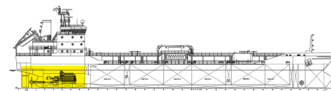


ANTIFREEZE



ETHYLENE GLYCOL, ANTIFREEZE COMPOUND FOR COOLING WATER SYSTEMS

PHYSICAL DATA

Appearance: Clear liquid, uncolored
In aqueous solution: Clear liquid no deposits
Density at 20°C.: 1.120
Water contents: less 2.5
Flash Point: 47°C
Boiling point: 135,6 C°.
Water solubility: Complete

DESCRIPTION

Antifreeze compound, ethylene glycol based, to be used in cooling water system. UNIservice ANTIFREEZE is compatible with NCLT, COLORCOOLING and ANTICORR corrosion inhibitor.

SPECIFICATIONS

FREEZING POINT °C - ASTM D 1177

50% volume in distilled water - 39° C.

33% Volume in distilled water - 20° C.

25% volume in distilled water - 13° C.

pH - ASTM D 1287

50% volume in distilled water 7.4

33% volume in distilled water 7.7

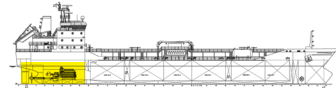
25% Volume in distilled water 7.9

Alkaline reserve, ml HCL 0,1 less 13 ASTM D 1121

DOSAGE AND CHARACTERISTICS OF THE ANTIFREEZE IN AQUEOUS SOLUTION

% ANTIFREEZE WEIGHT Kg	VOLUME LTRS	DENSITY 20/20°C	FREEZING POINT °C	BOILING POINT 760mm °C
0	0,0	1.000	0	100
20	9,1	1.013	-3.5	101,1
35	18,4	1.027	-8	102,2
45	28,8	1.040	-15	103,3
60	37,8	1.057	-24	104,9
80	47,8	1.067	-38	107,2
100	58,0	1.079	-50	109,9

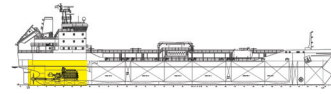
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Safety Data Sheet

1. Identification of the substance / preparation and the Company

1.1 Identification of the substance or preparation

Product name ANTIFREEZE

1.2 Use of the substance / preparation

Intended use Antifreeze compound for cooling water systems

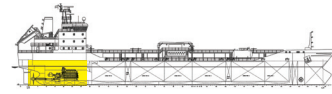
1.3 Company identification

Name Urruty gg Niego S.r.l.
Full address Via al Santuario di N.S. Guardia 58 a
District and Country 16162 Genova Bolzaneto (GE)
Italia
Tel. + 39 010 711395
Fax + 39 010 713120
e-mail address of the
competent person responsible
for the Safety Data Sheet info@uniservicemarine.com

1.4 Emergency telephone

For urgent inquiries refer to First Aid Information: Centro Antiveleni Milano
- Niguarda
Phone: 02 - 66101029 (specialized in chemical
products poisoning).

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2. Hazards Identification

2.1 Substance/Preparation Classification

This product is dangerous under 67/548/EEC and 1999/45/EC directives and subsequent amendments. Therefore, this product requires a safety data sheet according to the Regulation (EC) 1907/2006 and subsequent amendments. Further information on health and/or environmental hazards can be found in sections 11 and 12 of this sheet.

Danger Symbols: Xn

R phrases: 22

2.2 Danger Identification

HARMFUL IF SWALLOWED.

3. Composition / Information on ingredients

Contains:

Name	Concentration % (C)	Classification
ETHANEDIOL	94 <= C < 98	Xn R22
CAS No 107-21-1		
CE No 203-473-3		
Index No 603-027-00-1		

The complete text of -R- phrases is specified in section 16.

4. First aid measures

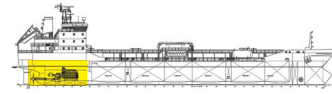
EYES: Irrigate copiously with clean, fresh water for at least 15 minutes. Seek medical advice.

SKIN: Wash immediately with plenty of water. Remove contaminated clothing. If irritation persists, seek medical attention. Wash contaminated clothing before using them again.

INHALATION: Remove to open air. If breathing is irregular, seek medical advice.

INGESTION: Obtain immediate medical attention. Induce vomiting only if indicated by the doctor. Never give anything by mouth to an unconscious person.

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5. Fire-fighting measures

GENERAL INFORMATION

Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.

SUITABLE EXTINGUISHING MEDIA

The extinction equipment should be of the conventional kind: carbon dioxide, foam, powder and nebulised water.

EXTINGUISHING MEDIA WHICH SHALL NOT BE USED FOR SAFETY REASONS

None in particular.

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE

Do not breathe combustion products (carbon oxide, toxic pyrolysis products, etc).

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

Hardhat with visor, fireproof clothing (fireproof jacket and trousers with straps around arms, legs and waist), work gloves (fireproof, cut proof and dielectric), a depressurised mask with facemask covering the whole of the operator's face or a self-respirator (self-protector) in the event of large quantities of fume.

6. Accidental release measures

PERSONAL PRECAUTIONS

Eliminate all sources of ignition (cigarettes, flames, sparks, etc.) from the leakage site. If there are no contraindications, spray solid products with water to prevent the formation of dust. Use breathing equipment if fumes or powders are released into the air. Block the leakage if there is no hazard. Do not handle damaged containers or the leaked product before donning appropriate protective gear. For information on risks for the environmental and health, respiratory tract protection, ventilation and personal protection equipment, see the other sections of this sheet.

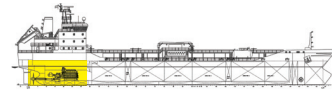
ENVIRONMENTAL PRECAUTIONS

The product must not penetrate the sewers, surface water, ground water and neighbouring areas.

METHODS FOR CLEANING UP

Use inert absorbent material (sand, vermiculite, diatomaceous earth, Kieselguhr, etc.) to soak up leaked product. Collect the majority of the remaining material and deposit it in containers for disposal. If there are no contraindications, use jets of water to eliminate product residues. Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

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7. Handling and storage

Store in a well ventilated place, keeping the containers closed when not used. Do not smoke while handling. Keep far away from sources of heat, bright flames and sparks and other sources of ignition.

8. Exposure control / personal protection.

8.1 Exposure limit values

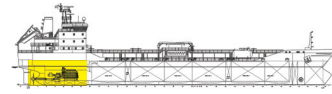
Name	Type	Country	TWA/8h		STEL/15min		
			mg/m3	ppm	mg/m3	ppm	
ETHANEDIOL	TLV-ACGIH				100 (C)		Skin
	OEL	EU	52	20	104	40	Skin
	OEL	IRL	20		40		Skin
	WEL	UK		20		40	Skin

C = CEILING

8.2 Exposure controls

As the use of adequate technical equipment must always take priority over personal protection equipment, make sure that the workplace is well aired through effective local aspiration or bad air vent. If such operations do not make it possible to keep the concentration of the product below the permitted workplace exposure thresholds a suitable respiratory tract protection must be used. See product label for hazard details during use. Ask your chemical substance suppliers for advice when choosing personal protection equipment. Personal protection equipment must comply with the rules in force indicated below.

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HAND PROTECTION

Protect hands with category I (ref. Directive 89/686/EEC and standard EN 374) work gloves, such as those in latex, PVC or equivalent. The following should be considered when choosing work glove material: degradation, breakage times and permeation. Work glove resistance to preparations should be checked before use, as it can be unpredictable. Gloves' limit depends on the duration of exposure.

EYE PROTECTION

Use of protective airtight goggles (ref. standard EN 166) recommended.

SKIN PROTECTION

Wear category I professional long-sleeved overalls and safety footwear (ref. Directive 89/686/CEE and standard EN 344). Wash body with soap and water after removing overalls.

RESPIRATORY PROTECTION

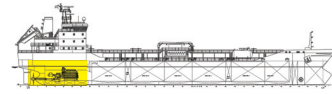
If the threshold value for one or more of the substances present in the preparation for daily exposure in the workplace or to a fraction established by the company's prevention and protection service is exceeded, wear a mask with an B or universal filter, the class (1, 2 or 3) of which must be chosen according to the limit concentration of use (ref. standard EN 141).

The use of breathing protection equipment, such as masks with organic vapour and dust/mist cartridges, is necessary in the absence of technical measures limiting worker exposure. The protection provided by masks is in any case limited.

If the substance in question is odourless or its olfactory threshold is higher than the relative exposure limit and in the event of an emergency, or when exposure levels are unknown or the concentration of oxygen in the workplace is less than 17% volume, wear self-contained, open-circuit compressed air breathing apparatus (ref. standard EN 137) or fresh air hose breathing apparatus for use with full face mask, half mask or mouthpiece (ref. standard EN 138).

In the presence of risks of exposure to splashes or squirts during work, adequate mouth, nose and eye protection should be used to prevent accidental absorption.

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9. Physical and chemical properties

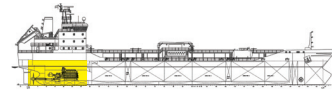
Colour	Not available
Odour	slightly alcolic
Appearance	liquid
Solubility	mixable
Freezing point	
Vapour density	Not available
Evaporation speed	Not available
Comburent properties	Not available
Partition coefficient: n-octanol/water	n.a.
pH	7,5
Boiling point	Not available
Melting point	-36°C
Flash point	120°C 3,2°C 15,3°C
Explosive properties	Not available
Ignition temperature	413°C
Vapour pressure	0,08mmHg
Specific gravity	1,115Kg/l

10. Stability and reactivity

The product is stable in normal conditions of use and storage. Due to thermal decomposition or in the event of a fire vapours may be produced potentially dangerous to health.

Ethylene glycol may absorb moisture from the atmosphere up to twice its own weight.

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11. Toxicological information

Acute effects: ingestion of this product is harmful. Even small amounts of product may cause serious health problems (stomach pain, nausea, sickness, diarrhoea). This product may slightly irritate mucosae, the upper respiratory tract, eyes, and skin. Exposure symptoms may include: sting, cough, asthma, laryngitis, respiratory disorders, headache, nausea and sickness.

Ethylene glycol: following ingestion it initially stimulates the CNS; later on depression results. Renal damage with anuria and uremia may occur. Symptoms of over exposure are: vomiting, somnolence, difficulty in breathing, convulsions. The lethal dose in man is approximately 1.4 l/kg. The way of entry is inhalation and ingestion.

ETHANEDIOL: oral LD50 (mg/kg) 4000 (RAT) ; dermal LD50 (mg/kg) 9530 (RABBIT).

12. Ecological information

Use this product according to good working practices. Avoid littering. Inform the competent authorities, should the product reach waterways or sewers or contaminate soil or vegetation.

Ethylene glycol is biodegradable.

13. Disposal consideration

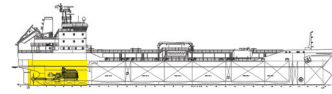
Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.

Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

CONTAMINATED PACKAGING

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

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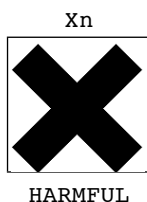


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14. Transport information

This product is not dangerous under current provisions of the Code of International Carriage of Dangerous Goods by Road (ADR) and by Rail (RID), of the International Maritime Dangerous Goods Code (IMDG), and of the International Air Transport Association (IATA) regulations.

15. Regulatory information



R22 HARMFUL IF SWALLOWED.

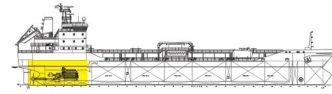
Caution recommendations (S): None

Contains:
ETHANEDIOL

Danger labelling under directives 67/548/EEC and 1999/45/EC and following amendments and adjustments.

Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

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16. Other information

Text of (R) phrases quoted in section 3 of the sheet.

R22 HARMFUL IF SWALLOWED.

GENERAL BIBLIOGRAPHY

1. Directive 1999/45/EC and following amendments;
2. Directive 67/548/EEC and following amendments and adjustments (technical adjustment XXIX);
3. Regulation (EC) 1272/2008 (CLP) of the European Parliament;
4. Regulation (EC) 1907/2006 (REACH) of the European Parliament;
5. The Merck Index. - 10th Edition;
6. Handling Chemical Safety;
7. Niosh - Registry of Toxic Effects of Chemical Substances;
8. INRS - Fiche Toxicologique (toxicological sheet);
9. Patty - Industrial Hygiene and Toxicology;
10. N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition;

Note for users:

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product .

This document must not be regarded as a guarantee on any specific product property.

The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.

Changes to previous review

The following sections were modified:
01 / 08 / 09 / 13 / 15