REAGENTS DUKSAN

SAFETY DATA SHEET

According to OSHA Hazcom Standard 29 CFR 1910.1200

Sulfuric Acid 15%

Date of issue : 2023-09-12 **Revision date : -** **Version: R0001.0001**

1. IDENTIFICATION

A. Product name

- Sulfuric Acid 15%

B. Recommended use and restriction on use

- General use : for experimental, research and industrial use
- Restriction on use : Never drink, Not used except for experimental, research and industrial applications.

C. Manufacturer / Supplier / Distributor information

○ **Manufacturer information**

- Company name : DUKSAN PURE CHEMICALS
- Address : 53,SINWONRO 133BEONGIL, DANWONGU, ANSANSHI, GYUNGGIDO, KOREA
- Emergency telephone number : 82-31-495-4055

○ **Supplier/Distributer information**

- Company name : DUKSAN PURE CHEMICALS
- Address : 53,SINWONRO 133BEONGIL, DANWONGU, ANSANSHI, GYUNGGIDO, KOREA
- Telephone number : 82-31-495-4055
- Emergency telephone number : 82-31-495-4055
- Fax number : 82-31-495-4058

2. HAZARD IDENTIFICATION

A. GHS Classification

- Corrosive to metals : Category1
- Acute toxicity (inhalation: vapor) : Category2
- Skin corrosion/irritation : Category1A
- Chronic aquatic toxicity : Category3

B. GHS label elements

○ **Hazard symbols**



○ **Signal words**

- Danger

○ **Hazard statements**

- H290 May be corrosive to metals
- H314 Causes severe skin burns and eye damage
- H330 Fatal if inhaled
- H412 Harmful to aquatic life with long lasting effects

○ **Precautionary statements**

1) Prevention

- P234 Keep only in original container.
- P260 Do not breathe gas/mist/vapours/spray.

- P264 Wash hands thoroughly after handling.
- P271 Use only outdoors or in a well-ventilated area.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P284 Wear respiratory protection.

2) Response

- P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position 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.
- P310 Immediately call a POISON CENTER or doctor/physician.
- P320 Specific treatment is urgent
- P321 Specific treatment
- P363 Wash contaminated clothing before reuse.
- P390 Absorb spillage to prevent material damage.

3) Storage

- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P405 Store locked up.
- P406 Store in corrosive resistant container with a resistant inner liner.

4) Disposal

- P501 Dispose of contents/container in accordance with local/regional/national/international regulation

C. Other hazards which do not result in classification : (NFPA Classification)

○ **NFPA grade (0 ~ 4 level)**

- Health : 3, Flammability : 0, Reactivity : 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
Sulfuric acid	Hydrogensulfate	7664-93-9	15
Water	Dihydrogen oxide ; Oxidane	7732-18-5	85

4. FIRST AID MEASURES

A. Eye contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.

B. Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Wash contaminated clothing thoroughly before re-using.
- Get medical attention immediately.
- Wash thoroughly after handling.

C. Inhalation contact

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.
- Go to the hospital immediately if symptoms(flare, irritate) occur.
- If breathing is stopped or irregular, give artificial respiration and supply oxygen.

D. Ingestion contact

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.

E. Delayed and immediate effects and also chronic effects from short and long term exposure

- Not available

F. Notes to physician

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

5. FIREFIGHTING MEASURES

A. Suitable (Unsuitable) extinguishing media

- Dry chemical, carbon dioxide, regular foam extinguishing agent, spray
- Avoid use of water jet for extinguishing

B. Specific hazards arising from the chemical

- Not available

C. Special protective actions for firefighters

- Cool containers with water until well after fire is out.
- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Notify your local firestation and inform the location of the fire and characteristics hazard.
- In case of conflagration, use automatic fire sprinkler. Major fire may require withdrawal, allowing the object itself to burn.
- Keep containers cool with water spray.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

6. ACCIDENTAL RELEASE MEASURES

A. Personal precautions, protective equipment and emergency procedures

- Wear proper personal protective apparatus as indicated in Section 8 and avoid skin contact and inhalation.
- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Move container to safe area from the leak area.
- Do not direct water at spill or source of leak.
- Avoid skin contact and inhalation.

B. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.

C. Methods and materials for containment and cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.
- Prevent the influx to waterways, sewers, basements or confined spaces.

7. HANDLING AND STORAGE

A. Precautions for safe handling

- Avoid contact with incompatible materials.
- Dealing only with a well-ventilated place.
- Do not handle until all safety precautions have been read and understood.
- Do not inhale the steam prolonged or repeated.
- Avoid contact with strong oxidizing agent.

B. Conditions for safe storage, including any incompatibilities

- Save in cool, dry and well ventilated place.

- Do not apply direct heat.
- Avoid direct sunlight.
- Prevent static electricity and keep away from combustible materials or heat sources.
- Collected them in sealed containers.
- Do not store in metal containers.
- Store away from water and sewer.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limits

○ **ACGIH TLV**

- [Sulfuric acid] : TWA 0.2 mg/m3, Thoracic particulate mass
- [Water] : Not available

○ **OSHA PEL**

- [Sulfuric acid]: 1mg/m3
- [Water] : Not applicable

B. Engineering controls

- Business owner is recommended to maintain below recommended exposure limits for the working place with general exhaust of gas/vapour/mist/fume.

C. Individual protection measures, such as personal protective equipment

○ **Respiratory protection**

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full facepiece and organic vaporcartridge(s).
- Any air-purifying respirator with a full facepiece and an organic vapor canister.
- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.

○ **Eye protection**

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
- Provide an emergency eye wash station and quick drench shower in the immediate work area.

○ **Hand protection**

- Wear appropriate chemical resistant glove.

○ **Skin protection**

- Wear appropriate chemical resistant protective clothing.

○ **Others**

- Not available

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance	
- Appearance	Liquid
- Color	colorless
B. Odor	odorless
C. Odor threshold	Not available
D. pH	< 1
E. Melting point/Freezing point	0 ℃
F. Initial Boiling Point/Boiling Ranges	>100 ℃
G. Flash point	Not available
H. Evaporation rate	Not available
I. Flammability(solid, gas)	Not available
J. Upper/Lower Flammability or explosive limits	- / - (nonflammable)
K. Vapour pressure	Not available

L. Solubility	Not available
M. Vapour density	Not available
N. Specific gravity(Relative density)	1.1 (water=1)
O. Partition coefficient of n-octanol/water	Not available
P. Autoignition temperature	Not available
Q. Decomposition temperature	Not available
R. Viscosity	Not available
S. Molecular weight	98.07

10. STABILITY AND REACTIVITY

A. Chemical Stability

- Stable under normal conditions of use and storage.

B. Possibility of hazardous reactions

- May be corrosive to metals.

C. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces
- Avoid contact with metals.

D. Incompatible materials

- Avoid contact with strong oxidizing agent and strong reducing agent.

E. Hazardous decomposition products

- May emit flammable vapour if involved in fire.

11. TOXICOLOGICAL INFORMATION

A. Information on the likely routes of exposure

○ **(Respiratory tracts)**

- Not available

○ **(Oral)**

- Not available

○ **(Eye·Skin)**

- Causes severe skin burns and eye damage

B. Delayed and immediate effects and also chronic effects from short and long term exposure

○ **Acute toxicity**

*** Oral**

- Product (ATEmix) : 2000mg/kg < ATEmix <= 5000mg/kg
- [Sulfuric acid] : LD50 2140 ㎎/㎏ Rat (OECD TG 401)(ECHA)
- [Water] : LD50 > 90000 ㎎/㎏ Rat (KOSHA)

*** Dermal**

- [Sulfuric acid] : Not available
- [Water] : Not available

*** Inhalation**

- Product (ATEmix) : 0mg/L < ATEmix <= 0.5mg/L
- [Sulfuric acid] : LC50 0.375 ㎎/ℓ 4 hr Rat (Aerosol/OECD TG 403, Female/Male)
- [Water] : Not available

○ **Skin corrosion/irritation**

- Causes severe skin burns and eye damage

○ **Serious eye damage/irritation**

- Not available

○ **Respiratory sensitization**

- Not available

○ **Skin sensitization**

- Not available

○ **Carcinogenicity**

*** IARC**

- [Sulfuric acid] : NULL
- [Water] : Not available

*** OSHA**

- [Sulfuric acid] : Not available
- [Water] : Not available

*** ACGIH**

- [Sulfuric acid] : A2 (When contained in strong inorganic acid mists)
- [Water] : Not available

*** NTP**

- [Sulfuric acid] : Not available
- [Water] : Not available

*** EU CLP**

- [Sulfuric acid] : Not available
- [Water] : Not available

○ **Germ cell mutagenicity**

- Not available

○ **Reproductive toxicity**

- Not available

○ **STOT-single exposure**

- Not available

○ **STOT-repeated exposure**

- Not available

○ **Aspiration hazard**

- Not available

12. ECOLOGICAL INFORMATION

A. Ecotoxicity

○ **Fish**

- [Sulfuric acid] : LC50 16 ㎎/ℓ ~ 28 ㎎/ℓ 96 hr Lepomis macrochirus
- [Water] : Not available

○ **Crustaceans**

- [Sulfuric acid] : EC50 > 100 ㎎/ℓ 48 hr Daphnia magna (pH 7.9, OECD TG 202, GLP)
- [Water] : Not available

○ **Algae**

- [Sulfuric acid] : EC50 > 100 ㎎/ℓ 72 hr (Desmodesmus subspicatus (pH 5.1,growth rate) (OECD TG 201, GLP)
- [Water] : Not available

B. Persistence and degradability

○ **Persistence**

- [Sulfuric acid] : log Kow -1.43 (SRC)
- [Water] : log Kow = -1.38

○ **Degradability**

- [Sulfuric acid] : Not available
- [Water] : Not available

C. Bioaccumulative potential

○ **Bioaccumulative potential**

- [Sulfuric acid] : BCF 250
- [Water] : Not available

○ **Biodegration**

- [Sulfuric acid] : Not available

- [Water] : Not available

D. Mobility in soil

- [Sulfuric acid] : Not available
- [Water] : Not available

E. Other adverse effects

- Not available

13. DISPOSAL CONSIDERATIONS

A. Disposal methods

- Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or stabilization by incineration or similar process.
- If water separation is possible, pre-process with Water separation process.
- Dispose by incineration.
- Do disposal as the method of agglomeration, precipitation, filtration and dehydration after disposal using the reaction of neutralization and oxidation-reduction.
- Do disposal as the method of evaporation and concentration.
- Purified by means of Separation•distillation•extractio•filtration

B. Special precautions for disposal

- The user of this product must dispose by oneself or entrust it to a waste disposer, a person who recycles other's waste or establishes and operates waste disposal facilities.
- Dispose of waste in accordance with all applicable laws and regulations.

14. TRANSPORT INFORMATION

A. UN No. (IMDG CODE/IATA DGR)

- 2796

B. Proper shipping name

- SULPHURIC ACID with not more than 51% acid or BATTERY FLUID, ACID

C. Hazard Class

- 8

D. IMDG CODE/IATA DGR Packing group

- II

E. Marine pollutant

- Not applicable

F. Special precautions for user related to transport or transportation measures

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.
- EmS FIRE SCHEDULE : F-A (General fire schedule)
- EmS SPILLAGE SCHEDULE : S-B (Corrosive substances)

15. REGULATORY INFORMATION

A. National and/or international regulatory information

○ **POPs Management Law**

- [Sulfuric acid] : Not applicable
- [Water] : Not applicable

○ **Information of EU Classification**

*** Classification**

- [Sulfuric acid] : H314

- [Water] : Not applicable

○ **U.S. Federal regulations**

*** OSHA PROCESS SAFETY (29CFR1910.119)**

- [Sulfuric acid] : Not applicable
- [Water] : Not applicable

*** CERCLA Section 103 (40CFR302.4)**

- [Sulfuric acid] : 453.599 kg 1000 lb
- [Water] : Not applicable

*** EPCRA Section 302 (40CFR355.30)**

- [Sulfuric acid] : 453.599 kg 1000 lb
- [Water] : Not applicable

*** EPCRA Section 304 (40CFR355.40)**

- [Sulfuric acid] : 453.599 kg 1000 lb
- [Water] : Not applicable

*** EPCRA Section 313 (40CFR372.65)**

- [Sulfuric acid] : Applicable
- [Water] : Not applicable

○ **Rotterdam Convention listed ingredients**

- [Sulfuric acid] : Not applicable
- [Water] : Not applicable

○ **Stockholm Convention listed ingredients**

- [Sulfuric acid] : Not applicable
- [Water] : Not applicable

○ **Montreal Protocol listed ingredients**

- [Sulfuric acid] : Not applicable
- [Water] : Not applicable

16. OTHER INFORMATION

A. Reference

- The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein.
- This Safety Data Sheet was compiled with data and information from the following sources: KOSHA, NITE, ESIS, NLM, SIDS, IPCS

B. Issue date

- 2023-09-12

C. Revision number and Last date revised

- Not applicable

D. Other

- This SDS is prepared according to the Globally Harmonized System (GHS).