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Safety Data Sheet

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

Product identifier:

Product name: Sulfuric acid

Reference number(SDS):83010jis_E-6

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

FAX: +81-48-989-2787

e-mail address: shiyaku-t@junsei.co.jp

Section 2. Hazards identification

Classification of the substance or mixture

PHYSICAL AND CHEMICAL HAZARDS

Corrosive to metals: Category 1

HEALTH HAZARDS

Acute toxicity (Inhalation): Category 2

Skin corrosion/irritation: Category 1

Serious eye damage/eye irritation: Category 1

Specific target organ toxicity - single exposure: Category 1 (respiratory organs)

Specific target organ toxicity - repeated exposure: Category 1 (respiratory organs)

ENVIRONMENT HAZARDS

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

Hazardous to the aquatic environment, long-term (chronic): Category 1

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

Label elements

Hazard pictograms:

Signal word: Danger

Hazard statements

H290-May be corrosive to metals

H330-Fatal if inhaled

H314-Causes severe skin burns and eye damage

H318-Causes serious eye damage

H370-Causes damage to organs

H372-Causes damage to organs through prolonged or repeated exposure
H402-Harmful to aquatic life
H410-Very toxic to aquatic life with long lasting effects

Precautionary statements

Prevention

Avoid release to the environment.
Keep only in original packaging.
Do not breathe dust/ mist.
In case of inadequate ventilation wear respiratory protection.
Use only outdoors or in a well-ventilated area.
Wash hands thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.
Wash hands thoroughly after handling. Do not touch eyes.
Do not eat, drink or smoke when using this product.

Response

Absorb spillage to prevent material-damage.
Collect spillage.
Specific treatment is urgent.
Specific treatment.
IF exposed or concerned: Get emergency medical help immediately.
Get emergency medical help immediately.
Get medical help.
Get medical help if you feel unwell.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF ON SKIN: Take off immediately all contaminated clothing. Immediately rinse with water for several minutes.
Wash contaminated clothing before reuse.
IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Storage

Store in a well-ventilated place. Keep container tightly closed.
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:Sulfuric acid

Content For Precision Analysis, For Hazardous Metals(%):96.0

Guaranteed Reagent, Extra Pure, For the Electronics Industry(%):95.0

Chemical formula:H2O4S

ENCS:1-430

CAS No.:7664-93-9

MW:98.08

EC No.:231-639-5

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

Section 4. First aid measures

Descriptions of first aid measures

General measures

IF exposed or concerned: Get emergency medical help immediately.

Keep victim warm and quiet.

Call emergency medical service.

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

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.

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.

Get emergency medical help immediately.

IF ON SKIN

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

Get emergency medical help immediately.

If skin irritation or rash occurs: Get medical help.

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

Removal of solidified molten material from skin requires medical assistance.

Remove and isolate contaminated clothing and shoes.

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

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

IF SWALLOWED: Get medical help.

Give nothing to drink.

Most important symptoms and effects, both acute and delayed

(Symptoms when inhalation or ingestion)

Cough. Sore throat. Burning sensation. Shortness of breath. Laboured breathing.

Burns in mouth and throat.　Abdominal pain. Vomiting. Shock or collapse.

(Symptoms when skin and/or eye contact)

Redness. Pain. Blisters. Serious burns.

Protection of first aiders

Protect yourself by wearing rubber gloves and air-tight safety goggles.

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.

The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential.

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use appropriate extinguishing media suitable for surrounding facilities.

The product is non-flammable.

Unsuitable extinguishing media

Never use water.

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.

In case of fire: keep drums, etc., cool by spraying with water. NO direct contact with water.

Move containers from fire area if you can do it without risk.

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

Collect leaking liquid in sealable containers.
Cover with DRY earth, DRY sand, or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain.
Do NOT absorb in saw-dust or other combustible absorbents.
Cautiously neutralize remainder with lime or soda ash.

Preventive measures for secondary accident

Absorb spillage to prevent material-damage.
Collect spillage.
Stop leak if you can do it without risk.
Keep combustibles (wood, paper, oil, etc.) away from spilled material.
Keep out of low areas.

Reference to other sections

Refer to section 8
Refer to section 13

Section 7. Handling and storage

Handling

Engineering measures

(Measures to prevent operator exposure)

Do not breathe dust/ mist.

(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

Use only outdoors or in a well-ventilated area.
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.
Reaction with water may generate much heat which will increase the concentration of fumes in the air.
NEVER pour water into this substance; when dissolving or diluting always add it slowly to the water.

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.
Wash contaminated clothing before reuse.

Storage

Conditions for safe storage

Keep container tightly closed. Keep cool.

Store in accordance with local/regional/national/international regulations.
Store locked up.
Protect from sunlight. Store in a well-ventilated place.

(Incompatible storage condition)

The product may corrode metal. Do not keep in a metal container.

Incompatible substances

Refer to Section 10. Stability and reactivity.

Safe packaging material

Keep only in original packaging.
Store in a corrosion resistant container with a resistant inner liner.

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

(Ceiling) 1mg/m3

ACGIH

TWA: 0.2mg/m3(T) (Pulm func)

Appropriate engineering controls

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

Personal protective equipment

Respiratory protection

Select and wear respiratory protection in accordance with approved standards (e.g. JIS T8150).
Recommended respiratory protection：Self-Contained Breathing Apparatus (SCBA)

Hand protection

Wear protective gloves. Recommended material(s): viton
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: Oily liquid
Color: Colorless
Odor: Odorless
Odor threshold data is not available.
Melting point/Freezing point: 10℃
Boiling point or initial boiling point and boiling range: 337℃
Flammability: Non-flammable
Lower and upper explosion limit data is not available.
Flash point: Non-flammable
Auto-ignition temperature data is not available.
Decomposition temperature: 340℃
Self-Accelerating Decomposition Temperature/SADT data is not available.
pH: <= 1(Strong acidic)
Dynamic viscosity: ca. 24mPa･s(20℃)
Kinematic viscosity: ca. 13mm2/s(20℃)
Solubility:
Solubility in water: Miscible
Solubility in solvent: Miscible with alcohol.
Partition coefficient n-octanol/water data is not available.
Vapor pressure: < 10 Pa (20℃)
Vapor density data is not available.
Density and/or relative density: 1.84g/cm3(20℃)
Relative vapor density (Air=1): 3.4
Relative density of the Vapor/air - mixture at 20℃ (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

React with water.

Chemical stability

Stable under normal storage/handling conditions.
Hygroscopic.

Possibility of hazardous reactions

Decomposes on heating. This produces toxic and corrosive gases.
The substance is a strong oxidant. It reacts with combustible and reducing materials and organic materials. This generates fire and explosion hazard.
The substance is a strong acid. It reacts violently with bases and is corrosive to most common metals forming a flammable/explosive gas.
Reacts violently with water. This generates heat and fire or explosion hazard.
Attacks many plastics.

Conditions to avoid

Avoid direct sunlight, fire, flame, high temperature.

Contact with incompatible materials.

Incompatible materials

Bases. Reducing agents. Metals. Organic materials. Water. Combustible substances.

Hazardous decomposition products

Sulfur oxides. Hydrogen gas.

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[Product]

Based on available data, the classification criteria are not met.

[Data for components of the product]

[NITE-CHRIP]

rat LD50: 2140 mg/kg (source: NITE)

Acute toxicity (Dermal)

[Product]

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

[Data for components of the product]

No data available.

Acute toxicity (Inhalation)

[Product]

Category 2, Fatal if inhaled

[Data for components of the product]

[NITE-CHRIP]

mist: rat LC50: 0.375 mg/L (4-hour) (OECD TG 403) (source: NITE)

Skin corrosion/irritation

[Product]

Category 1, Causes severe skin burns and eye damage

[Data for components of the product]

[NITE-CHRIP]

Category 1 (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]
Based on available data, the classification criteria are not met.
[Data for components of the product]
[NITE-CHRIP]
Not classified (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]
Classification not possible (Insufficient data available or no data available).
[Data for components of the product]
[IARC]
Group 1 : Carcinogenic to humans
[ACGIH]
A2: Suspected Human Carcinogen
[NTP]
Known : Known to be Human Carcinogens

Reproductive toxicity
[Product]
Based on available data, the classification criteria are not met.
[Data for components of the product]
[NITE-CHRIP]
Not classified (source: NITE)

Specific target organ toxicity - single exposure
[Product]
Category 1, Causes damage to organs
[Data for components of the product]
[NITE-CHRIP]
Category 1 (respiratory organs) (source: NITE)

Specific target organ toxicity - repeated exposure
[Product]
Category 1, Causes damage to organs through prolonged or repeated exposure
[Data for components of the product]
[NITE-CHRIP]
Category 1 (respiratory organs) (source: NITE)

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

Category 1, Very toxic to aquatic life with long lasting effects

[Data for components of the product]

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

[NITE-CHRIP]

Fish (Lepomis macrochirus) 96-hour LC50: 16 - 28 mg/L (pH: 3.25 - 3.5) (source: NITE)

Crustacea (Daphnia magna) 24-hour LC50: 29 mg/L (source: NITE)

Hazardous to the aquatic environment, long-term (chronic)

[NITE-CHRIP]

Fish (Jordanella floridae) 45-day NOEC (growth): 0.025 mg/L (pH: 6.0) (source: NITE)

Water solubility

[Data for components of the product]

miscible (20℃) (source: ICSC, 2016)

Persistence and degradability

Persistence and degradability data is not available.

Bioaccumulative potential

Bioaccumulative potential data is not available.

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 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 : UN1830

UN Proper Shipping Name : SULPHURIC ACID with more than 51% acid

Transport hazard class(es) :8

Packing group :II

IMDG Code (International Maritime Dangerous Goods Regulations)

UN number : UN1830
UN Proper Shipping Name : SULPHURIC ACID with more than 51% acid
Transport hazard class(es) : 8
Packing group : II

IATA (Dangerous Goods Regulations)
UN number : UN1830
UN Proper Shipping Name : SULPHURIC ACID with more than 51% acid
Transport hazard class(es) : 8
Hazard labels : Corrosive
Packing group : II

Marine pollutants (yes/no) : yes

Maritime transport in bulk according to IMO instruments

MARPOL Annex II - Noxious Liquid Substances
Noxious Liquid Substances ; Cat. Y
Sulfuric acid

MARPOL Annex V - HME (Harmful to the Marine Environment)
Specific target organ toxicity - repeated exposure: cat.1
Sulfuric acid
Hazardous to the aquatic environment - long-term (chronic): cat.1, 2
Sulfuric acid

ERG GUIDE No.: 137

Section 15. Regulatory Information

Applicable laws and regulations

Labor Standards Act, Japan

Chemical substances or compounds (including alloys) causing disease (item (iv)-1 of Appended Table 1-2 of Regulation)
Sulfuric acid

U.S. Toxic Substances Control Act (TSCA) Inventory
Chemicals listed in TSCA Inventory
7664-93-9
All components are listed or exempted.

Superfund Amendments and Reauthorizations Act (SARA), Title III
SARA 313 (TRI)
Sulfuric acid

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

H290-Corrosive to metals, Category 1: H290 May be corrosive to metals
H330-Acute toxicity, Category 2: H330 Fatal if inhaled
H314-Skin corrosion/irritation, Category 1: H314 Causes severe skin burns and eye damage
H318-Serious eye damage/eye irritation, Category 1: H318 Causes serious eye damage
H370-Specific target organ toxicity - single exposure, Category 1: H370 Causes damage to organs
H372-Specific target organ toxicity - Repeated exposure, Category 1: H372 Causes damage to organs through prolonged or repeated exposure
H402-Hazardous to the aquatic environment, short-term (acute), Category 3: H402 Harmful to aquatic life
H410-Hazardous to the aquatic environment, long-term (chronic), Category 1: H410 Very toxic to aquatic life with long lasting effects

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
Chemicals safety data management system "GHS Assistant" Version 4.39 (https://www.asahi-ghs.com/)
European Chemicals Agency ECHA CHEM Database (https://em.echa.europa.eu/)
National Institute of Technology and Evaluation NITE-CHRIP (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

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).