Sulfuric acid

84716-1L

SECTION 1. IDENTIFICATION

Product name	:	Sulfuric acid
Number	:	000000016361
Product Use Description	:	Laboratory chemicals
Manufacturer or supplier's details	:	Honeywell International Inc. 1953 South Harvey Street Muskegon, MI 49442
For more information call	:	1-800-368-0050 +1-231-726-3171 (Monday-Friday, 9:00am-5:00pm)
In case of emergency call	: : : :	**Medical: 1-800-498-5701 or +1-303-389-1414** **Transportation (CHEMTREC): 1-800-424-9300 or +1-703-527-3887** (24 hours/day, 7 days/week)

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Form	:	liquid
Color	:	colourless
Odor	:	odourless

Classification of the substance or mixture

Classification of the substance or mixture	:	Skin corrosion, Category 1A Serious eye damage, Category 1

GHS Label elements, including precautionary statements

Symbol(s) :

Signal word : Danger

Hazard statements : Causes severe skin burns and eye damage.

Precautionary statements :

Prevention:
Keep only in original container.
Wash skin thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.

Response:
IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER/doctor.
Wash contaminated clothing before reuse.

Storage:
Store locked up.
Store in corrosive resistant container with a resistant inner liner.

Disposal:
Dispose of contents/ container to an approved waste disposal plant.

Carcinogenicity

NTP:	Sulfuric Acid Known carcinogen	7664-93-9
IARC:	Sulfuric Acid Group 1: Carcinogenic to humans	7664-93-9
ACGIH:	Sulfuric Acid A2: Suspected human carcinogen	7664-93-9

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : H2SO4

Chemical nature : Mixture

Chemical name	CAS-No.	Concentration
Sulfuric Acid	7664-93-9	>=50.00 - <=100.00 %
Water	7732-18-5	>=1.00 - <5.00 %

SECTION 4. FIRST AID MEASURES

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	:	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Drink plenty of water. If possible drink milk afterwards. Call a physician immediately.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Foam Carbon dioxide (CO2) Dry powder
Unsuitable extinguishing media	:	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
Specific hazards during firefighting	:	Reacts violently with water. Contact with combustible material may cause fire. 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 In case of fire hazardous decomposition products may be produced such as: Sulphur oxides
Special protective equipment	:	In the event of fire and/or explosion do not breathe fumes.

for firefighters		Wear self-contained breathing apparatus and protective suit. No unprotected exposed skin areas.
Further information	:	The product itself does not burn. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

SECTION 6. ACCIDENTAL RELEASE MEASURES

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. Ensure adequate ventilation. Do not breathe vapours or spray mist. Do not get in eyes, on skin, or on clothing. Do not swallow.
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.
Methods and materials for containment and cleaning up	:	Ventilate the area. Dilute with water. Neutralise with the following product(s): lime Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13). Never neutralise with the following products: soda ash

SECTION 7. HANDLING AND STORAGE

Handling

Precautions for safe handling	:	Handle with extreme care. Wear personal protective equipment. Use only in well-ventilated areas. Use only acid resistant equipment. When diluting, always add the product to water. Never add water to the product. Do not breathe vapours or spray mist. Do not get in eyes, on skin, or on clothing.
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

Storage

Conditions for safe storage, including any incompatibilities	:	Storage rooms must be properly ventilated. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in an area equipped with acid resistant flooring. Do not store near combustible materials. Store in upright position only.
Further information on storage conditions	:	Keep away from direct sunlight. Keep away from heat.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Protective measures	:	Ensure that eyewash stations and safety showers are close to the workstation location. Legal requirements are to be considered in regard of the selection, use and care of personal protective equipment.

Do not swallow.
Do not breathe vapours or spray mist.
Do not get in eyes, on skin, or on clothing.

Engineering measures : Use with local exhaust ventilation.

Eye protection : Face-shield
Safety goggles

Hand protection : Impervious gloves
Gloves must be inspected prior to use.
Replace when worn.

Skin and body protection : Wear suitable protective equipment.
Wear as appropriate:
Hard hat with brim
Neck shroud
Gauntlets
Acid-resistant protective clothing
Rubber or plastic boots
If splashes are likely to occur, wear:
Full protective suit

Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment.

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.

Exposure Guidelines

Components	CAS-No.	Value	Control parameters	Update	Basis

Sulfuric Acid	7664-93-9	TWA : Time weighted average	0.2 mg/m3	2008	ACGIH:US. ACGIH Threshold Limit Values
Further information	:	Form of exposure : Thoracic fraction.			

Sulfuric Acid	7664-93-9	REL : Recommended exposure limit (REL):	1 mg/m3	2005	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards

Sulfuric Acid	7664-93-9	PEL : Permissible exposure limit	1 mg/m3	02 2006	OSHA_TRANS:US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Sulfuric Acid	7664-93-9	TWA : Time weighted average	1 mg/m3	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	:	liquid
Color	:	colourless
Odor	:	odourless
Odor threshold	:	Note: no data available
pH	:	Note: acidic

Melting point/range	:	-14 - -10 °C
Boiling point/boiling range	:	ca. 310 °C at 1,013 hPa
Flash point	:	Note: Not applicable
Evaporation rate	:	Note: no data available
Flammability	:	Not applicable
Lower explosion limit	:	Note: Not applicable
Upper explosion limit	:	Note: Not applicable
Vapor pressure	:	Note: negligible
Vapor density	:	Note: no data available
Density	:	ca. 1.840 g/cm3 at 20 °C
Water solubility	:	Note: completely soluble
Partition coefficient: n-octanol/water	:	Note: no data available
Ignition temperature	:	Note: Not applicable

Decomposition temperature	:	ca. 338 °C Note: Decomposition temperature
Viscosity, dynamic	:	21 mPa.s
Viscosity, kinematic	:	Note: no data available
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Molecular weight	:	98.08 g/mol

SECTION 10. STABILITY AND REACTIVITY

Chemical stability	:	Stable under recommended storage conditions.
Possibility of hazardous reactions	:	Hazardous polymerisation does not occur.
Conditions to avoid	:	Protect from atmospheric moisture and water. Corrodes metals in the presence of water or moisture.
Incompatible materials	:	Bases Reducing agents Organic materials Copper Amines Alcohols Aldehydes Cyanides Sulphides Nitriles Reacts violently with water. Gives off hydrogen by reaction with metals.
Hazardous decomposition products	:	Sulphur dioxide Sulphur trioxide

SECTION 11. TOXICOLOGICAL INFORMATION

Acute oral toxicity	:	Note: Toxicity is determined by the corrosivity of the product.
Acute inhalation toxicity	:	Note: Toxicity is determined by the corrosivity of the product.
Acute dermal toxicity	:	Note: Toxicity is determined by the corrosivity of the product.
Skin irritation	:	Note: Extremely corrosive and destructive to tissue.
Eye irritation	:	Note: Extremely corrosive and destructive to tissue.
Sensitisation	:	Note: no data available
Genotoxicity in vitro	:	Note: Not classified due to data which are conclusive although insufficient for classification.
Carcinogenicity Sulfuric Acid	:	Note: An increased risk of cancer in humans has been shown in work-place based studies. This hazard is related to exposure to the mist/vapor of the acid and not the acid solution. Please review IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Occupational Exposures to Mists and Vapours from Strong Inorganic Acids; and Other Industrial Chemicals, Vol. 54, 1992 and IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, A review of human carcinogens: Chemical Agents and Related Occupations, Vol. 100F, 2012.

SECTION 12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)

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

Further information on ecology

Additional ecological information : Neutralisation will reduce ecotoxic effects.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods : Observe all Federal, State, and Local Environmental regulations.

SECTION 14. TRANSPORT INFORMATION

DOT

UN/ID No.	:	UN 1830
Proper shipping name	:	SULPHURIC ACID
Class		8
Packing group		II
Hazard Labels		8

IATA

UN/ID No.	:	UN 1830
Description of the goods	:	SULPHURIC ACID
Class	:	8
Packaging group	:	II
Hazard Labels	:	8
Packing instruction (cargo aircraft)	:	855
Packing instruction	:	851

	(passenger aircraft)		
	Packing instruction (passenger aircraft)	:	Y840
IMDG	UN/ID No.	:	UN 1830
	Description of the goods	:	SULPHURIC ACID
	Class	:	8
	Packaging group	:	II
	Hazard Labels	:	8
	EmS Number	:	F-A, S-B
	Marine pollutant	:	no
	IMDG Code segregation group		1 – ACIDS,

SECTION 15. REGULATORY INFORMATION

Inventories

US. Toxic Substances Control Act	:	On TSCA Inventory
Australia. Industrial Chemical (Notification and Assessment) Act	:	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. The Toxic Substances and Hazardous and Nuclear Waste Control Act	:	On the inventory, or in compliance with the inventory
China. Inventory of Existing	:	On the inventory, or in compliance with the inventory

Chemical Substances

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

National regulatory information

US. EPA CERCLA Hazardous Substances (40 CFR 302) : The following component(s) of this product is/are subject to release reporting under 40 CFR 302 when release exceeds the Reportable Quantity (RQ):

Reportable quantity: 1000 lbs
: Sulfuric Acid 7664-93-9

SARA 302 Components : The following components are subject to reporting levels established by SARA Title III, Section 302:
: Sulfuric Acid 7664-93-9

SARA 313 Components : The following components are subject to reporting levels established by SARA Title III, Section 313:
: Sulfuric Acid 7664-93-9

SARA 311/312 Hazards : Acute Health Hazard
Chronic Health Hazard

CERCLA Reportable Quantity : 1031 lbs

California Prop. 65 :

WARNING: This product can expose you to chemicals, listed below, known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Sulfuric Acid 7664-93-9

Massachusetts RTK	:	Sulfuric Acid	7664-93-9
New Jersey RTK	:	Sulfuric Acid	7664-93-9
Pennsylvania RTK	:	Sulfuric Acid	7664-93-9

SECTION 16. OTHER INFORMATION

		HMIS III	NFPA
Health hazard	:	3*	3
Flammability	:	0	0
Physical Hazard	:	2	
Instability	:		2
Special hazard.	:		W

* - Chronic health hazard
Hazard rating and rating systems (e.g. HMIS® III, NFPA): This information is intended solely for the use of individuals trained in the particular system.

Further information

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 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.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.
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