

## Safety Data Sheet (SDS)

### 1. Product & Company Identification

Product Name

AVF Agent

Manufacturer : Yamato Protec Corporation  
Address : 5-17-2 Shirokanedai, Minato-ku, Tokyo  
Phone Number : 0570-080100 (Navi Dial)  
Department : Technical Support

Suggested Use & Limitations on Use : Fire Extinguishing Agent

### 2. Hazards Identification

#### GHS Classification

Items not listed below are “Not classified”, “Unclassifiable” or “Not eligible for classification”

#### Health Hazards

Acute toxicity, oral : Category 4  
Skin corrosion/irritation : Category 1C  
Serious Eye Damage/Eye Irritation : Category 1  
Reproductive Toxicity : Category 1B

#### Specific Target Organ Toxicity (Single exposure):

Category 1 (Respiratory system, heart, kidney, central nerve system)

#### Specific Target Organ Toxicity (Repeated exposure):

Category 1 (Respiratory system, heart, central nerve system)

#### Environmental Toxicity

Hazardous to the aquatic environment – Acute hazard : Category 3

#### Representation or Symbol



Alert Level : Danger

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Health hazard statements

- Harmful if swallowed
- Causes severe skin burns and eye damage
- Causes serious eye damage
- May damage fertility or the unborn child
- Causes damage to Respiratory system, heart, kidney, central nerve system
- Causes damage to Respiratory system, heart, central nerve system through prolonged or repeated exposure.
- Harmful to aquatic life

Precautionary statement

Safety Precautions

- Do not handle until all safety precautions have been read and understood.
- Do not breathe dust/fume/gas/mist/vapors/spray.
- Do not eat, drink or smoke when using this product.
- Wash hands thoroughly after handling.
- Avoid release to the environment.
- Wear protective gloves/protective clothing/eye protection/face protection.
- Wear respiratory protection.

First Aid Measures

IF SWALLOWED

- Rinse mouth.
- Do NOT induce vomiting.
- Call a POISON CENTER/ doctor if you feel unwell.

IF ON SKIN

- Rinse skin with water/shower.
- Immediately call a POISON CENTER/doctor.

IF IN EYES

- Rinse cautiously with water for several minutes.
- Remove contact lenses, if present and easy to do. Continue rinsing.
- Immediately call a POISON CENTER/doctor.

If exposed or concerned

- Get medical advice/attention.

Storage

- Avoid high humidity, keep the product within the operating temperature range, and if possible, under lock indoors.

Disposal

- The contents and the container should be disposed of by waste disposal contractors licensed by the Governor.

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### 3. Composition/Information on Ingredients

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Single Component or Mixture : Mixture  
Chemical Name or Common Name : Fire extinguishing agent

Mechanical foam for fire extinguishers (Aqueous film)

Chemical Name or Common Name	CAS Number	Official Gazette Reference Code	Concentration or Concentration Range
Ethylene glycol	107-21-1	(2)-230	15 to 25%
Ammonia compound	Available	Available	5 to 15%
Fluorochemical surfactant	Available	Available	1 to 5%

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### 4. First Aid Measures

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#### IF ON SKIN

Rinse skin with water/shower.  
Immediately call a POISON CENTER/doctor.

#### IF IN EYES

Rinse cautiously with water for several minutes.  
Remove contact lenses, if present and easy to do. Continue rinsing.  
Immediately call a POISON CENTER/doctor.

If exposed or concerned

Get medical advice/attention.

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### 5. Fire Fighting Measures

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Fire Extinguishing Agent : Not applicable due to non-combustibility  
Fire Extinguishing Agent Not To Be Used : Not applicable  
Special Hazards : No data available  
Special Fire Fighting Procedures : Not applicable  
Protection of Fire Fighters : Not applicable

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## 6. Leakage Measures

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### Personal Precautions, Protective Equipment and Emergency Measures

Immediately isolate the appropriate distances in all directions as leakage area.

Prohibit unauthorized persons from entering the area.

The workers should wear suitable protective equipment (See “8. Exposure Prevention and Protection Measures”) and avoid eye or skin contact and inhalation.

Do not touch any damaged container or leaked material without wearing suitable protective clothing.

Stay in the wind.

Leave depression.

Ventilate sealed places.

### Environmental Precautions

Be careful not to affect the environment by discharging into rivers and others.

Dispose of the collection as industrial waste.

### Collection, neutralization, containment, and cleanup procedures and equipment

Sweep scattered matter together into a sealable container and dispose of it according to “13. Disposal Considerations”. Then, wash off with plenty of water. In this case, be careful so that thick waste fluid does not flow into rivers and others.

### Prevention of Secondary hazards

Collect leaked material immediately.

Prohibit unauthorized persons from entering the area around the leaked place.

In the case of inflow into rivers or public waterways, report to the person in charge of pollution in the local government immediately.

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## 7. Handling and Storage Instructions

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### Handling

Technical Measures : Implement measures stated in “8. Exposure Prevention and Protection Measures” and wear suitable protective equipment such as protective glasses and gloves, if required.

Safe Handling Instructions : None in particular

Hygiene Measures : Wash hands thoroughly after handling.

### Storage

Storage : Avoid high humidity, keep the product within the operating temperature range, and if possible, under lock indoors.

Container and Packing Material : Product container or appropriate fire extinguisher, etc.

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## 8. Exposure Prevention and Protection Measures

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### Allowable Concentration (Exposure limit, biological exposure index)

Ethylene glycol

ACGIH (2010 edition)                      TWA-STEL C 100 mg/m<sup>3</sup>

### Equipment Measures

None in particular

### Protective Equipment

Respiratory Protective Equipment : Wear suitable respiratory protective equipment.

Hand Protection : Wear suitable protective gloves.

Eye Protection : Use suitable eye protection.

Skin and Body Protection : Wear suitable protective clothing and masks.

Hygiene Measures : Wash hands thoroughly after handling.

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## 9. Physical and Chemical Properties

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Physical State, Form, Color	: Light yellow transparent liquid
Odor	: Unique odor
pH	: 7.8 (20 °C)
Melting Point, Freezing Point	: -20.5°C or lower
Boiling Point, initial boiling point and Boiling Range	: No data available
Flash Point	: None
Explosion Limits	: No data available
Vapor Pressure	: No data available
Vapor Density (air = 1)	: No data available
Specific Gravity (relative density)	: 1.11 (20 °C)
Solubility	: Easily soluble in water
Octanol-Water Partition Coefficient	: Not applicable
Autoignition Temperature	: No data available
Decomposition Temperature	: No data available
Odor Threshold	: No data available
Evaporation Rate	: No data available
Flammability (solid, gas)	: Not applicable
Viscosity	: 3.5 cSt (20°C)

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## 10. Stability and Reactivity

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Stability	: Stable under normal handling conditions
Reactivity	: No data available
Hazardous Reactivity	: No hazardous reactivity under normal handling conditions
Conditions to Avoid	: No data available
Incompatible Hazardous Materials	: No data available
Hazardous Decomposition Products	: HF (hydrogen fluoride), F <sub>2</sub> (fluorine gas) and fluorocarbons can be generated.

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## 11. Toxicological Information

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Acute Toxicity	: Category 4 (Oral)
Skin Corrosion/Irritation	: Category 1C
Serious Eye Damage/Eye Irritation	: Category 1
Respiratory or Skin Sensitization	: No data available
Germ-Cell Mutagenicity	: Not classified
Carcinogenicity	: Unclassifiable
Reproductive Toxicity	: Category 1B
Specific Target Organ Toxicity (Single exposure):	
Category 1 (Respiratory system, heart, kidney, central nerve system)	
Specific Target Organ Toxicity (Repeated exposure):	
Category 1 (Respiratory system, heart, central nerve system)	
Aspiration Hazard	: No data available

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## 12. Environmental Impact Information

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Hazardous to the aquatic environment – Acute hazard	: Category 3
Hazardous to the aquatic environment – Long term hazard	: Not classified
Persistence and Decomposability	: No data available
Bioaccumulation	: No data available
Migration in soil	: No data available
Harmfulness to ozone layer	: No data available
Others	
Other Environmental Toxicity:	
BOD: $2.3 \times 10^5$ mg/L	Measurement method JIS K 0102 21
COD: $3.0 \times 10^5$ mg/L	Measurement method JIS K 0102 21

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### 13. Disposal Considerations

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#### Residual Waste

Disposal should be in accordance with applicable laws and local regulations. The substance should be disposed of by waste disposal contractors licensed by the Governor or by local public entities if appropriate. Waste disposal contractor, if used, should be well informed of potential hazards and toxicity from the waste.

#### Contaminated Containers and Packages

Containers or should be properly disposed of in accordance with applicable laws and local regulations. If containers are disposed of, their contents should be completely removed.

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### 14. Transport Considerations

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United Nations Number	: Not applicable
Product Name	: Not applicable
United Nations Classification	: Not applicable
Container Class	: Not applicable
Marine Pollution Materials	: No data available
Special Safety Measures	: Not applicable
National Regulations:	
Land Regulatory Information	Follow the provisions of the Fire Service Act
Aeronautical Regulatory Information	Follow the provisions of the Civil Aeronautics Act
Maritime Regulatory Information	Follow the provisions of the Ship Safety Act

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## 15. Applicable Laws

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### Industrial Safety and Health Act

Dangerous or Harmful Substances Subject to be Indicated their Names, etc.

(Appended Table 9, Order Article 18 (1) & (2), Article 57-1 of the Act)

Ethylene glycol

Dangerous or Harmful Substances Subject to be Notified their Names, etc.

(Appended Table 9, Order Article 18-2 (1) & (2), Article 57-2 of the Act)

Ethylene glycol (Cabinet Order No. 75): 15-20%

### Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (PRTR Law)

Not applicable

Poisonous and Deleterious Substances Control Act : Not applicable

Fire Service Act : Not applicable as hazardous material

Civil Aeronautics Act : Not applicable

Ship Safety Act : Not applicable

### Water Pollution Control Act

Order Article 2 Fluorine compound & ammonia compound

### Sea Pollution Prevention Act

Harmful liquid substance Category Z substance

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## 16. Other Information

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This product should be used with the understanding that the use of any chemicals involves unknown potential hazards and toxicity. Hazards and toxicity depend on the environment of use and the storage conditions and period. We suggest that those with knowledge and experience be involved in all stages from use through storage and disposal.

The instructions provided in this document should apply when the product is handled normally. If the product is handled in a special way, proper safety precautions should be taken. Also, it should be used under the responsibility of the user.