

Safety Data Sheet

Section 1. Identification of the substance/mixture and of the company/undertaking

Product identifier:

Product name: Maleic acid

Reference number(SDS):70095jis_J_E1-7

Product type:

Reagent

Recommended use of the chemical and restrictions on use

Recommended uses: Research and Development

Restrictions on uses: Do not use for other purposes.

Details of the supplier of the safety data sheet

Manufacturer/Supplier: JUNSEI CHEMICAL CO., LTD.

Address: 1-6, Ohmano-cho, Koshigaya-shi, Saitama 343-0844, Japan

Division: Quality Assurance Department

Telephone number: +81-48-986-6161

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Section 2. Hazards identification

Classification of the substance or mixture

HEALTH HAZARDS

Acute toxicity (Oral): Category 4

Acute toxicity (Dermal): Category 4

Skin corrosion/irritation: Category 2

Serious eye damage/eye irritation: Category 1

Skin sensitization: Category 1A

Specific target organ toxicity – single exposure: Category 1 (kidney)

ENVIRONMENT HAZARDS

Hazardous to the aquatic environment, short-term (acute): Category 3

(Note) GHS classification without description: Not classified/Classification not possible

Label elements

Hazard pictograms:



Signal word: Danger

Hazard statements

H302-Harmful if swallowed

H312-Harmful in contact with skin

H315-Causes skin irritation

H318-Causes serious eye damage

H317-May cause an allergic skin reaction

H370-Causes damage to organs

H402-Harmful to aquatic life

Precautionary statements**Prevention**

- Avoid release to the environment.
- Do not breathe dust/fume/gas/mist/vapors/spray.
- Wash hands thoroughly after handling.
- Wear protective gloves or protective clothing.
- Wear protective gloves.
- Contaminated work clothing should not be allowed out of the workplace.
- Wear protective gloves/eye protection/face protection.
- Wash hands thoroughly after handling. Do not touch eyes.
- Do not eat, drink or smoke when using this product.

Response

- In case of fire: Use water mist, foam, dry powder, CO2 to extinguish.
- Specific treatment.
- IF exposed or concerned: Get emergency medical help immediately.
- Get medical help.
- IF ON SKIN: Wash with plenty of water.
- If skin irritation or rash occurs: Get medical help.
- Take off contaminated clothing and wash it before reuse.
- IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Rinse mouth.
- IF SWALLOWED: Get medical help.

Storage

- Store locked up.

Disposal

- Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 3. Composition/information on ingredients**Substance/mixture:****Substance**

Ingredient name: Maleic acid
Content (%): 99.0 <
Chemical formula: C4H4O4
ENCS:2-1100
CAS No.:110-16-7
MW:116.07
EC No.:203-742-5

Note : The figures shown above are not the specifications of the product.

Section 4. First aid measures**Descriptions of first aid measures****General measures**

- Get medical help.
- IF exposed or concerned: Get emergency medical help immediately.
- Keep victim warm and quiet.
- Call emergency medical service.

Maleic acid, JUNSEI CHEMICAL CO., LTD., 70095jis_J_E1-7, 19/May/2026

Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

IF INHALED

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Give artificial respiration if victim is not breathing.

Administer oxygen if breathing is difficult.

IF INHALED: Get medical help.

IF ON SKIN

IF ON SKIN: Take off immediately all contaminated clothing. Immediately rinse with water for several minutes.

IF ON SKIN: Wash with plenty of water.

If skin irritation or rash occurs: Get medical help.

Remove and isolate contaminated clothing and shoes.

For minor skin contact, avoid spreading material on unaffected skin.

IF IN EYES

IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical help.

IF SWALLOWED

Rinse mouth.

If victim is conscious, give 1 – 2 glasses of water.

IF SWALLOWED: Get medical help.

Most important symptoms and effects, both acute and delayed

(Symptoms when inhalation or ingestion)

Cough. Laboured breathing. Burning sensation.

(Symptoms when skin and/or eye contact)

Redness. Pain. Blurred vision

Indication of any immediate medical attention and special treatment needed

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

In case of fire, use water mist, foam, dry powder, CO2 to extinguish.

Unsuitable extinguishing media

Unsuitable extinguishing media data is not available.

Specific hazards arising from the substance or mixture

Containers may explode when heated.

Fire may produce irritating, corrosive and/or toxic gases.

Runoff from fire control or dilution water may cause pollution.

Advice for firefighters

Special extinguishing method

Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters

Wear fire resistant or flame retardant clothing.

Wear protective gloves/protective clothing/eye protection/face protection.

Firefighters should wear self-contained breathing apparatus with a full facepiece operated in the positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unauthorized personnel away.

In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

Ventilate area until material pick up is complete.

Wear proper protective equipment.

PUBLIC SAFETY: Ventilate closed spaces before entering.

EVACUATION : Spill: See the Table of Initial Isolation and Protective Action Distances for highlighted substances. For non-highlighted substances, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

Environmental precautions

Avoid release to headsprings, rivers, lakes, ocean and groundwater.

Methods and materials for containment and cleaning up

Sweep spilled substance into covered containers.

If appropriate, moisten first to prevent dusting.

Preventive measures for secondary accident

Collect spillage.

Stop leak if you can do it without risk.

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).

Prevent entry into waterways, sewers, basements or confined areas.

Do not get water inside containers.

Reference to other sections

Refer to section 8

Refer to section 13

Section 7. Handling and storage

Engineering measures

(Measures to prevent operator exposure)

Do not breathe dust/fume/gas/mist/vapors/spray.

(Measures to prevent fire and explosion)

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

(Local ventilation/general ventilation)

Exhaust/ventilator should be available.

(Precautions)

Avoid contact with skin.

Avoid contact with eyes.

Advice on safe handling

Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

Use personal protective equipment as required.

When using do not eat, drink or smoke.

Avoidance of contact

See Section 10: Stability and Reactivity.

Advice on general occupational hygiene

- Do not get in eyes, on skin, or on clothing.
- Wash hands thoroughly after handling. Do not touch eyes.
- Do not eat, drink or smoke when using this product.
- Contaminated work clothing should not be allowed out of the workplace.
- Take off contaminated clothing and wash it before reuse.

Conditions for safe storage

- Keep container tightly closed. Keep cool.
- Store in accordance with local/regional/national/international regulations regulation.
- Protect from sunlight. Store in a well-ventilated place.

Incompatible substances

- Refer to Section 10. Stability and reactivity.

Container and packaging materials for safe handling data is not available.

Specific end use(s)

- See information in Section 7.1 and 7.2 for handling and storage recommendations. See Section 8 for exposure controls and personal protection recommendations.

Section 8. Exposure controls/personal protection**Permissible concentration****Occupational exposure limit values****JSOH**

- Not established

ACGIH

- Not established

Exposure controls**Appropriate engineering controls**

- Do not use in areas without adequate ventilation.
- Eye wash station should be available.
- Washing facilities should be available.

Individual protection measures, such as personal protective equipment**Respiratory protection**

- Select and wear respiratory protection in accordance with approved standards (e.g. JIS T8150).
- Recommended respiratory protection: Dust mask

Hand protection

- Wear protective gloves.
- Inspect before use and replace worn or damaged gloves.
- Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions.
- Chemical-resistant, impervious gloves complying with an approved standard (e.g. JIS T8116) should be used.

Eye/face protection

- Wear chemical safety goggle.
- Wear eye/face protection in accordance with approved standards (e.g. JIS T8147).

Skin and body protection

- Wear impervious clothing and boots in case of repeated or prolonged treatment.
- Personal protective equipment for the body and skin should be selected based on the task being performed and the risks involved.

Section 9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Crystals or crystalline powder

Color: Colorless ~ White

Odor: Faint acidic odour

Odor threshold data is not available.

Melting point/Freezing point: 131°C

Boiling point, initial boiling point, or boiling range data is not available.

Flammability data is not available.

Lower and upper explosion limit data is not available.

Flash point: 127°C

Auto-ignition temperature data is not available.

Decomposition temperature: 135°C

Self-Accelerating Decomposition Temperature/SADT data is not available.

pH: 1.3 (100g/L, 20°C)

Dynamic viscosity data is not available.

Kinematic viscosity data is not available.

Solubility:

Solubility in water: 78 g/100 mL (25°C)

Solubility in solvent: Freely soluble in alcohol; soluble in acetone.

Partition coefficient n-octanol/water (log value): -2.61

Vapor pressure: 0.0048Pa(25°C)

Vapor density data is not available.

Density and/or relative density: 1.59g/cm³(20°C)

Relative vapor density (Air=1): 4.0

Relative density of the Vapor/air - mixture at 20°C (Air = 1) data is not available.

Particle characteristics data is not available.

Other information

Critical temperature data is not available.

Evaporation rate data is not available.

VOC data is not available.

Section 10. Stability and Reactivity

Reactivity

Reactivity data is not available.

Chemical stability

Stable under normal storage/handling conditions.

Possibility of hazardous reactions

Decomposes on heating and on burning. This produces highly irritating fumes including maleic anhydride.

The aqueous solution of this product is a medium strong acid.

Conditions to avoid

Avoid direct sunlight, fire, flame, high temperature.

Contact with incompatible materials.

Incompatible materials

Strong bases. Strong oxidizing agents. Strong reducing agents.

Hazardous decomposition products

Section 11. Toxicological Information**Information on toxicological effects****Acute toxicity****Acute toxicity (Oral)****[Product]**

Category 4, Harmful if swallowed

[Data for components of the product]**[NITE-CHRIP]**

rat LD50: 708 mg/kg (source: NITE)

Acute toxicity (Dermal)**[Product]**

Category 4, Harmful in contact with skin

[Data for components of the product]**[NITE-CHRIP]**

rabbit LD50: 1560 mg/kg (source: NITE)

Acute toxicity (Inhalation)**[Product]**

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Skin corrosion/irritation**[Product]**

Category 2, Causes skin irritation

[Data for components of the product]**[NITE-CHRIP]**

Category 2 (source: NITE)

Serious eye damage/irritation**[Product]**

Category 1, Causes serious eye damage

[Data for components of the product]**[NITE-CHRIP]**

Category 1 (source: NITE)

Respiratory or skin sensitization**Respiratory sensitization****[Product]**

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Skin sensitization**[Product]**

Category 1A, May cause an allergic skin reaction

[Data for components of the product]**[NITE-CHRIP]**

Category 1A (source: NITE)

Germ cell mutagenicity**[Product]**

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Carcinogenicity**[Product]**

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Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Reproductive toxicity

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Specific target organ toxicity – single exposure

[Product]

Category 1, Causes damage to organs

[Data for components of the product]

[NITE-CHRIP]

Category 1 (kidney) (source: NITE)

Specific target organ toxicity – repeated exposure

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Aspiration hazard

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Section 12. Ecological Information

Ecotoxicity

Aquatic toxicity

[Product]

Category 3, Harmful to aquatic life

[Data for components of the product]

Hazardous to the aquatic environment, short-term (acute)

[NITE-CHRIP]

Fish (Trout, Bluegill) 96-hour LC50: 75 mg/L (source: NITE)

Water solubility

[Data for components of the product]

78 g/100 mL (25°C) (source: ICSC, 2019)

Persistence and degradability

[Data for components of the product]

Rapidly degradable (Degradation rate: 87% (by BOD)) (source: NITE)

Bioaccumulative potential

[Data for components of the product]

log Pow: -2.61 (source: NITE)

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

Section 13. Disposal considerations

Waste treatment methods

Waste from residues

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

Comply with relevant laws and regulations as well as local municipal standards.

Avoid release to the environment.

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

Contaminated packing

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

Comply with relevant laws and regulations as well as local municipal standards.

Dispose of container after using the contents completely.

Section 14. Transport Information

UNRTDG

UN number : UN3261

UN Proper Shipping Name : CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.

Transport hazard class(es) : 8

Packing group : III

Special provisions No.: 223; 274

IMDG Code (International Maritime Dangerous Goods Regulations)

UN number : UN3261

UN Proper Shipping Name : CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.

Transport hazard class(es) : 8

Packing group : III

Special provisions No.: 223; 274

IATA (Dangerous Goods Regulations)

UN number : UN3261

UN Proper Shipping Name : CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.

Transport hazard class(es) : 8

Hazard labels : Corrosive

Packing group : III

Special provisions No.: A3; A803

Environmental hazards

Marine pollutants (yes/no) : no

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Environmentally hazardous substance/mixture (yes/no) : no

Maritime transport in bulk according to IMO instruments

Not applicable to Transport in bulk according to Annex II of MARPOL and the IBC Code

ERG GUIDE No.: 154

Section 15. Regulatory Information

U.S. Toxic Substances Control Act (TSCA) Inventory

Chemicals listed in TSCA Inventory

110-16-7

All components are listed or exempted.

Other regulatory information

We are not able to check up the regulatory information with regard to the substances in your country or region, therefore, we request this matter would be filled by your responsibility.

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

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

Regulatory information in this section are limited to intentional ingredient(s), but does not contain information on non-intentional ingredients or impurities which are not informed by supplier(s).

Chemical safety assessment

Advice on safe handling for this product can be found in sections 7 and 8 of this SDS.

Section 16. Other information

GHS classification and labelling

H302-Acute toxicity, Category 4: H302 Harmful if swallowed

H312-Acute toxicity, Category 4: H312 Harmful in contact with skin

H315-Skin corrosion/irritation, Category 2: H315 Causes skin irritation

H318-Serious eye damage/eye irritation, Category 1: H318 Causes serious eye damage

H317-Skin sensitization, Category 1A: H317 May cause an allergic skin reaction

H370-Specific target organ toxicity – single exposure, Category 1: H370 Causes damage to organs

H402-Hazardous to the aquatic environment, short-term (acute), Category 3: H402 Harmful to aquatic life

References and sources for data

Globally Harmonized System of classification and labelling of chemicals, UN

Recommendations on the TRANSPORT OF DANGEROUS GOODS 23rd edit., 2023 UN

IMDG Code, 2024 Edition (Incorporating Amendment 42-24)

IATA Dangerous Goods Regulations (67th Edition) 2026

2024 EMERGENCY RESPONSE GUIDEBOOK (US DOT)

2026 TLVs and BEIs. (ACGIH)

JIS Z 7252 : 2025

JIS Z 7253 : 2025

Recommendation of occupational exposure limits (2024-2025) (JSOH)

Notification No. 0111-1 (January 11, 2022), Chemical Hazards Control Division, Industrial Safety and Health Department, Labour Standards Bureau, MHLW in Japan

Supplier's data/information

Maleic acid, JUNSEI CHEMICAL CO., LTD., 70095jis_J_E1-7, 19/May/2026

Chemicals safety data management system "GHS Assistant" Version 4.38

(<https://www.asahi-ghs.com/>)

NITE Chemical Risk Information Platform "NITE-CHIRIP"

(https://www.chem-info.nite.go.jp/en/chem/chrip/chrip_search/systemTop)

GHS Classification Guidance for Enterprises 2019 Revised Edition (Ver. 2.1) (May. 2024, METI)

Abbreviations and acronyms

ACGIH – American Conference of Governmental Industrial Hygienists;

anh – anhydride;

ATE – Acute Toxicity Estimate;

BCF – Bioconcentration Factor;

BOD – Biochemical Oxygen Demand;

Cat. – Category;

Ceiling-C – Ceiling value;

COD – Chemical Oxygen Demand;

CSCL – Chemical Substances Control Law in Japan;

DSEN – Dermal Sensitization;

EC No. – The European Community number;

EC50 – Effective Concentration 50;

ENCS – Existing and New Chemical Substances Inventory under CSCL

EPA – US Environmental Protection Agency;

EU – European Union;

GHS – Globally Harmonized System of Classification and Labelling of Chemicals;

IARC – International Agency for Research on Cancer;

IATA – International Air Transport Association;

IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk;

IMDG Code – International Maritime Dangerous Goods Code;

ISHA – Industrial Safety and Health Act in Japan;

JSOH – Japan Society for Occupational Health;

LC50 – Lethal Concentration 50;

LD50 – Lethal Dose 50;

logPow – n-Octanol/water Partition Coefficient;

MARPOL – International Convention for the Prevention of Pollution from Ships;

METI – Ministry of Economy, Trade and Industry in Japan;

MHLW – Ministry of Health, Labour and Welfare in Japan;

MOE – Ministry of the Environment in Japan

NOEC – No Observed Effect Concentration;

NTP – US National Toxicology Program;

REACH – Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No.1907/2006;

RSEN – Respiratory Sensitization;

Skin – Danger of cutaneous absorption;

STEL – Short-term Exposure Limit;

STOT – Specific target organ toxicity;

SVHC – Substance of Very High Concern under REACH;

TWA – time-weighted average;

UN – United Nations;

UNRTDG – United Nations Recommendations on the Transport of Dangerous Goods;

General Disclaimer

Maleic acid, JUNSEI CHEMICAL CO., LTD., 70095jis_J_E1-7, 19/May/2026

The information relates to this specific material. It may not be valid for this material, if used in combination with any other materials or in any process. It is the user's responsibility to satisfy him-selves as to the suitability and completeness of this information for his own particular use.

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.

The GHS classification data given here is based on current Data published in Japan (National Institute of Technology and Evaluation (NITE) Chemical Risk Information Platform (NITE-CHRIP), up to FY2024).