

Safety Data Sheet

1. Chemical product and company identification

Product name : Fumaric acid

Company information

Name of manufacturer : KANTO CHEMICAL CO., INC.
Address : 2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo, 103-0022, JP
Name of section : Business Administration Department, Reagent Division
Telephone number : +81-3-6214-1090
Facsimile number : +81-3-3241-1047
Mail address : BC32@kanto.co.jp
Reference No : 16069
Recommended use : For research use only
Restrictions on use : Seek expert judgment when using the product for applications other than those recommended.

2. Hazards identification

GHS classification

Health hazards	Serious eye damage/eye irritation	Category 2A
Environmental hazards	Aquatic acute	Category 3

Hazard pictograms



Signal word : Warning

Hazard statements : Causes serious eye irritation
Harmful to aquatic life

Precautionary statements

Prevention : Wash hands, forearms and face thoroughly after handling.
Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection/face protection.

Response : IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.

Disposal : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

3. Composition/information on ingredients

Distinction of substance or mixture : Substance

Synonyms : trans-1,2-Ethylenedicarboxylic acid



Chemical name	Concentration (%)	Formula	TSCA	EC-No.	CAS RN
Fumaric acid	≥ 99	C4H4O4	Listed	203-743-0	110-17-8

4. First aid measures

First aid measures

First-aid measures after inhalation	: Remove the victim to fresh air, and make him blow his nose and gargle.
First-aid measures after skin contact	: Wash the affected areas under running water.
First-aid measures after eye contact	: Wash the affected areas under running water for at least 15 minutes. If necessary, get medical treatment.
First-aid measures after ingestion	: Rinse mouth. Do not induce vomiting. Get medical attention immediately.
Personal Protection in First Aid and Measures	: Rescuers should wear proper protective equipment like rubber gloves, goggles.

5. Fire fighting measures

Suitable extinguishing media	: Water, dry chemical powder, carbon dioxide, dry sand, foam
Unsuitable extinguishing media	: None
Firefighting instructions	: Move containers from fire area if it can be done without risk, if not possible, apply water from a safe distance to cool and protect surrounding area. Fight fire from windward. Dry chemical powder, carbon dioxide or dry sand should be used for small fires. Foam extinguisher is effective for a large scale fire.
Personal protection (Emergency response)	: Firefighters should wear protective equipment.

6. Accidental release measures

Personal Precautions, Protective Equipment and Emergency Procedures

General measures	: Wear proper protective equipment and avoid contact with skin and inhalation of dust. Conduct operations from upwind and evacuate people downwind.
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Environmental precautions

Environmental precautions	: Attention should be given to avoid damage to the environment by flowing of spillage to rivers.
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Methods and Equipment for Containment and Cleaning up

For containment	: Sweep up in a chemical waste container. Flush contaminated area with copious amounts of water.
Prevention Measures for Secondary Accidents	: Remove nearby sources of ignition and prepare extinguishing media.

7. Handling and storage

Handling

Technical measures	: Wear appropriate protective equipment to avoid contact with skin
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or inhalation of dust.

Precautions for safe handling : Avoid formation of dust and aerosols.
Do not allow contact with oxidizing substances.

Storage

Storage conditions : Store in a dark, cool place and tightly closed.

Material used in packaging/containers : Glass, polyethylene, polypropylene.

8. Exposure controls / Personal protection equipment

ACGIH TWA	Not established
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Appropriate engineering controls : Install a local ventilation system in case of dusty condition.

Protective equipment

Respiratory protection : Dust mask

Hand protection : Impervious protective gloves

Eye protection : Safety goggles

Skin and body protection : Protective clothing, protective boots

9. Physical and chemical properties

Physical state : Solid

Color : White

Odor : Odorless

pH : No data available

Melting point : No data available

Freezing point : No data available

Boiling point : ≥ 200 ° C (sublimates)

Flash point : 273 ° C (O.C.)

Auto-ignition temperature : 375 ° C

Decomposition temperature : No data available

Flammability : Flammable solid

Vapor pressure : 0.02 Pa (25°C)

Relative density : No data available

Density : 1.635 g/cm³ (20°C)

Relative gas density : No data available

Solubility : Water: 0.63 g/100mL (25°C)
Organic solvent: Soluble in acetone, ethanol. Practically insoluble in chloroform, benzene.

Partition coefficient n-octanol/water (log Pow) : 0.33

Explosive limits (vol %) : No data available

Viscosity, kinematic : No data available

Particle characteristics : No data available

10. Stability and reactivity

Reactivity : May react with oxidizing substances.



Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: Stable under normal conditions of use.
Conditions to avoid	: Light, heat.
Incompatible materials	: Oxidizing substances.
Hazardous decomposition products	: Carbon monoxide.

11. Toxicological information

Acute toxicity (oral)	: No classification rat LD50=10700 mg/kg
Acute toxicity (dermal)	: No classification rabbit LD50>20000 mg/kg
Acute toxicity (inhalation)	: No classification (gas) Classification not possible (vapor) Classification not possible (dust, mist)
Skin corrosion/irritation	: No classification Since 12-hour exposure tests using rabbits found that the substance causes mild irritation, it was classified as "No classification".
Serious eye damage/irritation	: Causes serious eye irritation Based on a result of "severe effect" a rabbit test and an EU classification (R36), the substance was classified into category 2A. In a rabbit test (OECD TG405), effects were observed in the cornea, iris and conjunctiva (erythema and edema), and the irritation index was 42.8/110. This data also corresponds to category 2A.
Respiratory sensitization	: Classification not possible
Skin sensitization	: Classification not possible Guinea pig maximization tests found that the substance is not sensitizing, which indicates that the substance falls under the "Not classified" category. However, since these are List 2 studies, classification is not possible.
Germ cell mutagenicity	: Classification not possible Regarding in vitro tests, both Ames tests and chromosomal aberration tests yielded negative results. However, since no in vivo test results are available, classification is not possible.
Carcinogenicity	: Classification not possible In 2-year mixed diet administration tests using rats, no increase in incidences of tumorigenesis was noted. However, due to insufficient data available, classification is not possible.
Reproductive toxicity	: Classification not possible In reproduction toxicity tests using guinea pigs that underwent mixed diet administration, no adverse effects were noted on growth of the first generation animals and on fertility or lactation of the second generation animals. However, since sufficient test details are not provided, classification is not possible based on this study.
STOT-single exposure	: Classification not possible



STOT-repeated exposure	: Classification not possible In 2-year mixed diet administration tests using dogs, no abnormalities were noted in terms of blood biochemical examinations, organ weights, and histopathological examinations at the dose of 1250 mg/kg, which is higher than category 2 guidance values. In 1 to 2 year mixed diet administration tests using rats, no adverse effects were noted in histopathological examinations on bones, the liver, kidney, spleen, and stomach in 0.1-1% dose groups. In addition, 75 people received 500 mg of this substance daily for one year without any toxic symptoms or abnormalities in terms of red blood cells, white blood cells, proteins, creatinine level, liver functions, or kidney functions measured in blood biochemical examinations. These reports indicate that the substance falls under the "Not classified" category for oral route, however, no test results through other administration routes are available. Thus, classification is not possible due to insufficient data available.
Aspiration hazard	: Classification not possible

12. Ecological information

Ecotoxicity

Aquatic acute	: Harmful to aquatic life Raphidocelis subcapitata ErC50=34.7 mg/L/72h
Aquatic chronic	: No classification

Persistence and degradability

Readily biodegradable
BOD : 70%

Bioaccumulative potential

Low bioconcentration
log Pow : 0.33

Mobility in soil

No additional information available

Hazardous to the ozone layer

Ozone	: Classification not possible
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13. Disposal considerations

Ecological waste information	: Mixed with flammable organic solvents and burn in a chemical incinerator equipped with an afterburner and a scrubber. Or entrust approved waste disposal companies with the disposal.
Contaminated container and packaging	: In case of disposal of empty bottles, dispose bottles after removing the content thoroughly.

14. Transport information

International Regulations

Transport by sea (IMDG)

UN-No. (IMDG)	: Not applicable
Proper Shipping Name (IMDG)	: Not applicable
Packing group (IMDG)	: Not applicable



Transport hazard class(es) : Not applicable
(IMDG)

Air transport(IATA)

UN-No. (IATA) : Not applicable
Proper Shipping Name (IATA) : Not applicable
Packing group (IATA) : Not applicable
Transport hazard class(es) : Not applicable
(IATA)

Marine pollutant : Not applicable

15. Regulatory information

Regulatory information with regard to this substance in your country or region should be examined by your own responsibility.

16. Other information

Data sources : NITE Chemical Risk Information Platform (NITE-CHRIP), National
Institute of Technology and Evaluation.
ICSC Card (2009) .
ECHA (European Chemicals Agency).

The information contained herein is based on several references and the present state of our knowledge. However the SDS does not always cover all information about the product, handle the product carefully. The information is intended to ordinary usage, in case of particular handlings, conduct appropriate safety measurements. The information herein is only provision of information, and it does not represent a guarantee the properties of the product. The Safety Data Sheet(SDS) is prepared based on JIS Z7253.

