive 1999/45/EC.



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Relevant R Phases: R22 -- Harmful if swallowed

Relevant S Phases: S2 -- Keep out of reach of children

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"This Safety Data Sheet serves to complete but not to replace the technical product sheets. The information contained herein is given in good faith and is accurate to the best of our knowledge at the date indicated hereabove.

It is understood by the user that any use of the product for purposes other than those for which it was designed entails potential risk.

The information given herein in no way dispenses the user from knowing and applying all provisions regulating his or her activity. The user bears sole liability for the precautions required when using the product.

The regulatory texts herein are intended to aid the user to fulfill his obligations. This list is not to be considered complete and exhaustive.

It is the user's responsibility to ensure that he is subject to no other obligations than those mentioned"

End of document.

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