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

Product identifier:
Product name: Sulfuric acid
Product code (SDS NO): 7469E-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 2
Skin corrosion/irritation: Category 1A
Serious eye damage/eye irritation: Category 1
Specific target organ toxicity - single exposure: Category 1 (respiratory apparatus/system)
Specific target organ toxicity - repeated exposure: Category 1 (respiratory apparatus/system)

ENVIRONMENT HAZARDS
Hazardous to the aquatic environment (Acute): Category 3

Label elements

Signal word: Danger

HAZARD STATEMENT
Fatal if inhaled
Causes severe skin burns and eye damage
Causes serious eye damage
Causes damage to organs after single exposure
Causes damage to organs through prolonged or repeated exposure
Harmful to aquatic life

PRECAUTIONARY STATEMENT
Prevention
Avoid release to the environment.
Do not breathe dust/fume/gas/mist/vapors/spray.
In case of inadequate ventilation wear respiratory protection. (as specified by the manufacturer/supplier or the competent authority.)
Use only outdoors or in a well-ventilated area.
Wash contaminated parts thoroughly after handling.
Wear protective gloves, protective clothing or face protection.
Wear eye protection/face protection.
Do not eat, drink or smoke when using this product.

Response
Get medical advice/attention if you feel unwell.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with
water/shower.
Wash contaminated clothing before reuse.
IF IN EYES: Rinse cautiously 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.

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

3. Composition/information on ingredients
Mixture/Substance selection:
Substance
Ingredient name:Sulfuric acid
Content (%):98(min)
Chemical formula:H2O4S
Chemicals No, Japan:1-430
CAS No.:7664–93–9
MW:98.1
ECNO:231–639–5
Note : The figures shown above are not the specifications of the product.

4. First-aid measures
Descriptions of first-aid measures
General measures
Get medical attention/advice if you feel unwell.
IF INHALED
Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER or doctor/physician if you feel unwell.
IF ON SKIN (or hair)
Take off immediately all contaminated clothing. Rinse skin with water/shower.
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. Do NOT induce vomiting.
Call a POISON CENTER or doctor/physician if you feel unwell.

5. Fire-fighting measures
Extinguishing media
Suitable extinguishing media
Use appropriate extinguishing media suitable for surrounding facilities.
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/flame resistant/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.

6. Accidental release measures
Personnel precautions, protective equipment and emergency procedures
Ventilate area until material pick up is complete.
Wear proper protective equipment.

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.

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/sparks/open flames/hot surfaces. – No smoking.

Exhaust/ventilator
Exhaust/ventilator should be available.
Safety treatments
Avoid contact with skin.
Avoid contact with eyes.

Safety Measures/Incompatibility
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.

Conditions for safe storage, including any incompatibilities
Recommendation for storage
Keep container tightly closed.
Store in a cool, dry place. Do not store in direct sunlight.
keep under lock and key.

8. Exposure controls/personal protection
Control parameters
Adopted value
(Sulfuric acid)
ACGIH(2000) TWA: 0.2mg/m3(T) (Pulm func)
OSHA–PEL
Sulfuric acid TWA: 1mg/m3

Exposure controls
Appropriate engineering controls
Do not use in areas without adequate ventilation.
Individual protection measures
- Respiratory protection
  - Wear respiratory protection.
- Hand protection
  - Wear protective gloves.
- Eye protection
  - Wear eye/face protection.

Safety and Health measures
- Wash contaminated parts thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Wash contaminated clothing before reuse.

9. Physical and Chemical Properties
   Information on basic physical and chemical properties
   Physical properties
   - Appearance: Liquid
   - Color: Colorless, Clear
   - Odor data N.A.
   - pH data N.A.
   - Initial Boiling Point/Boiling point: (decomposes) 340°C
   - Boiling range data N.A.
   - Melting point/Freezing point: 10°C
   - Decomposition temperature data N.A.
   - Flash point data N.A.
   - Auto-ignition temperature data N.A.
   - Explosive properties data N.A.
   - Vapor pressure: 0.13 kPa (146 °C)
   - Relative Vapor Density (Air=1): 3.4
   - Specific gravity/Density: 1.84(20°C)
   - Solubility
     - Solubility in water: miscible
     - n-Octanol/water partition coefficient data N.A.

10. Stability and Reactivity
    Reactivity
    - N.A.
    Chemical stability
    - Deliquescent material.
    Possibility of hazardous reactions
    - 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
11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[Sulfuric acid]
rat LD50=2140mg/kg (SIDS, 2001)

Acute toxicity (Inhalation)

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

Irritant properties

Skin corrosion/irritation

[Sulfuric acid]
corrosive substance

Serious eye damage /irritation

[Sulfuric acid]
human severe damage (ATSDR, 1998)

No Allergenic and sensitizing effects data available

No Mutagenic effects data available

Carcinogenicity

[Sulfuric acid]
IARC-Gr.1 : Carcinogenic to humans
ACGIH-A2(2000) : Suspected Human Carcinogen

No reproductive toxicity data available

Delayed and immediate effects and also chronic effects from short- and long-term exposure

STOT

STOT—single exposure

[cat.1]
[Sulfuric acid]
respiratory apparatus/system (ATSDR, 1998)

STOT—repeated exposure

[cat.1]
[Sulfuric acid]
respiratory apparatus/system (ATSDR, 1998)

No Aspiration hazard data available

12. Ecological Information

Ecotoxicity

Aquatic toxicity

Harmful to aquatic life

Aquatic acute toxicity component(s) data

[Sulfuric acid]
(Sulfuric acid)

Fish (bluegill) LC50=16 – 28mg/L/96hr (SIDS, 2003)

Water solubility
(Sulfuric acid)
miscible (ICSC, 2000)

No Persistence and degradability data available
No Bioaccumulative potential data available
No Mobility in soil data available
Ozone depleting chemical data not available

13. Disposal considerations
Waste treatment methods
Avoid release to the environment (~ if this is not the intended use).
Dispose of contents/container in accordance with local/national regulation.

14. Transport Information
UN No.: 1830
Proper Shipping Name: SULPHURIC ACID with more than 51% acid
Class or division: 8
Packing group: II
ERG GUIDE No.: 137
IMDG Code (International Maritime Dangerous Goods Regulations)
UN No.: 1830
Proper Shipping Name: SULPHURIC ACID with more than 51% acid
Class or division: 8
Packing group: II
IATA Dangerous Goods Regulations
UN No.: 1830
Proper Shipping Name: SULPHURIC ACID with more than 51% acid
Class or division: 8
Hazard labels: Corrosive
Packing group: II

Environmental hazards
MARPOL Annex III – Prevention of pollution by harmful substances
Marine pollutants (yes/no): no
MARPOL Annex V – Prevention of pollution by garbage discharge
Specific target organ toxicity – repeated exposure: cat.1
Sulfuric acid
Transport in bulk according to Annex II of MARPOL73/78 and IBC Code
Noxious Liquid: Cat. Y
Sulfuric acid

15. Regulatory Information
Safety, health and environmental regulations/legislation specific for the substance or mixture
US major regulations
TSCA
Sulfuric acid
Other regulatory information
16. Other information
GHS classification and labelling
- Acute Tox. 2: H330 Fatal if inhaled
- Skin Corr. 1A: H314 Causes severe skin burns and eye damage
- Eye Dam. 1: H318 Causes serious eye damage
- STOT SE 1: H370 Causes damage to organs after single exposure
- STOT RE 1: H372 Causes damage to organs through prolonged or repeated exposure
- Aquatic Acute 3: H402 Harmful to aquatic life

Reference Book
- Globally Harmonized System of classification and labelling of chemicals, (5th ed., 2013), UN
- Recommendations on the TRANSPORT OF DANGEROUS GOODS 2oth edit., 2017 UN
- IMDG Code, 2018 Edition (Incorporating Amendment 39–18)
- IATA Dangerous Goods Regulations (60th Edition) 2019
- Classification, labelling and packaging of substances and mixtures (table3–1 ECNO6182012)
- 2016 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
- 2018 TLVs and BEIs. (ACGIH)

Supplier's data/information

General Disclaimer
This information contained in this data sheet represents the best information currently available to us. However, no warranty is made with respect to its completeness and we assume no liability resulting from its use. It is advised to make their own tests to determinate the safety and suitability of each such product or combination for their own purposes.

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 2017).