

SAFETY DATA SHEET

According to JIS Z 7253:2019
Revision date 26-Mar-2024
 Revision Number 5.03

Section 1: PRODUCT AND COMPANY IDENTIFICATION

| | |
|---------------------|------------------------------------|
| Product Name | Trifluoromethanesulfonic Anhydride |
| Product Code | 203-09751,209-09753 |

| | |
|-----------------------------------|---|
| Supplier | FUJIFILM Wako Pure Chemical Corporation 1-2 Doshomachi 3-Chome, Chuo-ku, Osaka 540-8605, Japan Phone: +81-6-6203-3741 Fax: +81-6-6203-2029 |
| Emergency telephone number | +81-6-6203-3741 / +81-3-3270-8571 |
| Recommended uses | For research use only |
| Restrictions on use | Seek expert judgment when using for purposes other than those recommended. |

Section 2: HAZARDS IDENTIFICATION

GHS classification**Classification of the substance or mixture**

Corrosive to metals

Category 1

Acute toxicity - Oral

Category 4

Skin corrosion/irritation

Category 1

Serious eye damage/eye irritation

Category 1

Pictograms**Signal word**

Danger

Hazard statements

- H290 - May be corrosive to metals
- H314 - Causes severe skin burns and eye damage
- H318 - Causes serious eye damage
- H302 - Harmful if swallowed

Precautionary statements-(Prevention)

- Wash face, hands and any exposed skin thoroughly after handling
- Do not eat, drink or smoke when using this product
- Do not breathe dust/fume/gas/mist/vapors/spray
- Wear protective gloves/protective clothing/eye protection/face protection
- Keep only in original container

Precautionary statements-(Response)

- 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 or doctor/physician
- IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
- Wash contaminated clothing before reuse
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
- IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

- Rinse mouth
- Do NOT induce vomiting
- Absorb spillage to prevent material damage

Precautionary statements-(Storage)

- Store locked up
- Store in corrosive resistant/ container with a resistant inner liner

Precautionary statements-(Disposal)

- Dispose of contents/container to an approved waste disposal plant

Others

Other hazards Not available

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Single Substance or Mixture Substance

Formula CF₃SO₂OSO₂CF₃

| Chemical Name | Weight-% | Molecular weight | ENCS | ISHL No. | CAS RN |
|------------------------------------|----------|------------------|----------|------------|----------|
| Trifluoromethanesulfonic anhydride | 96.0 | 282.14 | (2)-3807 | 2-(13)-219 | 358-23-6 |

Note on ISHL No.: * in the table means announced chemical substances.

Section 4: FIRST AID MEASURES

Inhalation

Remove to fresh air. If symptoms persist, call a physician.

Skin contact

Wash off immediately with soap and plenty of water. If symptoms persist, call a physician.

Eye contact

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediate medical attention is required.

Ingestion

Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately. Do not induce vomiting without medical advice.

Protection of first-aiders

Use personal protective equipment as required.

Section 5: FIRE FIGHTING MEASURES

Suitable extinguishing media

Water spray (fog), Carbon dioxide (CO₂), Foam, Extinguishing powder, Sand

Unsuitable extinguishing media

No information available

Specific hazards arising from the chemical product

Thermal decomposition can lead to release of irritating and toxic gases and vapors.

Special extinguishing method

No information available

Special protective actions for fire-fighters

Use personal protective equipment as required. Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

For indoor, provide adequate ventilation process until the end of working. Deny unnecessary entry other than the people involved by, for example, using a rope. While working, wear appropriate protective equipments to avoid adhering it on skin, or inhaling the gas. Work from windward, and retract the people downwind.

Environmental precautions

To be careful not discharged to the environment without being properly handled waste water contaminated.

Methods and materials for contaminant and methods and materials for cleaning up

Absorb dry sand, earth, sawdust and the waste. Collect empty container that can be sealed.

Recovery, neutralization

No information available

Secondary disaster prevention measures

Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: HANDLING AND STORAGE

Handling**Technical measures**

Flammable. Avoid contact with high temperature objects, spark, and strong oxidizing agents. Avoid contact with metal. To cut with care and wear protective gloves and protective goggles to ampoule time of the opening (Cutting method to check the label). Use with local exhaust ventilation.

Precautions

Do not rough handling containers, such as upsetting, falling, giving a shock, and dragging. Prevent leakage, overflow, and scattering. Not to generate steam and dust in vain. Seal the container after use. After handling, wash hands and face, and then gargle. In places other than those specified, should not be smoking or eating and drinking. Should not be brought contaminated protective equipment and gloves to rest stops. Deny unnecessary entry of non-emergency personnel to the handling area.

Safety handling precautions

Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity)

Storage**Safe storage conditions****Storage conditions**

Keep container protect from light tightly closed. Store in a cool (2-10 °C) place.

Safe packaging material

Ampoule

Incompatible substances

Strong oxidizing agents, Metals

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls

In case of indoor workplace, seal the source or use a local exhaust system. Provide the safety shower facility, and hand- and eye-wash facility. And display their position clearly.

Exposure limits

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Personal protective equipment**Respiratory protection**

Protective mask

Hand protection

chemical protective gloves (JIS T 8116)

Eye protection

protective eyeglasses or chemical safety goggles (JIS T 8147)

Skin and body protection

Long-sleeved work clothes

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

If this product is classified as "Chemical Substances Hazardous to Skin, etc.", use appropriate protective equipment to them.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|--|
| Form | |
| Color | Colorless - slight yellow |
| Appearance | liquid |
| Odor | no data available |
| Melting point/freezing point | -80 °C |
| Boiling point, initial boiling point and boiling range | 84 °C |
| Flammability | no data available |
| Evaporation rate: | no data available |
| Flammability (solid, gas): | no data available |
| Upper/lower flammability or explosive limits | |
| Upper: | no data available |
| Lower: | no data available |
| Flash point | no data available |
| Auto-ignition temperature: | no data available |
| Decomposition temperature: | no data available |
| pH | no data available |
| Viscosity (coefficient of viscosity) | no data available |
| Dynamic viscosity | no data available |
| Solubilities | toluene , hexane and : Very soluble. water : gradually soluble . |
| n-Octanol/water partition coefficient:(log Pow) | no data available |
| Vapour pressure | no data available |
| Specific Gravity / Relative density | 1.677 |
| Vapour density | no data available |
| Particle characteristics | no data available |

Section 10: STABILITY AND REACTIVITY

Stability

| | |
|---|---|
| Reactivity | no data available |
| Chemical stability | May be altered by light. |
| Hazardous reactions | None under normal processing |
| Conditions to avoid | Extremes of temperature and direct sunlight, Heat, flames and sparks, static electricity, spark, Moisture |
| Incompatible materials | Strong oxidizing agents, Metals |
| Hazardous decomposition products | Carbon monoxide (CO), Carbon dioxide (CO ₂), Halides, Sulfur oxides (SO _x) |

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

| Chemical Name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|------------------------------------|-----------------|-------------|-----------------|
| Trifluoromethanesulfonic anhydride | 1012 mg/kg(Rat) | N/A | N/A |

| | |
|--|-------------------|
| Skin irritation/corrosion | no data available |
| Serious eye damage/ irritation | no data available |
| Respiratory or skin sensitization | no data available |
| Reproductive cell mutagenicity | no data available |
| Carcinogenicity | no data available |
| Reproductive toxicity | no data available |
| STOT-single exposure | no data available |
| STOT-repeated exposure | no data available |
| Aspiration hazard | no data available |

Section 12: ECOLOGICAL INFORMATION

| | |
|-------------------------------|--------------------------|
| Ecotoxicity | no data available |
| Other data | no data available |
| Persistence and degradability | No information available |
| Bioaccumulative potential | No information available |
| Mobility in soil | No information available |
| Hazard to the ozone layer | No information available |

Section 13: DISPOSAL CONSIDERATIONS

Waste from residues

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated container and contaminated packaging

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14: TRANSPORT INFORMATION

ADR/RID

| | |
|-------------------------|--|
| UN number | UN3265 |
| Proper shipping name: | Corrosive liquid, acidic, organic, n.o.s. (Trifluoromethanesulfonic anhydride) |
| UN classification | 8 |
| Subsidiary hazard class | |
| Packing group | II |
| Marine pollutant | Not applicable |

IMDG

| | |
|--|--|
| UN number | UN3265 |
| Proper shipping name: | Corrosive liquid, acidic, organic, n.o.s. (Trifluoromethanesulfonic anhydride) |
| UN classification | 8 |
| Subsidiary hazard class | |
| Packing group | II |
| Marine pollutant (Sea) | Not applicable |
| Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code | No information available |

IATA

| | |
|-------------------------------------|--|
| UN number | UN3265 |
| Proper shipping name: | Corrosive liquid, acidic, organic, n.o.s. (Trifluoromethanesulfonic anhydride) |
| UN classification | 8 |
| Subsidiary hazard class | |
| Packing group | II |
| Environmentally Hazardous Substance | Not applicable |

Section 15: REGULATORY INFORMATION

Japanese regulations

| | |
|--|----------------|
| Fire Service Act | Not applicable |
| Poisonous and Deleterious Substances Control Law | Not applicable |
| Industrial Safety and Health Act | Not applicable |
| Industrial Safety and Health Act (| |

| | |
|--|--|
| 2024-) | 【2024.4.1~】 Chemical Substances Hazardous to Skin, etc.(Regulations Article 594-2 Paragraph 1) |
| Regulations for the carriage and storage of dangerous goods in ship | Corrosive Substances (Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1) |
| Civil Aeronautics Law | Corrosive Substances (Ordinance Art.194, MITL Notification for Air Transportation of Explosives etc., Attached Table 1) |
| Pollutant Release and Transfer Register Law (2023.4.1-) | Not applicable |
| Export Trade Control Order | Not applicable |

Section 16: OTHER INFORMATION

Key literature references and sources for data etc.

NITE: National Institute of Technology and Evaluation (JAPAN)
<http://www.safe.nite.go.jp/japan/db.html>
 IATA dangerous Goods Regulations
 RTECS:Registry of Toxic Effects of Chemical Substances
 Japan Industrial Safety and Health Association GHS Model SDS
 Dictionary of Synthetic Organic Chemistry , SSOCJ, Koudansha Scientific Co.Ltd.
 Chemical Dictionary, Kyouritsu Publishing Co., Ltd.
 etc

Record of SDS revisions

The following contents were revised. Regulatory information.

Disclaimer

This SDS is according to JIS Z 7253: 2019. The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

GHS Classification is according to JIS Z 7252:2019. *JIS: Japanese Industrial Standards

End of Safety Data Sheet