



## Safety Data Sheet

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

#### Product identifier:

Product name: Titanium(IV)sulfate solution

SDS No. : E8209E-2

#### Details of the supplier of the safety data sheet

Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.

Address: 3-1, Honmachibashi, Chuo-ku,Osaka ,JAPAN

Division: Safety Management Dept. of Chemicals

Telephone number: +81-6-6946-8061

FAX: +81-6-6946-1607

e-mail address: kagakuhinanzenkanri@kishida.co.jp

### 2. Hazards identification

#### GHS classification and label elements of the product

#### Classification of the substance or mixture

##### HEALTH HAZARDS

Acute toxicity (Inhalation): Category 4

Skin corrosion/irritation: Category 2

Serious eye damage/eye irritation: Category 1

Specific target organ toxicity – single exposure: Category 2(respiratory system)

Specific target organ toxicity – repeated exposure: Category 2(respiratory system)

##### ENVIRONMENT HAZARDS

Hazardous to the aquatic environment (Long-term): Category 2

#### Label elements



Signal word: Danger

#### HAZARD STATEMENT

Harmful if inhaled

Causes skin irritation

Causes serious eye damage

May cause damage to organs(respiratory system)

May cause damage to organs through prolonged or repeated exposure(respiratory system)

Toxic to aquatic life with long lasting effects

#### PRECAUTIONARY STATEMENT

##### Prevention

Avoid release to the environment.

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

Use only outdoors or in a well-ventilated area.

Wash contaminated parts thoroughly after handling.

Wear protective gloves.

Wear eye protection/face protection.

Do not eat, drink or smoke when using this product.

##### Response

Collect spillage.

Get medical advice/attention if you feel unwell.



Call a POISON CENTER/doctor/physician if you feel unwell.  
IF exposed or concerned: Call a POISON CENTER/doctor/physician.  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
IF ON SKIN: Wash with plenty of soap and water.  
If skin irritation occurs: Get medical advice/attention.  
Take off contaminated clothing and wash it before reuse.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**Disposal**

Dispose of contents/container in accordance with local/national regulation.

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**3. Composition/information on ingredients****Mixture/Substance selection:****Mixture**

Ingredient name: Titanium(IV) sulfate

Content (%): 4.7

Chemical formula: O<sub>8</sub>S<sub>2</sub>Ti

CAS No.: 13693-11-3

ECNO: 237-215-6

Ingredient name: Sulfuric acid

Content (%): 3.5

Chemical formula: H<sub>2</sub>O<sub>4</sub>S

Chemicals No, Japan: 1-430

CAS No.: 7664-93-9

MW: 98.1

ECNO: 231-639-5

Ingredient name: Water

Content (%): 92

Chemical formula: H<sub>2</sub>O

CAS No.: 7732-18-5

MW: 18.02

ECNO: 231-791-2

Note : The figures shown above are not the specifications of the product. The content of products may exceed the figures shown above.

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

Get medical advice/attention if you feel unwell.

**IF INHALED**

Remove person to fresh air and keep comfortable for breathing.

Call a POISON CENTER/doctor/physician if you feel unwell.

**IF ON SKIN (or hair)**

Take off immediately all contaminated clothing. Rinse skin with water or shower.

Wash with plenty of soap and water.

If skin irritation or rash occurs: Get medical advice/attention.

**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.

**IF SWALLOWED**

Rinse mouth.

Call a POISON CENTER/doctor/physician if you feel unwell.

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**5. Fire-fighting measures****Extinguishing media****Suitable extinguishing media**

Use appropriate extinguishing media suitable for surrounding facilities.

**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.

**Advice for firefighters****Specific fire-fighting measures**

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 full face piece operated positive pressure mode.

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**6. Accidental release measures****Personnel precautions, protective equipment and emergency procedures**

Ventilate area until material pick up is complete.

Wear proper protective equipment.

**Environmental precautions**

Prevent spills from entering sewers, watercourses or low areas.

**Methods and materials for containment and cleaning up**

Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.

**Preventive measures for secondary accident**

Collect spillage.

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**7. Handling and storage****Precautions for safe handling****Preventive measures**

(Exposure Control for handling personnel)

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

(Protective measures against fire and explosion)

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

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with skin.

Avoid contact with eyes.

**Safety Measures**

Use only outdoors or in a well-ventilated area.

Wear protective gloves, protective clothing or face protection.

Wear eye protection/face protection.



When using do not eat, drink or smoke.

Any incompatibilities

See "10.Stability and Reactivity"

Advice on general occupational hygiene

Wash contaminated parts thoroughly after handling.

Do not eat, drink or smoke when using this product.

Take off contaminated clothing and wash it before reuse.

Storage

Conditions for safe storage

Keep container tightly closed.

Store in a cool, dry place. Do not store in direct sunlight.

Container and packaging materials for safe handling

Glass

Polyethylene

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## 8. Exposure controls/personal protection

Control parameters

Adopted value

(Sulfuric acid)

ACGIH(2004) TWA: 0.2mg/m<sup>3</sup>(T) (Pulm func)

OSHA-PEL

(Sulfuric acid)

TWA: 1mg/m<sup>3</sup>

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

Respiratory protection

Wear respiratory protection.

Hand protection

Wear protective gloves.

Eye protection

Wear eye/face protection.

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## 9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Liquid

Color: Colorless

Odor: None

Melting point/Freezing point data is not available.

Boiling point or initial boiling point data is not available.

Boiling range data is not available.

Flammability (gases, liquids and solids) data is not available.

Lower and upper explosion limit/flammability limit data is not available.

Flash point data is not available.

Auto-ignition temperature data is not available.

Decomposition temperature data is not available.

pH data is not available.

Kinematic viscosity data is not available.

Solubility:



Solubility in water: Soluble  
n-Octanol/water partition coefficient data is not available.  
Vapor pressure data is not available.  
Density and/or relative density: 1.06  
Relative vapor density (Air=1) data is not available.  
Particle characteristics data is not available.

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## 10. Stability and Reactivity

### Reactivity

Not available.

### Chemical stability

Stable under normal storage/handling conditions.

### Possibility of hazardous reactions

(Sulfuric acid)

Decomposes on heating. This produces toxic and corrosive gases including sulfur oxides. 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 (hydrogen). Reacts violently with water. This generates heat and fire or explosion hazard. Attacks many plastics. (ICSC 0362)

### Conditions to avoid

Contact with incompatible materials.

Contact with fire source.

### Incompatible materials

Bases, Reducing agents, Combustible materials, Organic materials, Metals

### Hazardous decomposition products

Sulfur oxides, Hydrogen

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## 11. Toxicological Information

### Information on toxicological effects

#### Acute toxicity

##### Acute toxicity (Oral)

[GHS Cat. Japan, base data]

(Sulfuric acid)

rat LD50=2140mg/kg (SIDS, 2001)

##### Acute toxicity (Inhalation)

[GHS Cat. Japan, base data]

(Sulfuric acid)

mist: rat LC50=0.347mg/L/4hr (SIDS, 2001)

#### Irritant properties

##### Skin corrosion/irritation

[GHS Cat. Japan, base data]

(Sulfuric acid)

corrosive substance

##### Serious eye damage/irritation

[GHS Cat. Japan, base data]

(Sulfuric acid)

human severe damage (ATSDR, 1998)

Allergenic and sensitizing effects data is not available.

Mutagenic effects data is not available.

#### Carcinogenicity

(Sulfuric acid)



IARC-Gr.1 : Carcinogenic to humans

(Sulfuric acid)

ACGIH-A2(2004) : Suspected Human Carcinogen

Reproductive toxicity data is not available.

#### STOT

STOT-single exposure

[cat.1]

[GHS Cat. Japan, base data]

(Sulfuric acid)

respiratory system (ATSDR, 1998)

STOT-repeated exposure

[cat.1]

[GHS Cat. Japan, base data]

(Sulfuric acid)

respiratory system (ATSDR, 1998)

Aspiration hazard data is not available.

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## 12. Ecological Information

### Ecotoxicity

#### Aquatic toxicity

Toxic to aquatic life with long lasting effects

Hazardous to the aquatic environment (Acute)

[GHS Cat. Japan, base data]

(Sulfuric acid)

Fish (bluegill) LC50(pH3.25-3.5)=16-28mg/L/96hr (OECD SIDS, 2001)

Hazardous to the aquatic environment (Long-term)

[GHS Cat. Japan, base data]

(Sulfuric acid)

Fish (Gambusia affinis) NOEC(pH6.0)=0.025mg/L/45days (OECD SIDS, 2001)

#### Water solubility

(Sulfuric acid)

miscible (ICSC, 2000)

#### 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.

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## 13. Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

#### Waste treatment methods

Avoid release to the environment.

Dispose of contents/container in accordance with local/national regulation.



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**14. Transport Information**

UN No. or ID No.: 3082  
UN Proper Shipping Name :  
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
Class or division (Transport hazard class) : 9  
Packing group : III  
ERG GUIDE No.: 171  
Special provisions No.: 274; 331; 335; 375

**IMDG Code (International Maritime Dangerous Goods Regulations)**

UN No.: 3082  
Proper Shipping Name :  
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
Class or division : 9  
Packing group : III  
Special provisions No.: 274; 335; 969

**IATA Dangerous Goods Regulations**

UN No.: 3082  
Proper Shipping Name :  
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
Class or division : 9  
Hazard labels : Miscellaneous & Environmentally hazardous  
Packing group : III  
Special provisions No.: A97; A158; A197; A215

**Environmental hazards**

MARPOL Annex III – Prevention of pollution by harmful substances  
Marine pollutants (yes/no) : yes  
MARPOL Annex V – Prevention of pollution by garbage discharge  
Hazardous to the aquatic environment – long-term hazard: cat.1, 2  
Sulfuric acid

**Maritime transport in bulk according to IMO instruments**

Noxious Liquid ; Cat. Y  
Sulfuric acid  
Non Noxious Liquid ; Cat. OS  
Water

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**15. Regulatory Information**

Safety, health and environmental regulations/legislation specific for the substance or mixture

Chemicals listed in TSCA Inventory

Sulfuric acid; Water; Titanium(IV) sulfate

Other regulatory information

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

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**16. Other information**

GHS classification and labelling

Acute Tox. 4: H332 Harmful if inhaled  
Skin Irrit. 2: H315 Causes skin irritation  
Eye Dam. 1: H318 Causes serious eye damage  
STOT SE 2: H371 May cause damage to organs  
STOT RE 2: H373 May cause damage to organs through prolonged or repeated exposure  
Aquatic Chronic 2: H411 Toxic to aquatic life with long lasting effects

**Reference Book**

Globally Harmonized System of classification and labelling of chemicals, UN  
Recommendations on the TRANSPORT OF DANGEROUS GOODS 21th edit., 2019 UN  
IMDG Code, 2018 Edition (Incorporating Amendment 39-18)  
IATA Dangerous Goods Regulations (62nd Edition) 2021  
2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)  
2021 TLVs and BEIs. (ACGIH)  
Supplier's data/information

**General Disclaimer**

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 Japan official data (NITE published in 2019).