Sulfuric acid

84716-1L

Version 1.6 Revision Date 31.01.2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name	:	Sulfuric acid
SDS-number	:	000000016361
Type of product	:	Mixture
Remarks	:	SDS according to Art. 31 of Regulation (EC) 1907/2006.

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture	:	Laboratory chemicals
Uses advised against	:	none

1.3. Details of the supplier of the safety data sheet

Company	:	Honeywell International Inc. 115 Tabor Road 07950-2546 Morris Plains USA	Honeywell International, Inc. 115 Tabor Road Morris Plains, NJ 07950-2546 USA
Telephone	:		
For further information, please contact:	:	SafetyDataSheet@Honeywell.com	

1.4. Emergency telephone number

Emergency telephone number	:	+1-703-527-3887 (ChemTrec-Transport) +1-303-389-1414 (Medical)
	:	Poison Control Center: United Kingdom: (+44) 844 892 0111

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Skin corrosion Category 1A
H314 Causes severe skin burns and eye damage.

2.2. Label elements

REGULATION (EC) No 1272/2008

Hazard pictograms	:		
Signal word	:	Danger	
Hazard statements	:	H314	Causes severe skin burns and eye damage.
Precautionary statements	:	P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
		P280	Wear protective gloves/protective clothing/eye protection/face protection.
		P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
		P302 + P352	IF ON SKIN: Wash with plenty of water.
		P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
		P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
		P308 + P313	IF exposed or concerned: Get medical advice/ attention.
Hazardous components which must be listed on the label	:	sulphuric acid	

2.3. Other hazards

Reacts violently with water. Inhaled corrosive substances can lead to a toxic oedema of the lungs. The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission

Regulation (EU) 2018/605 at levels of 0.1% or higher. This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Chemical name	CAS-No. Index-No. REACH Registration Number EC-No.	Classification 1272/2008	Concentration	Remarks
sulphuric acid	7664-93-9 016-020-00-8 231-639-5	Skin Corr. 1A; H314	>= 50 % - <= 100 %	Skin Irrit. 2; H315:5 - < 15 % Eye Irrit. 2; H319:5 - < 15 % Skin Corr. 1A; H314:>= 15 %

Remaining components of this product are non-hazardous and/or are present at concentrations below reportable limits.

Occupational Exposure Limit(s), if available, are listed in Section 8.
For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice:
First aider needs to protect himself. Move out of dangerous area. Immediately take off contaminated clothing and rinse body with plenty of water.

Inhalation:
Remove to fresh air. If breathing is difficult, give oxygen. Use oxygen as required, provided a qualified operator is present. Call a physician immediately.

Skin contact:
Wash off immediately with plenty of water for at least 15 minutes. Take off contaminated clothing and shoes immediately. Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty. Call a physician immediately.

Eye contact:
Protect unharmed eye. Irrigate eyes for at least 15 minutes with copious quantities of water, keeping eyelids apart and away from eyeballs during irrigation. Small amounts splashed into eyes can cause irreversible tissue damage and blindness. Call a physician immediately.

Ingestion:
Clean mouth with water and drink afterwards plenty of water. Magnesium hydroxide (milk of Magnesia) as an antacid may be given. Do NOT induce vomiting. Call a physician immediately.

4.2. Most important symptoms and effects, both acute and delayed

No data available

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

See Section 11 for more detailed information on health effects and symptoms. :

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:
Foam
Carbon dioxide (CO2)
Dry powder

Extinguishing media which shall not be used for safety reasons:
Water
Do NOT use water jet.
Contact with a relatively small quantity of water creates violent reaction generating much heat and spattering of hot acid

5.2. Special hazards arising from the substance or mixture

Fire may cause evolution of:
Sulphur oxides
Some risk may be expected of corrosive and toxic decomposition products.
Exposure to decomposition products may be a hazard to health.
Cool closed containers exposed to fire with water spray.
In case of a spillage, the resulting acid solution may attack many metals with liberation of hydrogen which is flammable and forms explosive mixture with air

5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective suit.
No unprotected exposed skin areas.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.The product itself does not burn.Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Evacuate personnel to safe areas. Wear personal protective equipment. Unprotected persons must be kept away. Keep people away from and upwind of spill/leak. Provide adequate ventilation.

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities. Suppress (knock down) gases/vapours/mists with a water spray jet.

6.3. Methods and materials for containment and cleaning up

Dilute with water.
Soak up with inert absorbent material.
Pick for disposal in tightly closed containers

6.4. Reference to other sections

For personal protection see section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling:
Use only acid resistant equipment. Plan first aid action before beginning work with this product. Always have on hand a first-aid kit, together with proper instructions. Ventilators required at emission site. Wear personal protective equipment. When diluting, always add the product to water. Never add water to the product.

Advice on protection against fire and explosion:
Normal measures for preventive fire protection. In case of a spillage, the resulting acid solution may attack many metals with liberation of hydrogen which is flammable and forms explosive mixture with air

Hygiene measures:
Separate rooms are required for washing, showering and changing clothes. Contaminated work clothing should not be allowed out of the workplace. Keep working clothes separately. Take off all contaminated clothing immediately. Remove and wash contaminated clothing before re-use. Wash hands before breaks and at the end of workday. Avoid contact with the skin and the eyes.

7.2. Conditions for safe storage, including any incompatibilities

Further information on storage conditions:
Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place. Product is hygroscopic. Do not leave vessels/containers open Avoid product residues in/on containers.

7.3. Specific end use(s)

no additional data available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits:

Components	Basis / Value type	Value / Form of exposure	Exceeding Factor	Remarks
sulphuric acid	EU ELV TWA	0,05 mg/m3 Mist		Indicative
sulphuric acid	EH40 WEL TWA	0,05 mg/m3		

EU ELV - EU. Indicative Occupational Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, as amended
TWA - Time weighted average

DNEL/ PNEC-Values

Component	End-use/impact	Exposure duration	Value	Exposure routes	Remarks
sulphuric acid	Workers / Acute local effects		0,1 mg/m3	Inhalation	
sulphuric acid	Workers / Long-term local effects		0,05 mg/m3	Inhalation	

Component	Environmental compartment / Value	Remarks
sulphuric acid	Sewage treatment plant: 8,8 mg/l	
sulphuric acid	Fresh water: 0,025 mg/l	
sulphuric acid	Marine water: 0,25 mg/l	

sulphuric acid	Fresh water sediment: 0,002 mg/l	
sulphuric acid	Marine sediment: 0,002 mg/l	

8.2. Exposure controls

Occupational exposure controls

The Personal Protective Equipment must be in accordance with EN standards:respirator EN 136, 140, 149; safety glasses EN 166; protective suit: EN 340, 463, 468, 943-1, 943-2; gloves EN 374, 511; safety shoes EN-ISO 20345.
Do not breathe vapours or spray mist.

Engineering measures
Use with local exhaust ventilation.
Emergency sprinkling nozzle
acid resisting floor

Personal protective equipment
Respiratory protection:
B-P3
In the case of vapour formation use a respirator with an approved filter.
Recommended Filter type:
Inorganic gas/vapour type

Hand protection:
Glove material: Viton®
Break through time: > 480 min
Glove thickness: 0,7 mm
Vitoject® 890
Gloves must be inspected prior to use.
Replace when worn.
Remarks:Supplementary note: The specifications are based on information and tests from similar substances by analogy.
Due to varying conditions (e.g.temperature or other strains) it must be considered that the usage of a chemical protective glove in practice may be much shorter than the permeation time determined in accordance with EN 374.
Since actual conditions of practical use often deviate from standardised conditions according EN 374 the glove manufacturer reccomends to use the chemical protective glove in practice not longer than 50% of the recomended permeation time.
Manufacturer´s directions for use should be observed because of great diversity of types .
Suitable gloves tested according EN 374 are supplied e.g. from KCL GmbH, D-36124 Eichenzell, Vertrieb@kcl.de

Eye protection:
Safety goggles

Skin and body protection:
acid-resistant protective clothing

Environmental exposure controls

Handle in accordance with local environmental regulations and good industrial practices.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

(a) Physical state	:	liquid
(b) Colour	:	colourless
(c) Odour	:	odourless
(d) Melting point/freezing point	:	-14 - -10 °C
(e) Boiling point/boiling range	:	ca. 310 °C at 1.013 hPa
(f) Flammability	:	Not applicable
(g) Lower and upper explosion limit	:	Lower explosion limit Not applicable
	:	Upper explosion limit Not applicable
(h) Flash point	:	Not applicable
(i) Auto-ignition temperature	:	Not applicable
(j) Decomposition temperature	:	338 °C Decomposition temperature

(k) pH	:	acidic
(l) Viscosity, kinematic	:	No data available
(m) Solubility(ies)	:	Water solubility: completely soluble
(n) Partition coefficient: n-octanol/water	:	No data available
(o) Vapour pressure	:	0,01 hPa at 55 °C < 0,0001 hPa at 20 °C
(p) Density and / or relative density	:	ca. 1,840 g/cm3 at 20 °C
(q) Relative vapour density	:	No data available
(r) Particle characteristics	:	No data available

9.2 Other Information

Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Evaporation rate	:	No data available
Viscosity, dynamic	:	21 mPa.s

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under recommended storage conditions.

10.2. Chemical stability

ca.338 °C
Decomposition temperature

10.3. Possibility of hazardous reactions

Hazardous polymerisation does not occur.

10.4. Conditions to avoid

Protect from atmospheric moisture and water.
Corrodes metals in the presence of water or moisture.

10.5. Incompatible materials

Reacts violently with water.
On dilution or dissolving in water, considerable heating always occurs.
Gives off hydrogen by reaction with metals.
Reactions with combustible substances.
Incompatible with bases.

10.6. Hazardous decomposition products

Sulphur dioxide
Sulphur trioxide

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

(a) Acute toxicity

Acute oral toxicity:
Toxicity is determined by the corrosivity of the product.

Acute dermal toxicity:
Toxicity is determined by the corrosivity of the product.

Acute inhalation toxicity:
Toxicity is determined by the corrosivity of the product.

Acute toxicity (other routes of administration):
No data available

(b) Skin corrosion/irritation:
Classification based on Annex VI of regulation 1272/2008/EC.

(c) Serious eye damage/eye irritation:
Classification based on Annex VI of regulation 1272/2008/EC.

(d) Respiratory or skin sensitisation:
No data available

(e) Germ cell mutagenicity:
Cell type: Chinese hamster fibroblasts
Metabolic activation: with and without metabolic activation
GLP: yes
Note: Not classified due to data which are conclusive although insufficient for classification.

(f) Carcinogenicity:
Species: not specified
Note: Not classified due to data which are conclusive although insufficient for classification.

(g) Reproductive toxicity:
Species: not specified
Remarks: Not classified due to data which are conclusive although insufficient for classification.

(h) STOT-single exposure:
No data available

(i) STOT - repeated exposure:
Note: No data available

(j) Aspiration hazard:
No data available

11.2. Information on other hazards

Endocrine disrupting properties
No data available

Other information:
No data available

SECTION 12: Ecological information

12.1. Toxicity

Toxicity to fish:
LC50
static test
Species: Lepomis macrochirus (Bluegill sunfish)
Value: 16 - 28 mg/l
Exposure time: 96 h

Toxicity to aquatic plants:
EC50
Growth rate
Species: Desmodesmus subspicatus (green algae)
Value: > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to aquatic invertebrates:
EC50
Immobilization
Species: Daphnia magna (Water flea)
Value: > 100 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

12.2. Persistence and degradability

Biodegradability:
The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

No data available

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

No data available

12.6. Endocrine disrupting properties

No data available

12.7. Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product:
Dispose according to legal requirements.

Packaging:
Legal requirements are to be considered in regard of reuse or disposal of used packaging materials

Further information:
Provisions relating to waste:
EC Directive 2006/12/EC; 2008/98/EEC
Regulation No. 1013/2006
For personal protection see section 8.

SECTION 14: Transport information

14.1 UN number or ID number
ADR/RID:1830 IMDG:1830 IATA:1830

14.2 UN proper shipping name
ADR/RID:SULPHURIC ACID
IMDG:SULPHURIC ACID
IATA:Sulphuric acid

14.3 Transport hazard class(es)
ADR/RID:8 IMDG: 8 IATA: 8

14.4 Packaging group
ADR/RID:II IMDG: II IATA: II

14.5 Environmental hazards
ADR/RID:no Marine pollutant: no

14.6 Special precautions for user
IMDG Code segregation group (SGG1) – ACIDS,

14.7 Maritime transport in bulk according to IMO instruments
No data available

SECTION 15: Regulatory information

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

Basis	Value	Remarks
Directive 2012/18/EC		Not applicable
Substances of very high concern (SVHC)		This product does not contain substances of very high concern according to Regulation (EC) No Article 57 above the respective regulatory 1907/2006 (REACH), concentration limit of ≥ 0.1 % (w/w).
Regulation (EU) 2019/1148 on the marketing and use of explosives precursors		Contains components listed in

Other inventory information

US. Toxic Substances Control Act
On TSCA Inventory

Australia. Inventory of Industrial Chemicals (AIIC), as amended
On the inventory, or in compliance with the inventory

Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL)
All components of this product are on the Canadian DSL

Japan. Kashin-Hou Law List
On the inventory, or in compliance with the inventory

Korea. Existing Chemicals Inventory (KECI)
On the inventory, or in compliance with the inventory

Philippines. Inventory of Chemicals and Chemical Substances (PICCS)
On the inventory, or in compliance with the inventory

China. Inventory of Existing Chemical Substances (IECSC)
On the inventory, or in compliance with the inventory

New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand
On the inventory, or in compliance with the inventory

Taiwan Chemical Substance Inventory (TCSI)
On the inventory, or in compliance with the inventory

15.2 Chemical safety assessment

A Chemical Safety Assessment has been carried out.

SECTION 16: Other information

Text of H-statements referred to under heading 3

sulphuric acid	:	H314	Causes severe skin burns and eye damage.

Further information

All directives and regulations refer to amended versions.
Vertical lines in the left hand margin indicate a relevant amendment from the previous version.

Abbreviations:
EC European Community
CAS Chemical Abstracts Service
DNEL Derived no effect level
PNEC Predicted no effect level
vPvB Very persistent and very biaccumulative substance
PBT Persistent, bioaccmulative und toxic substance

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific

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material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. Final determination of suitability of any material is the sole responsibility of the user.
This information should not constitute a guarantee for any specific product properties.