

GPS Safety Summary

This Product Safety Summary is intended to provide a brief overview of the information on the risk assessment results of the chemical product that we manufacture based on the chemical industry's Global Product Strategy (GPS) to the general public as a social responsibility of a company that manufacture chemical substances.

This summary is not intended to provide technical information including effects on human health and the environment and details of risk assessment. In addition, it is not intended to be prepared as a document to replace a Safety Data Sheet (SDS) or a risk assessment report like a Chemical Safety Report under the REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) (REACH CSR). Although the summary is prepared based on the laws, materials, information and data that are available at the present moment, it does not provide any assurances.

SUBSTANCE NAME

Sulfuric acid (Sulfuric acid, CAS No. 7664-93-9)

GENERAL STATEMENT

Sulfuric acid is a colorless liquid with odorless and a strong acid. Sulfuric acid is used as raw materials for chemical industry.

Sulfuric acid causes fatal if inhaled, causes severe skin burns and eye damage, causes serious eye damage, causes damage to organs (respiratory system) and causes damage to organs (respiratory system) through prolonged or repeated exposure.

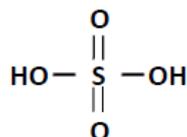
Though sulfuric acid is harmful to aquatic life, Sulfuric acid is disassociated in water and low bioaccumulative.

It is recommended to wear appropriate protective masks, gloves when sampling for manufacturing. To minimize the adverse effects of sulfuric acid on environmental organisms and control its release into the environment, the sewage equipment should be monitored regularly and the sewage treatment facility should be maintained and inspected in the factory.

CHEMICAL IDENTITY

Item	Contents
Generic name	Sulfuric acid
Trade name	Concentrated sulfuric acid
Chemical name	Sulfuric acid (IUPAC name: Sulfuric acid)
CAS No.	7664-93-9
Other numbers	Reference No. listed in the official gazettes (Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., Industrial Safety and Health Act) (1)-430 EC No. 231-639-5
Molecular formula	H ₂ O ₄ S

Structural formula



Other information

None in particular

USES AND APPLICATIONS

Intended uses of our product Raw materials for chemical industry

PHYSICAL/CHEMICAL PROPERTIES

Appearance (physical state)	Liquid
Color	Colorless
Odor	Odorless
Specific gravity (relative density)	(15 °C /4 °C): 1.833(92.94%), 1.839(95.00%), 1.841(96.38%), 1.841(98.20%)
Melting point	-32.0°C(93.10%), -16.5°C(95.05%), 3.0°C(98.00%)
/boiling point	/279°C(93.19%), 297°C(95.00%), 327°C(98.00%)
Combustibility/flammability	Incombustibility
Flash point	Incombustibility
Limit of combustion or explosion	Incombustibility
Auto ignition temperature	Incombustibility
Vapor pressure	76 Pa(90%, 80°C), 5.3 Pa(95%, 80°C)
Molecular weight	98.079
Water solubility	Miscible
Octanol-water partition coefficient	LogKow : -2.20 (estimate value)

HEALTH EFFECTS

Effect assessment	Results (GHS ^{*1} hazard classification)
Acute toxicity (oral ingestion)	Not classified ^{*2}
Acute toxicity (inhalation)	Not applicable ^{*3} (gas) Not applicable (vapor) Fatal if inhaled (dust/mist) (Category 2)
Acute toxicity (dermal)	Classification not possible ^{*4} (no toxicity report)
Skin corrosion/irritation	Causes severe skin burns and eye damage (Category 1A-1C)
Serious eye damage/eye irritation	Causes serious eye damage (Category 1)
Respiratory sensitization	Classification not possible (no toxicity report)
Skin sensitization	Not classified
Germ cell mutagenicity	Classification not possible (no toxicity report)
Carcinogenicity	Classification not possible (no toxicity report)
Reproductive toxicity	Not classified
Specific target organ toxicity (Single exposure)	Causes damage to organs (respiratory system) (Category 1)
Specific target organ toxicity (Repeated exposure)	Causes damage to organs (respiratory system) through prolonged or repeated exposure (Category 1)

Aspiration hazard
Source/remarks

Classification not possible (no toxicity report)

^{*1} GHS: Globally Harmonized System of Classification and Labelling of Chemicals. This system enables us to classify chemicals by hazard type and degree according to globally harmonized rules.

^{*2} Not classified: Hazardousness much lower than the lowest hazard class specified by GHS

^{*3} Not applicable: Because the physical properties defined by GHS are not met, the chemical is not included in the target chemicals of the classification.

^{*4} Classification not possible: The data needed for judging classification are not available at all or sufficient data are not collected for classification.

ENVIRONMENTAL EFFECTS

Effect assessment	Results (GHS hazard classification)
Hazardous to the aquatic environment (acute)	Harmful to aquatic life (Category 3)
Hazardous to the aquatic environment (chronic)	Not classified
Environmental fate/dynamics	Results
Transfer in the environment	No information
Biodegradability	Sulfuric acid is immediately disassociated in water
Bioaccumulation	Low bioaccumulative potential
Conclusion of PBT/vPvB	Not judged to be PBT [*] and vPvB ^{**} . [*] PBT: Persistent, bioaccumulative and toxic (Remaining in the environment and having high bioaccumulative and strong toxic properties) ^{**} vPvB: very Persistent and very Bioaccumulative (Readily remaining in the environment and having very high bioaccumulative property)

EXPOSURE

Details	No.	Potential exposure in the process of use of our products (exposure route)
Occupational Exposure	1-1	During operations in closed, continuous process with controlled exposure, and synthesis or formulation in closed batch process, workers may be exposed to substances by skin contact or inhalation, e.g. through maintenance, sampling and equipment breakages. During transfer of substances or preparations from/to vessels or large containers in dedicated facilities, workers may be exposed to substances by skin contact or inhalation.
Consumer exposure	2-1	This material is not used by consumers and therefore the potential for consumer exposure is extremely low.
Environmental exposure	3-1	May be released primarily into the air and water environment from manufacturing processes of substances in industries. Used in industry as reactive processing aids and may be released primarily into the water environment. Used as intermediates for the manufacture of other substances, and may be released primarily into the air and water environment.
Note		If there is a potential for exposure in other uses, take appropriate measures in reference to the risk management recommends.

RISK MANAGEMENT RECOMMENDATIONS

Details	No.	Management recommendations based on our risk assessment results
Occupational Exposure	1-1	Wear appropriate protective masks, clothing and gloves made of materials that Sulfuric acid does not penetrate during sampling operation. While handling sulfuric acid, manage and control its environmental concentration so that it is lower than the threshold limit value 0.2 mg/m ³ (TWA – time weighted average value) recommended by ACGIH and 1 mg/m ³ (MAC - maximum allowable concentration) recommended by Japanese Society of Occupational Health. The operation manager instructs workers how to select and use the appropriate protective equipment and how to manage the work place.
Consumer exposure	2-1	None
Environmental exposure	3-1	Sulfuric acid may affect environment if leaked. Take measures to prevent leakage, and take due care in daily management and handling.
Other warnings		None
Note		For the measures and actions to be taken for regular handling, emergency situations, disposal and transportation, see Section 4, 5, 6, 7, 8, 13 and 14, SDS issued by Mitsubishi Chemical Corporation.

STATE AGENCY REVIEW

Assessment document	Review condition
IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Volume 100F, 2012.	http://monographs.iarc.fr/ENG/Monographs/vol100F/index.php
ICSC (International Chemical Safety Card)	http://www.inchem.org/documents/icsc/icsc/eics0362.htm
OECD SIDS "Sulfuric acid", CAS no. 7664-93-9.	http://webnet.oecd.org/HPV/UI/handler.axd?id=248f397d-64b3-4e14-8be9-473974e8dfdb
Contains: SIDS Initial Assessment Report for 11th SIAM (Orlando, Florida, January 2001); SIDS Initial Assessment Profile; and IUCLID Data Set.	http://www.inchem.org/documents/sids/sids/7664939.pdf

REGULATORY INFORMATION / LABELLING INFORMATION

Main regulatory information

Law	Regulatory condition
UN class	8
UN No.	1830
Industrial Safety and Health Act	Article 57-2 Paragraph 2 Substance Requiring notification Article 326 of Ordinance on industrial Safety and Health, corrosive liquids Ordinance on Prevention of Hazards due to Specified Chemical

Air Pollution Control Act Ship Safety Act Act for the Prevention of Marine Pollution and Maritime Disasters Poisonous and Deleterious Substances Control Act	Substances Class 3 Specified Substance Hazardous Substance List, Separate Table 1 corrosive liquids Noxious liquid substances (Category Y) Deleterious Substances
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Labelling information

Pictograms or symbols



Signal Word

Hazard statement

Danger

- Fatal if inhaled
- Causes severe skin burns and eye damage
- Causes serious eye damage
- Causes damage to organs (respiratory system)
- Causes damage to organs (respiratory system) through prolonged or repeated exposure
- Harmful to aquatic life

CONTACT INFORMATION WITHIN COMPANY

Company Address Department/person in charge TEL/FAX	Mitsubishi Chemical Corporation 1-1 Marunouchi 1-chome, Chiyoda-ku, Tokyo Carbon Division +82-3-6748-7154, +82-3-3286-1213
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DATE OF ISSUE / REVISION, ADDITIONAL INFORMATION

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