

ENGEN ANTIFREEZE AND SUMMER COOLANT



MATERIAL SAFETY DATA SHEET

Revision Date : 28.09.2007

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : ENGEN ANTIFREEZE AND SUMMER COOLANT
Product use : Radiator coolant and antifreeze
Supplier : Engen Petroleum Limited (Tel: 021-403 4911, a/h: 021-403 4099)
Health Emergency Telephone : 021-689 5227 (Red Cross Poison Service)
Transport Emergency Telephone : 011-975 1278/83 (Hazchemwise)
Customer Service Center : 0860 036 436 (Sales and Technical Information)
MSDS Internet website : www.engen.co.za/content/products/default2.htm

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS-No.	Weight%	Symbol Codes	R-Phrase Numbers
Ethylene Glycol	107-21-1	>= 90.00	Xn	R22
Sodium 2-ethylhexanoate	19766-89-3	>= 2.00	Xn	R63

See Section 15 for European Label Information.

See Section 8 for Exposure Limits (if applicable).

3. HAZARDS IDENTIFICATION

Emergency response data : Blue Liquid. DOT ERG No. : 171

Potential health effects

Inhalation : Inhalation of high levels of vapours or mists for prolonged periods of time may also result in toxic effects.
Skin : Practically non-irritating.
Eye : Irritant.
Ingestion : Ingestion of ethylene glycol may result in nausea, vomiting, abdominal cramps, convulsions, oedema of the lung, cardiopulmonary effects (metabolic acidosis), pneumonia and kidney failure which could result in death. The single lethal dose for humans is about 100 ml.

Potential environmental effects : Toxic to fish, aquatic organisms and wildlife. Do not discharge into lakes, streams, ponds and ground water supply.

See Section 11 for further health effects/toxicological data.

4. FIRST AID MEASURES

Inhalation : Remove from further exposure. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with mechanical device or use mouth-to-mouth resuscitation with a mouthpiece.
Skin contact : Remove contaminated clothing. Dry wipe exposed skin and cleanse with hand cleaner, soap and water. Launder contaminated clothing before reuse. (See Section 16 - Injection Injury)
Eye contact : Flush thoroughly with water for at least 15 minutes. Get medical assistance.

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Ingestion : Seek immediate medical attention. If medical attention is delayed, contact a Regional Poison Centre or emergency medical professional regarding the induction of vomiting or use of activated charcoal.

5. FIRE-FIGHTING MEASURES

Extinguishing media : Carbon dioxide, foam, dry chemical and water fog.

Special fire fighting procedure : Water or foam may cause frothing. Use water to keep fire exposed containers cool. Water spray may be used to flush spills away from exposure. Prevent runoff from fire control or dilution from entering streams, municipal sewers, or drinking water supply.

Special protective equipment for firefighters : Positive pressure self-contained breathing apparatus (SCBA).

Unusual fire and explosive hazards : None.

Products of decomposition : Fumes, smoke and carbon monoxide.

Flash Point : > 100 °C (ASTM D-92)

Upper Explosion Limit (UEL) : 15.3 %(V)

Lower Explosion Limit (LEL) : 3.2 %(V)

NFPA Hazard Id : Health: 0; Flammability: 1; Reactivity: 0

6. ACCIDENTAL RELEASE MEASURES

Procedure if material is released or spilled : Report spills/releases as required to appropriate authorities.

Methods for cleaning up : Absorb on fire-retardant treated sawdust, diatomaceous earth, etc. Shovel up with spark-resistant utensils for later disposal at an approved facility, in accordance with current laws and regulations.

Personal precautions : See Section 8.

Environmental precautions : Prevent spill from entering municipal sewers, water sources or low lying areas. Advise the relevant authorities if contaminations have occurred.

7. HANDLING AND STORAGE

Safe handling advice : Avoid prolonged repeated skin contact. Avoid inhalation of vapours or mists. Avoid ingestion.

Storage information : Do not store in unlabelled containers. Do not store near strong oxidizing agents and combustible materials.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Limits (OELs)

Components	CAS-No.	Source	TWA	Value		Notations
Ethylene Glycol	107-21-1	ACGIH TLV	STEL	100 mg/m ³	40 ppm	Ceiling
			LTEL	51 mg/m ³	20 ppm	
		OSHA PEL	STEL	127 mg/m ³	50 ppm	Ceiling
			LTEL	63 mg/m ³	25 ppm	

LTEL: Long Term Exposure Limits - Time Weight Average (TWA) over 8 hours.

STEL: Short Term Exposure Limits - Time Weight Average (TWA) over 15 Minutes

Note: Limits Shown for guidance only. Follow applicable regulations.

Personal Protection Equipment (PPE)

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Engineering controls	:	Use in well ventilated area.
Respiratory protection	:	Approved respiratory equipment should be used if ventilation is inadequate and breathing of mists or vapours is likely.
Eye protection	:	If splash with liquid is possible, chemical type goggles should be worn.
Skin and body protection	:	Impervious gloves must be worn. Good personal hygiene practices should always be followed.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Liquid.
Colour	:	Blue
Odour	:	Characteristic
Solubility	:	Miscible
Melting point/range	:	-30 °C
Boiling point/range	:	> 165 °C
Flash Point	:	> 100 °C (ASTM D-92)
Upper Explosion Limit (UEL)	:	15.3 %(V)
Lower Explosion Limit (LEL)	:	3.2 %(V)
Density	:	1.120 g/cm ³ @ 20 °C (ASTM D-4052)
Autoignition temperature	:	> 200 °C
Pour point	:	-18 °C

10. STABILITY AND REACTIVITY

Stability	:	Stable.
Conditions to avoid	:	Extreme heat.
Materials to avoid	:	Strong oxidizers.
Hazardous decomposition products	:	Fumes, smoke and carbon monoxide.

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity	:	(Rats): Toxic (LD50: Less than 250 mg/kg). Based on testing of similar products and/or components.
Acute inhalation toxicity	:	(Rats): Harmful (LC50: greater than 2 but 5mg/l or less). Based on testing products and/or components.
Acute dermal toxicity	:	(Rabbits): Practically non-toxic (LD50: greater than 2000 mg/kg). Based on single dose testing at 2 000mg/kg.
Skin irritation	:	(Rabbits): Practically non-irritating.
Eye irritation	:	(Rabbits): Irritant. (Draize score: greater than 15 but less than 35). Based on testing of similar products and/or the components.
Repeated dose toxicity	:	Small quantities of ethylene glycol ingested, inhaled or absorbed through the skin repeatedly over a prolonged period of time may result in systemic toxic effects. Rats fed 1-2 percent ethylene glycol for two years suffered severe kidney damage, liver damage and bladder stones. Inhalation studies for two years at 100 ppm with 7 species of animals did not result in any adverse effects other than respiratory irritation. No carcinogenic effects were observed in animals when they were either injected with the solvent or fed at one percent in the diet for two years. Carcinogenic effects are not known to occur in humans exposed to ethylene glycol.
Toxicity to reproduction	:	Ethylene glycol, when administered orally to pregnant rats at 2250 mg/kg/day caused some malformations of the offspring. The NOEL was 1250 mg/kg/day. No developmental or teratological effects were observed in rabbits administered 2000 mg/kg/day orally. Aerosols of 2500 mg/m ³ during organogenesis resulted in teratogenic effects in mice but not rats. Nose-only exposure of mice to aerosols of 1000 mg/m ³

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resulted in developmental effects but minimal teratogenic effects. The NOEL based on maternal toxicity was 500 mg/m³. When applied to the skin of rats during organogenesis no teratogenic effects were observed. Although these effects are not known to occur in humans, precautionary measures should be taken to avoid exposure during pregnancy, particularly in the early stages.

Mutagenicity	:	Ames test: Negative. Mouse Lymphoma (L5178Y/TK+/-) Assay: Positive.
Other toxicological information	:	Orally, ethylene glycol is more toxic to humans than animal test data indicates. Probable lethal dose for an adult is 100 ml. Smaller doses can cause serious kidney injury.

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)

Biodegradability	:	Readily Biodegradable.
Physico-chemical removability	:	Soluble in water.
Bioaccumulation	:	Does not bio-accumulate significantly.

Ecotoxicity effects

Toxicity to fish	:	(Leuciscus idus) LC/EC50: >100 mg/l at 96 hours.
Toxicity to aquatic organisms	:	(Daphnia magna) LC/EC50: >100 mg/l at 48 hours.

Further information on ecology

Remarks	:	AOX: This product contains no organically bound halogen.
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13. DISPOSAL CONSIDERATIONS

Waste disposal	:	Dispose of waste at an appropriate disposal facility in accordance with current applicable laws and regulations.
Contaminated packaging	:	Empty containers retain residue (liquid and/or vapour) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to refill or clean container since residue is difficult to remove. Empty drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.
Other regulations	:	Disposal of unused product may be subject to RCRA regulations (40 CFR 261). Disposal of the used product may also be regulated due to ignitability, corrosivity, reactivity, or toxicity as determined by the Toxicity Characteristic Leaching Procedure (TCLP).
Flash Point	:	> 100 °C (ASTM D-92)

14. TRANSPORT INFORMATION

Note	:	This product is not regulated by the following: CFR and IATA.
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ADR

UN number	:	3082
Class	:	9
Packing group	:	III
Labelling number	:	9

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Product Reportable Quantity : 2,200 kg

IMDG

UN number : 3082
Class : 9
Packing group : III
Labelling number : 9
Product Reportable Quantity :

15. REGULATORY INFORMATION

US OSHA Hazard Communication Standard : Product assessed in accordance with OSHA 29 CFR 1910.1200 and determined to be hazardous.

Governmental Inventory Status : All components comply with TSCA, EINECS/ELINCS, AICS, METI, DSL, KECI, ENCS, PICCS and IECSC.

EU Labelling : Product is dangerous as defined by the European Union Dangerous Substances/Preparations Directives.

Symbols : Xn
Harmful

R-Phrase(s) : R22, R63
Harmful if swallowed., Possible risk of harm to the unborn child.

S-phrase(s) : S2
Keep out of the reach of children.

SARA

U.S. Superfund Amendments and Reauthorization Act SARA Title III : This product contains no "EXTREMELY HAZARDOUS SUBSTANCES".

SARA (311/312) Reportable Hazard Categories : Chronic Acute

SARA (313) Toxic Release Chemicals: : Ethylene Glycol (107-21-1) - Conc > 90%

The following product ingredients are cited on the lists below

Chemical name	CAS-No.	Concentration [%]	List Citations
Ethylene Glycol	107-21-1	>= 90.00	1, 10, 18, 19, 20, 21, 23, 24, 25, 26
Sodium 2-ethylhexanoate	19766-89-3	>= 2.00	Not listed

Regulatory List Searched

1 = ACGIH ALL 6 = IARC 1 11 = TSCA 4 17 = CA P65 22 = MI 293
2 = ACGIH A1 7 = IARC 2A 12 = TSCA 5a2 18 = CA RTK 23 = MN RTK
3 = ACGIH A2 8 = IARC 2B 13 = TSCA 5e 19 = FL RTK 24 = NJ RTK
4 = NTP CARC 9 = OSHA CARC 14 = TSCA 6 20 = IL RTK 25 = PA RTK
5 = NTP SUS 10 = OSHA Z 15 = TSCA 12b 21 = LA RTK 26 = RI RTK

Code Key: CARC = Carcinogen; SUS = Suspected Carcinogen

16. OTHER INFORMATION

Note: Engen products do not contain PCBs.

Health studies have shown that many hydrocarbons pose potential human health risks which may vary from person to person. Information provided on this MSDS reflects intended use. This product should not be used for any other applications. In any case, the following advice should be considered:

INJECTION INJURY WARNING: If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a

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doctor as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

Empty container may contain product residue, including flammable or explosive vapours. Do not cut, puncture, or weld on or near container. All label warnings and precautions must be observed until container has been thoroughly cleaned or destroyed.

Disclaimer

Information given herein is offered in good faith as accurate, but without guarantee. Conditions of use and suitability of the product for particular uses are beyond our control; all risks of use of the product are therefore assumed by the user and we expressly disclaim all warranties of every kind and nature, including warranties of merchantability and fitness for a particular purpose in respect to the use or suitability of the product. Nothing is intended as a recommendation for uses which infringe valid patents or as extending license under valid patents. Appropriate warnings and safe handling procedures should be provided to handlers and users.

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