Material Safety Data Sheets

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

1. Product and Company Identification

Product Name	: Antifreeze
Product Code	: SPC-0394
General Use	: General cold and heat medium(Food factory), ice storage refrigerant
Product Description	: Antifreeze
MSDS Number	: 031-36O04XB
Manufacture	
Company Name	: Mimaki Engineering Co., Ltd
Address	: 2182-3 Otsu, Shigeno, Tomi-shi, Nagano 389-0512 Japan
Telephone No.	: +81-268-64-2413
Importer/Distributor Established in USA	
Company Name	: MIMAKI USA. INC.
Address	: 150 Satellite Boulevard, suite A, Suwanee, Georgia 30024, U.S.A
Telephone No.	: 1-678-730-0100
Emergency Telephone No.	: +81-268-64-2413

2. Hazards Identification

Emergency Overview:
- If swallowed, it can cause diarrhea, vomit.
- If in eyes, it can cause inflammation.
- If on skin, it can cause inflammation.
- If inhaled mist, it can cause nausea.

Potential Health Effects

Inhalation:	If inhaled mist, it can cause nausea.
Eye Contact:	If in eyes, it can cause inflammation.
Skin Contact:	If on skin, it can cause inflammation.
Ingestion:	If swallowed, it can cause diarrhea, vomit.
Carcinogens:	Classification is not possible due to lack of data.

Potential Environmental Effects:

The estimation of hazards to aquatic environment (acute) LC50=166.7mg/L is calculated by GHS criteria.

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3. Composition / Information On Ingredients

No	Chemical Name	Wt%	CAS No.	Chemical Formula
1	Propylene glycol	55~60%		
2	Additive	3~7%		
3	Water	35~40%		

OSHA Hazardous Components (29 CFR 1910. 1200):

No information

4. First Aid Measures

Inhalation:

・Immediately remove victim to fresh air.

・Keep victim warm by covering with a blanket and rest.

・If breathing is weak or stopped, loosen clothing and maintain an open airway and then, give artificial respiration.

・If unconscious but breathing or if conscious but breathing is difficult, it is effective to give oxygen. It is recommended to conduct under doctor's guidance.

・Never administer a dose without doctor's instructions.

・Never give anything by mouth to victim.

・Immediately get medical attention.

Eye Contact:

・Remove contact lenses, if present and easy to do. Continue rinsing.
・Rinse eyes with clean water for at least 15 minutes and get medical attention form an ophthalmologist immediately. Hold eyelids open and away from eyeballs with fingers to ensure that all surfaces are flushed thoroughly.

Skin Contact:

・Remove contaminated clothing, shoes, etc. promptly. Cut it off necessary. Flush affected area with water or lukewarm water and wash off with soap. If visual change occurs or pain persists, get medical attention.
・If contact with hot liquid, immediately wash with water and sufficiently cool with ice water.
・Immediately get medical attention.

Ingestion:

・If conscious, induce vomiting by giving more than two cups of milk or water and get medical attention immediately.
・Never give water, etc to an unconscious person.
・Keep victim warm and get medical attention immediately.

Expected acute and delayed symptoms, most important sign and symptoms:

・If swallowed, it can cause diarrhea, vomit.
・If in eyes, it can cause inflammation.
・If on skin, it can cause inflammation.
・If inhaled mist, it can cause nausea.

5. Fire Fighting Measures

Extinguishing Media:	Use water (water fog), dry powder, and alcohol-resistant foam.
Unsuitable extinguishing media:	Don't use fire hose.
Special risk/hazard:	Containers may explode when heated.
Fire Fighting Instructions:	・Eliminate all sources of ignition form fire area. ・For initial fire, use water (water fog), dry powder, etc. for fighting fire. ・For large fire, it is effective to use foam (alcohol-resistant foam), etc to shut off air supply. ・Pouring water can be dangerous by expanding fire. ・Cool surrounding facilities, etc. with water spray. ・Prohibit unnecessary personnel from entering fire area. ・Immediately remove moveable container to a safe area.
Protection for fire-fighters:	・Wear safety glasses, protective clothing, and respiratory protection for the situation during fire fighting. ・Extinguish fire form upwind.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency measures:

・Prohibit unnecessary personnel from entering spilled area separated by rope, etc.

・Wear suitable protective equipment during clean-up to prevent contact with water drop or inhalation of gas.

・Work from upwind and evacuate from downwind.

Precautions for the environment:

・Since it is related to soil and water contamination, recover spills as much as possible.

Recovery/neutralization:

・For large spills, dike with earth and sand, etc. to prevent spreading and sweep into an empty container and dispose of in a safe place. Be tender of discharging into sewers, drains, etc. Be sure to wear protective equipment during clean-up.

・For small spills, absorb with dry sand, earth, sawdust, wastes, etc and collect into an empty container that can be closed.

Method for containment and clean-up:

・Stop leakage, if it can be done without risk.

・In case of running off, prevent spread of the liquid and scoop or absorb with a proper absorbent.

・If inevitable, use a chemical.

・When using a chemical, it should meet the technical standards set by the Ordinance of the Ministry of Transport.

Preventive measure of secondary disaster:

・Immediately eliminate all source of ignition nearby.

・Request cooperation by giving notice to relevant agencies.

7. Handling And Storage

Handling

Technical measures:

- Keep good working environment.
- Prevent spills, overflow, scattering and generation of vapors.
- Prohibit the use of sources of fire, sparks and arcs around the handling place.
- Prohibit the use near sources of ignition of high temperature.
- Repair machinery containing residues after completely removing them in a safe place.
- Take precautionary measures against static discharge and wear conductive working clothes, shoes, etc.
- Since vapors are heavier than air, it is likely to stay in low areas. So, pay attention to ventilation and sources of fire, etc.
- Handle at room temperature and pay attention to mixing with water or impurities.
- If it is possible to contact with skin or eyes, wear protective equipment.
- If mist is generated, do not breathe mist by wearing respirators, etc.
- Use a pump, etc. to take out the product from a container.
- Use a thin tube and do not suck it with mouth.
- Do not weld, heat, puncture or cut containers. It can cause ignition of residues following explosion.

Local exhaust or general ventilation:

- See 'Section 8.Exposure Controls and Personal Protective Equipment'.

Avoid to contact:

- See 'Section 10. Stability and Reactivity'.

Precaution for safe handling:

- Obtain special instruction before use.
- Do not handle until all safety precautions have been read and understood.
- Pay attention to sources of fire.
- Wash hands and eyes thoroughly after handling.
- If on clothing, change clothing.
- Use only outdoors or in a well-ventilated area.
- Do not eat or smoke when using this product.
- Do not put pressure to an empty container. It can cause rupture of a container.
- Do not drink.
- Keep out of the reach of children.

Storage

Technical measure:
- Avoid heat, sparks, open flames and static built -up.
- Be sure to keep container tightly closed.

Incompatible materials:
- See 'Section 10. Stability and Reactivity'.

Storage condition:
- Keep container in a well-ventilated area.
- Protect from direct sunlight.
- Keep away from oxidizing agents.

Safe container and packaging material:

- Use container without damage, corrosion, cracks, etc.
- Do not handle a container in a violent manner such as turning over, impacting or dragging it.
- Keep used container at a certain designated place.

8. Exposure Controls / Personal Protection

Controlled exposure level: Not established.

Exposure Controls

Permissible exposure level(Threshold limits, biological exposure indices, etc):

Not established.

The Japanese Occupational Hygiene Society (2009): Not established.

ACGIH (2009): Not established.

Occupational Exposure Controls

Engineering Controls: ・If mist and vapor is generated, use enclosure of sources or local exhaust ventilation.

・Provide safety shower, basin and eye wash facilities near the place where the product is handled and indicate the location clearly.

Personal Protection

Respiratory Protection: Wear gas mask for toxic gas, if necessary.

Hand Protection: Wear impermeable rubber gloves.

Eye Protection: Wear ordinary glass with side shields or safety goggles.

Skin Protection: ・Wear long-sleeved working clothes.

・Take off wet clothing and wash before reuse.

general hygiene consideration:

・Check protective equipment on a regular based on a checklist.

・Do not eat or smoke during work.

・Wash hands with soap before eating or smoking.

9. Physical And Chemical Properties

Appearance	- Physical state	: liquid
	- Color	: Red clear
Odor		: Almost odorless
pH		: 8~9
Melting Point / Freezing Point		: /-40 degrees C
Boiling Point		: 107 degrees C/101kPa
Flash Point		: None.
Ignition temperature		: None.
Explosive limits: Lower		: None.
Explosive limits: Upper		: None.
Vapor pressure		: 1.7kPa/20 degrees C
Vapor density(Air=1)		: No data.
Specific gravity(Density)		: 1.05g/cm^3(20 degrees C)
Solubility		: Soluble in water, low alcohols, acetone
Partition coefficient(n-octanol/water)		: No data.
Auto-ignition temperature		: No data.
Decomposition temperature		: No data.

10. Stability And Reactivity

Conditions To Avoid: ・No data. (No hazardous reactions under normal handling condition.)

Stability: Stable

Materials To Avoid: Strong acids, strong oxidizing agents.

Hazardous Reactions/Decomposition Products:

・Explosion/ignition at room temperature hardly occurs, but if moisture is evaporated at high temperature, it is easy to ignite/burn.

・It can react with strong acids, strong oxidizing agents violently.

Hazardous decomposition products:

No data.

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11. Toxicological Information

Acute Toxicity	: (Annex) Acute toxicity(Oral, dermal, inhalation)					
	Content (%)	Oral	Dermal	Inhalation (Gas)	Inhalation (Vapor)	Inhalation (Dust, mist)
①Propylene glycol	55~60%	Not classified	Not classified	Not applicable	Classification not possible	Classification not possible
②Additive	3~7%	Classification not possible	Classification not possible	Not applicable	Classification not possible	Classification not possible
③Water	35~40%	Not classified	Not classified	Not applicable	Not classified	Not classified
Total	100%					

Oral:
・It contains acute toxicant (oral) on Annex.
・Acute toxicity (oral) estimation, ATEmix=33,333mg/kg is calculated by GHS criteria.
・The product as a mixture is classified as 'Acute toxicity (Oral): Not classified'.

Dermal:
・It contains acute toxicant (dermal) on Annex.
・Acute toxicity (dermal) estimation, ATEmix=37,500mg/kg is calculated by GHS criteria.
・The product as a mixture is classified as 'Acute toxicity (Dermal): Not classified'.

Inhalation:
・It contains acute toxicant (inhalation) on Annex.
・The product as a mixture is not possible to classify for acute toxicity(inhalation).

Eye Irritation:
・It contains eye irritants classified below.-Not classified: Water, propylene glycol[5)]
・The product as a mixture is classified as 'Serious eye damage/eye irritation: Not classified'.
・Serious eye damage/eye irritation of 3~7% of this mixture is unknown.

Skin Irritation:
- It contains skin irritants classified below.-Not classified: Water
- The product as a mixture is classified as 'Skin corrosion/irritation: Not classified'.
- Skin corrosion/irritation of 3~7% of this mixture is unknown.

Sensitization:
- It contains respiratory sensitizers classified below.-Not classified: Water, propylene glycol[5)]
- The product as a mixture is classified as 'Respiratory sensitization: Not Classified'.
- Respiratory sensitization of 3~7% of this mixture is unknown.
- It contains skin sensitizers classified below.-Not classified: Water, propylene glycol[5)]
- The product as a mixture is classified as 'Skin sensitization: Not classified'.
- Skin sensitization of 3~7% of this mixture is unknown.

Germ cell mutagenicity:
- It contains germ cell mutagens classified below.-Not classified: Water, propylene glycol[5)]
- The product as a mixture is classified as 'Germ cell mutagenicity: Not classified'.
- Germ cell mutagenicity of 3~7% of this mixture is unknown.

Carcinogenicity:
- Classification is not possible due to lack of data.

Reproductive toxicity:
- Classification is not possible due to lack of data.

Specific target organ toxicity (single exposure):
- It contains specific target organ toxicants(single exposure)classified below.-Not classified: Water, propylene glycol[5)]
- The product as a mixture is classified as 'Specific target organ toxicity (single exposure): Not classified'.

Specific target organ toxicity (repeated exposure):
- It contains specific target organ toxicants(repeated exposure)classified below.-Not classified: Water
- The product as a mixture is classified as 'Specific target organ toxicity(repeated exposure): Not classified'.

Aspiration hazard:
- Classification is not possible due to lack of data.

12. Ecological Information

Ecotoxicity:	・It contains hazardous substances(acute)to aquatic environment classified below.-Not classified: Water, propylene glycol[5)] ・The estimation of hazards to aquatic environment (acute) LC50=166.7mg/L is calculated by GHS criteria. ・The product as a mixture is classified as 'Hazards to aquatic environment (Acute): Not classified'. ・Hazards to aquatic environment (Acute) of 3~7% of this mixture is unknown. ・It contains hazardous substances (chronic) to aquatic environment classified below.-Not classified: Water, propylene glycol[5)] ・The product as a mixture is classified as 'Hazards to aquatic environment (Chronic): Not classified'. ・Hazards to aquatic environment (Chronic) of 3~7% of this mixture is unknown.
Persistence/degradability:	No data.
Bio-accumulation:	No data.
Mobility in soil:	No data.
Other adverse effects:	No data.
Environment criteria:	No data.

13. Disposal Considerations

Residual wastes:

・Dispose of internally or via a licensed industrial waste disposal contractor.

・Never dump.

・If landfill disposal is carried out, incinerate at an incinerator in advance and identify that the following substances in the ashes are not exceeding the standards set by the Department of the Prime Minister.

Copper or its compounds, zinc or its compounds, fluoride, alkyl mercury compounds, mercury or its compounds, arsenic or its compounds, hexavalent chromium compounds, organophosphorus compounds, lead or its compounds, cadmium or its compounds, cyanide compounds, PCB

・If incineration disposal is carried out, incinerate in a safe place. Incinerate in a way to avoid causing any harm or damage to the outside by combustion or explosion.

・While incinerating, assign a person watching it.

Contaminated container and packages:

Dispose of internally or via a licensed industrial waste disposal contractor.

Comply with all USA, national and local regulations.

Do not dump this product into sewers, on the ground or into any body of water.

14. Transport Information

Check a thing without a leak in a container.
Perform prevention of collapse of cargo surely.

International regulation

: Not applicable.

Japan domestic regulation

Inland transport: Non-dangerous substance under the Fire Service Law

Sea transport: Non-dangerous good for individual and bulk transport under the Ship Safety Law

Air transport: Non-dangerous good under the Aviation Law

Specific safety measure and condition of transport:

・During transportation, avoid exposure to direct sunlight and load containers in a way to prevent damage, corrosion and leakage. Secure prevention of cargo collapse.

・Do not stack heavy objects on the top of cargos.

15. Regulatory Information

No information

16. Other Information

References

1) The Japanese Occupational Hygiene Society recommendation on permissible exposure level, etc (OELs)
2) Thresholds limit values for chemical substances and physical agents and biological exposure indices. ACGIH
3) National Institute of Technology and Evaluation (NITE)
4) European Chemical Substances Information System
5) Material Safety Data Sheet (Propylene glycol), Japan Petrochemical Industry Association (1998)

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Revision history

Version	Date	Content
1.0	2011/07/05	First issue.