

Safety Data Sheet

1. Product and Company Information

Product name : Mixed Cellulose Esters Membrane Filter (White)
Company : Toyo Roshi Kaisha, Ltd.
Head office : 1-18-10 Otowa, Bunkyo-ku, Tokyo, 112-0013 Japan
Section in charge : Quality Assurance Division
Phone : 81-(0)3-5981-0577
Fax : 81-(0)3-5981-0583
Emergency contact number : Same as above
Recommended application and product usage restrictions : Liquid microfiltration, sterilization
Microbiological and Particulate analysis
Reference No. : ME-7001J-25

2. Hazard Summary

GHS Classification

Physical hazard

Flammable solids : Category 1.

Human health hazard

Acute toxicity(Oral) : Not Classified.

Environmental hazard

Environmental hazard : Classification is not possible.

Label element

Pictograms or symbols :



Signal words

: Danger.

Hazard statements

: Flammable solids.

Precautionary statements

: Easy to burn and fast burning speed. The handling place shall be well-ventilated place, and fire is banned.
Keep away from materials that induce mixed explosion, such as oxidant, acid, base, and combustible agent.
Avoid ignition source for decomposition explosion, such as a blow, static electricity, shock, and heat.
Do not crush the membrane filters into powder as there is a possibility to explode when the dust mixes with air.
Take appropriate measure for prevention of static electricity (earth, electrically-conducting material, inert gas, antistatic work clothes, etc.)
Direct sunlight and damp air stimulate spontaneous ignition.
Keep in airtight container. Keep in a cool and dry room.
Ideal to replace air in the container with inert gas.
Avoid long-term storage and strictly follow the expiration date.
Wash hands thoroughly after handling.
Do not eat, drink or smoke when using this product.

3. Composition and Information on ingredients

Single substance/Mixtures	: Mixtures	
Chemical name or general name	: Membrane Filter	
Ingredients and content	: Cellulose nitrate	About 82 ~ 86% (Filter)
	Cellulose acetate	(Filter)
	Wetting agent	(Wetting agent)
Chemical formula or structural formula	: Cellulose nitrate	$[C_6H_7O_2(OH)_{3-X}(ONO_2)_X]_n$
	Cellulose acetate	$[C_6H_7O_2(OH)_{3-X}(CH_3COO)_X]_n$
Reference Number in Gazetted List in Japan		
Law Concerning the Evaluation of Chemical Substances and Regulation of Their		
Manufacture, etc.	: Cellulose nitrate	(8)-176
	Cellulose acetate	(8)-165
Japan's Industrial Safety and Health Law	: Cellulose nitrate	424
CAS No.	: Cellulose nitrate	9004-70-0
	Cellulose acetate	9004-35-7
UN Classification	: Class 4.1	UN packing group II
UN No.	: 3270 (NITROCELLULOSE MEMBRANE FILTERS, with not more than 12.6 % nitrogen, by dry mass)	

4. First Aid Measures

Eye contact	: Immediately wash thoroughly with clean running water. In case of abnormality, consult with a physician.
Skin contact	: Not applicable.
Inhalation	: Not applicable.
Ingestion	: Rinse mouth, but do not induce vomiting. Consult with a physician.

5. Fire Fighting Measures

Extinguishing procedure	: Do not extinguish a fire when the fire starts to explode. Evacuate the section. If a fire breaks out around the area, please transfer to a transportable container in a safe place. If the container is exposed to heat, please do not transfer it. If it is impossible to transfer the container sprinkle the container and surroundings with water to cool them down. After extinguishing, cool down the container with a plenty of water. When extinguishing fire, wear complete protective clothing (heat resistant) together with air respirator.(Cellulose nitrate)
Unacceptable extinguishing media	: No data available.
Extinguishing media	: A copious amount of water (spray), carbon dioxide, fire-extinguish powder, foam fire-extinguisher, sand, and soil, etc.

6. Accidental Release Measures

Personal precautions	: No data available.
Protective equipment and emergency procedures	: No data available.
Precautions for environment	: No data available.
Collection/neutralization	: No data.
Prepare fire extinguishing measure for prevention of fire breakout. Collect all materials while spraying mist water. In case of disposal, follow the instruction described under [Disposal Considerations].	

7. Handling and Storage

Follow corresponding regulations such as Industrial Safety and Health Law and Fire Defense Law.

- Handling : Persons under the age of 18 or mental and physical disabilities cannot handle the explosives properly. These who takes measure to prevent harm, do not handle explosives to those specified by Cabinet Order.
 Do not handle until all safety precautions have been read and understood.
 Prohibit the use of high temperature objects, sparks, and the fire in the surroundings areas.
 Avoid heat and shock.
 Avoid breathing mist and vapours.
 If a fire breaks out, the container might explode, and you will need to evacuate the section.
 Please do not lean the container on its side, drop it, apply shock or drag.
 Do not subject the container to a crush, big impact or dragging.
 Wash hands thoroughly after handling.
 Do not get in your eyes.
 Do not get in contact, inhale or swallow.
 Use only outdoors or in a well-ventilated area.
- Storage : Keep away from ignition sources like heat, sparks and flames.
 No smoking.
 Keep containers away from direct sunlight and fire.
 Keep container tightly closed and store in well-ventilated place.
 Keep it in accordance with the rules of the state or province.
 Avoid long-term storage and strictly follow the expiration date.
 If a total stored amount exceeds 10 kg, follow Fire Defense Law(hazardous).

8. Exposure controls / Personal protection

- Administrative concentration : No data.
 Acceptable concentration Japan Society for Occupational Health : _____
 ACGIH : _____
 Facility provision : _____
 Protective equipment : Use appropriate protective tools if necessary.

9. Physical and Chemical Properties

- Appearance (Physical property, shape, color, etc.) : White porous film
 Odour : None.
 pH : No data.
 Melting point /Freezing point : No data.
 Flash point : No data.
 Explosive limit Upper limit : No data.
 Lower limit : No data.
 Relative density : No data.
 Solubility : Insoluble in water (Wetting agent is soluble).
 Spontaneous ignition point : No data.
 Decomposition temperature : No data.
 Flammability (Solid, gas) : Yes.
 Other : Carbon monoxide and carbon dioxide are generated during storage.
 Generates nitrogen oxide during burning.
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10. Stability and Reactivity

Stability, Reactivity : Stable under normal handling.
 Possibility of hazardous reactions : Easily ignite by catching a fire.
 It may suddenly ignite or explode by coming in contact with oxidant, acid, base, or combustible agents.
 It may suddenly ignite or explode by a blow, static electricity, shock, or heat.
 Easy to oxidize under high temperature and high humidity environment, which induces higher possibility for spontaneous ignition.

Conditions to avoid : Fire, high temperature, high humidity, blow, electrostatic, shock, and/or heat.

Incompatible materials : Coming in contact with to oxidant, acid, base, and/or combustible agent.

Hazardous decomposition products : Nitrogen oxide
 Generates carbon monoxide and carbon dioxide during burning.

11. Toxicological Information

Acute toxicity (Oral) : Not Classified. (as mixtures)
 (as a single substance)
 Not Classified. ORL-RAT LD₅₀>5,000 mg/kg
 (Cellulose nitrate, Cellulose acetate)

(Skin absorption) : Classification is not possible due to lack of data.
 (Inhalation: gas) : Classification is not possible due to lack of data.
 (as mixtures)
 (as a single substance)
 Not applicable. (Cellulose nitrate)

(Inhalation: vapour): Classification is not possible due to lack of data.
 (Inhalation: dust, mist): Classification is not possible due to lack of data.

Skin corrosion/ Irritation : Classification is not possible due to lack of data.
 (as mixtures)
 (as a single substance)
 Classification is not possible due to lack of data. However there is a possibility of irritability when comes in contact with the skin. (Cellulose nitrate)

Serious eye damage and eye irritation : Not classified. (as mixtures)
 (as a single substance)
 Classification is not possible due to lack of data. However there is a possibility of irritability when comes in contact with eyes. (Cellulose nitrate)

Respiratory/ Skin sensitization : Classification is not possible due to lack of data.
 Germ cell mutagenicity : Classification is not possible due to lack of data.
 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 : Classification is not possible due to lack of data. (as mixtures)
 (as a single substance)
 Category 3 Respiratory tract irritation, risk of irritation to respiratory
 Possibility of irritable throat, vertigo, breathing difficulties and loss of consciousness in high densities.
 There are currently no concrete reports.(Cellulose nitrate)

Specific target organ toxicity - Repeated exposure : Classification is not possible due to lack of data.
Aspiration hazard : Classification is not possible due to lack of data.
Other : No data.

12. Ecological Information

Ecotoxicity
Hazardous to the aquatic environment (acute) : Classification is not possible due to lack of data.
Hazardous to the aquatic environment (chronic) : Classification is not possible due to lack of data.
Persistence and degradability : No data.
Bioaccumulative potential : No data.
Mobility in soil : No data.
Ozone layer hazard : Classification is not possible due to lack of data.
Others : Do not dispose or release to ocean or any other water area preventing environmental contamination and intake by marine and bird life.

13. Disposal Considerations

For safety purposes have water at a close distance while incinerating small amounts at a time.
(Cellulose nitrate)
Dispose in accordance with federal, state and local regulations.
Just like disposal of general industrial waste, ask for industrial waste disposer accepted by prefectural governors or for a local public agency for disposal.
When incinerating the material, use the specific incineration facility. Take appropriate procedure that satisfies Clean Air Act, Waste Disposal and Public Cleaning Law, and Clean Water Law. (We recommend disposing the material as industrial waste).

14. Transport Information

UN Recommendation on the Transport of Dangerous Goods and Model Regulations
Material name : NITROCELLULOSE MEMBRANE FILTERS, with not more than 12.6 % nitrogen, by dry mass
UN No. : 3270
Class : 4.1
UN packing group : II
Japanese regulations regarding transportation : Follow Fire Defense Law, Aviation Law, and Ships Safety Law

15. Regulatory Information

Japan
Industrial Safety and Health Law : Enforcement order separate table Article 1 Section 1, Hazardous and explosive material (1 Nitrocellulose)
Article 57 Cabinet order 18, "Hazardous substances that names are to be displayed" (Cabinet order 25-3 cellulose nitrate)
Article 57-2 Cabinet order 18-2, Appendix 9 "Hazardous substances that names are to be reported" (Cabinet order 424 cellulose nitrate)
Fire Defense Law : Article 9-4 (Standard for storage and handling of hazardous material with less than specified amount), Government ordinance regarding hazardous material regulations, Article 1-11, Attached table 3 and 5 (Class I self-reactive material, Fire Defense Law applicable for the material with 10 kg or more. If less than 10 kg, standards for storage and handling of the material are set by local authority.)(Cellulose nitrate)

Ships Safety Law : Regulations for the Carriage and Storage of Dangerous Goods in Ships
Articles 2 Division 4.1 flammable material (4.1 packing group II)
Port Regulations Law : Article 12 hazardous material (flammable materials)
Aviation Law : Article 194 hazardous material-flammable material (H-2)

Other countries

Ensure that this product complies with federal, state and local regulations.

16. Other information

Handling of written contents

Contents of this data sheet are based on materials, information, and data acquirable at this point and are subject to revision due to new knowledge.

In addition, contents such as contained amount, physical and chemical properties, and hazards identification are not subject of any guarantee. These precautions are applied only during standard handling. If the material is used in a special way, take appropriate safety measures that correspond to actual applications and usages.

Each user is responsible to take appropriate measures with due consideration of contents in this sheet.

Please note that this Material Safety Data Sheet is created according to Japanese law.

List of references

- Hazard communication of chemicals based on GHS - Labelling and Safety Data Sheet (SDS) (JIS Z 7253: 2012)
 - Bretherick's Handbook of Reactive Chemical Hazards (Translated by Masamitsu Tamura, Maruzen)
 - Relational Information System for Chemical Accidents Database (<http://riodb.ibase.aist.go.jp/riscad/>)
 - Katsumi Katoh et al. "Study on the spontaneous ignition of cellulose nitrate-the effect of the type of the storage atmosphere (II)," Science and Technology of Energetic Materials, 65, Page 77 through 81, (2004)
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