Neutron® Pharmachemical Co.
Manufacturer of Laboratory Chemical & Pharmaceutical Materials

SAFETY DATA SHEET
ANTIFREEZE

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name	ANTIFREEZE
Product No.	13000

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.3. Details of the supplier of the safety data sheet

Supplier

NEUTRONPHARMACHEMICAL CO

98, 9th Floor, Borjsaz Building, Azadi Ave, Tehran, Iran.

T 021-66906732-3 - F 021-66581408

info@neutronco.com

www.neutronco.com

1.4. Emergency telephone number

125

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification (1999/45/EEC) Xn;R22, R48/22.
Human health
See section 11 for additional information on health hazards.
Environment
The product contains a substance which may cause long term adverse effects in the aquatic environment.

2.2. Label elements

Contains	MONO ETHYLENE GLYCOL

Labelling

Harmful

Risk Phrases

R22	Harmful if swallowed.
R48/22	Harmful: danger of serious damage to health by prolonged exposure if swallowed.

Safety Phrases

S2	Keep out of the reach of children.
S13	Keep away from food, drink and animal feeding stuffs.
S36	Wear suitable protective clothing.
S46	If swallowed, seek medical advice immediately and show this container or label.
S56	Dispose of this material and its container to hazardous or special waste collection point.

2.3. Other hazards

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

DISODIUM TETRABORATE PENTAHYDRATE		1-5%
CAS-No.: 12179-04-3	EC No.: 215-540-4	
Classification (EC 1272/2008) Repr. 1A - H360FD	Classification (67/548/EEC) Repr. Cat. 1;R60,R61.	

MONO ETHYLENE GLYCOL		60-100%
CAS-No.: 107-21-1	EC No.: 203-473-3	Registration Number: 01-2119456816-28
Classification (EC 1272/2008) Acute Tox. 4 - H302 STOT RE 2 - H373	Classification (67/548/EEC) Xn;R22,R48/22.	

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

Composition Comments
The data shown are in accordance with the latest EC Directives.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General information
Remove affected person from source of contamination. Get medical attention if any discomfort continues.
Inhalation
Move injured person into fresh air and keep person calm under observation. If necessary, seek hospital and bring these instructions.
Ingestion
Immediately rinse mouth and drink plenty of water. Keep person under observation. If person becomes uncomfortable take to hospital along with these instructions.

Skin contact
Remove affected person from source of contamination. Remove contaminated clothing and flush with plenty of water until pain disappears. If discomfort persists transport to hospital and bring these instructions.
Eye contact
Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General information
The severity of the symptoms described will vary dependant of the concentration and the length of exposure.
NOTE! Effects may be delayed. Keep affected person under observation.
Inhalation.
Irritation of nose, throat and airway.
Ingestion
May cause discomfort if swallowed. Ingestion may result in unconsciousness, blindness and death. Central nervous system depression.
Skin contact
Prolonged skin contact may cause redness and irritation.
Eye contact
Irritation, burning, lachrymation, blurred vision after liquid splash.

4.3. Indication of any immediate medical attention and special treatment needed

No recommendation given, but first aid may still be required in case of accidental exposure, inhalation or ingestion of this chemical. If in doubt, GET MEDICAL ATTENTION PROMPTLY!

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Extinguishing media
Use fire-extinguishing media appropriate for surrounding materials.
Unsuitable extinguishing media
Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products
Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.
Unusual Fire & Explosion Hazards
No unusual fire or explosion hazards noted.

5.3. Advice for firefighters

Special Fire Fighting Procedures
No specific fire fighting procedure given.
Protective equipment for fire-fighters
Leave danger zone immediately.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

For personal protection, see section 8. In case of spills, beware of slippery floors and surfaces.

6.2. Environmental precautions

The product should not be dumped in nature but collected and delivered according to agreement with the local authorities.

6.3. Methods and material for containment and cleaning up

For waste disposal, see section 13. When dealing with a spillage, please consult the section relating to suitable protective measures. Provide ventilation and confine spill. Do not allow runoff to sewer. Absorb spillage with non-combustible, absorbent material. Contact Health and Safety department on 6147 or 6695 for further assistance.

6.4. Reference to other sections

Wear protective clothing as described in Section 8 of this safety data sheet. For waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Read and follow manufacturer's recommendations. Always remove grease with soap and water or skin cleaning agent, never use organic solvents. Good personal hygiene is necessary. Wash hands and contaminated areas with water and soap before leaving the work site. Do not eat, drink or smoke when using the product.

7.2. Conditions for safe storage, including any incompatibilities

Keep away from heat, sparks and open flame. Store in tightly closed original container in a dry, cool and well-ventilated place.

7.3. Specific end use(s)

The identified uses for this product are detailed in Section 1.2.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Name	STD	TWA - 8 Hrs		STEL - 15 Min		Notes
MONO ETHYLENE GLYCOL	WEL		10 mg/m3		104 mg/m3	Sk

WEL = Workplace Exposure Limit.
Sk = Can be absorbed through skin.

8.2. Exposure controls

Protective equipment

Process conditions
Use engineering controls to reduce air contamination to permissible exposure level. Provide eyewash station.
Engineering measures
Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded.
Respiratory equipment
Wear suitable respiratory protection.
Hand protection
Protective gloves and goggles must be used if there is a risk of direct contact or splash.
Eye protection
Wear tight-fitting goggles or face shield.
Other Protection
Wear appropriate clothing to prevent any possibility of liquid contact and repeated or prolonged vapour contact.
Hygiene measures
Wash contaminated clothing before reuse. Wash hands at the end of each work shift and before eating, smoking and using the toilet.
Skin protection
Wear apron or protective clothing in case of contact.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Liquid
Colour	Blue.
Odour	Odourless.
Solubility	Miscible with: Acetone Alcohol Miscible with water
Initial boiling point and boiling range	165°C 760 mm Hg
Melting point (°C)	Scientifically unjustified. -12°C
Relative density	1.13 20°C
Vapour density (air=1)	Scientifically unjustified. 2.14
Vapour pressure	Scientifically unjustified. 0.05 kPa 20°C
Evaporation rate	Scientifically unjustified.
pH-Value, Diluted Solution	6-7.5 100g/l
Viscosity	21 cps 20°C
Solubility Value (G/100G H2O@20°C)	100
Decomposition temperature (°C)	Scientifically unjustified.
Odour Threshold, Lower	Scientifically unjustified.
Odour Threshold, Upper	Scientifically unjustified.
Flash point	111 CC (Closed cup).
Auto Ignition Temperature (°C)	Scientifically unjustified. 400°C
Flammability Limit - Lower(%)	Scientifically unjustified. 3.2
Flammability Limit - Upper(%)	Scientifically unjustified.
Partition Coefficient (N-Octanol/Water)	Scientifically unjustified.
Oxidising properties	Not available.

9.2. Other information

None.

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

Reaction with: Oxidising materials.

10.2. Chemical stability

No particular stability concerns.

10.3. Possibility of hazardous reactions

Not determined.

10.4. Conditions to avoid

Avoid excessive heat for prolonged periods of time. Avoid heat, flames and other sources of ignition.

10.5. Incompatible materials

Materials To Avoid
Acids, oxidising.

10.6. Hazardous decomposition products

In case of fire, toxic gases (CO, CO2, NOx) may be formed.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Toxic Dose 1 - LD 50
5890 - 13400 mg/kg (oral rat)
Toxic Dose 2 - LD 50
5010 mg/kg (ipr-rat)
Toxicological information
No information available.

Specific target organ toxicity - single exposure:
Target Organs
Central nervous system Heart & cardiovascular system Kidneys

Inhalation
Unlikely to be hazardous by inhalation because of the low vapour pressure of the substance at ambient temperature. Vapours may irritate throat and respiratory system and cause coughing.

Ingestion
May cause liver and/or renal damage. Irritating. May cause nausea, stomach pain and vomiting. Harmful: possible risk of irreversible effects if swallowed.

Skin contact
Slightly irritating.

Eye contact
May cause temporary eye irritation.

Health Warnings
This chemical can be hazardous when inhaled and/or touched.

Route of entry
Ingestion.

Target Organs
Central nervous system Heart & cardiovascular system Kidneys

Medical Symptoms
Allergic rash. Delayed, often serious breathing problems. Tachycardia, (excessively rapid heart beat, including rapid and weak pulse). Unconsciousness, possibly death.
Specific effects
May cause damage to the kidneys. Contains a substance/a group of substances with possible risk of harm to the unborn child and with possible risk of impaired fertility.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity
The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

12.1. Toxicity

LC 50, 96 Hrs, Fish mg/l 22810 mg/l
Acute Toxicity - Fish
Not available.
EC 50, 48 Hrs, Daphnia, mg/l 41000 mg/l
Acute Toxicity - Aquatic Invertebrates
Not available.

12.2. Persistence and degradability

Degradability
The product is expected to be biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential
The product is not bioaccumulating.
Partition coefficient
Scientifically unjustified.

12.4. Mobility in soil

Mobility:
The product is soluble in water.
Adsorption/Desorption Coefficient
Not available.

12.5. Results of PBT and vPvB assessment

Not Classified as PBT/vPvB by current EU criteria.

12.6. Other adverse effects

Not applicable.

SECTION 13: DISPOSAL CONSIDERATIONS

General information
When handling waste, consideration should be made to the safety precautions applying to handling of the product.

13.1. Waste treatment methods

Dispose of waste and residues in accordance with local authority requirements. Absorb in vermiculite or dry sand and dispose of at a licenced hazardous waste collection point.

SECTION 14: TRANSPORT INFORMATION

General — The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.1. UN number

14.2. UN proper shipping name

14.3. Transport hazard class(es)

14.4. Packing group

14.5. Environmental hazards

14.6. Special precautions for user

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Uk Regulatory References
The Control of Substances Hazardous to Health Regulations 2002 (S.I 2002 No. 2677) with amendments.
Chemicals (Hazard Information & Packaging) Regulations.
EU Legislation
Dangerous Substance Directive 67/548/EEC. Dangerous Preparations Directive 1999/45/EC. System of specific information relating to Dangerous Preparations. 2001/58/EC.

15.2. Chemical Safety Assessment

No chemical safety assessment has been carried out.

SECTION 16: OTHER INFORMATION

General information
Only trained personnel should use this material.
Revision Comments
NOTE: Lines within the margin indicate significant changes from the previous revision.

Revision Date	02/07/2008
Revision	2
Supersedes date	01/02/2011 v4
Safety Data Sheet Status	Approved.

Risk Phrases In Full

R22	Harmful if swallowed.
R48/22	Harmful: danger of serious damage to health by prolonged exposure if swallowed.
R61	May cause harm to the unborn child.
R60	May impair fertility.

Hazard Statements In Full

H302	Harmful if swallowed.
H373	May cause damage to organs <<Organs>> through prolonged or repeated exposure.
H360FD	May damage fertility or the unborn child.