SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME	:	44% Sulfuric Acid-impregnated Silicagel
NAME OF SUPPLIER	:	GL Sciences Inc.
ADDRESS	:	22-1 Nishishinjuku 6-chome Shinjuku-ku Tokyo 163-1130, Japan
CHARGE SECTION	:	International Sales Section
TELEPHONE No.	:	+81-3-5323-6620
FACSIMILE No.	:	+81-3-5323-6621
PRODUCT No.	:	5010-29013, 5010-
SDS No.	:	5010-29013

Research use only.

2. HAZARDS IDENTIFICATION

GHS CLASSIFICATION :

Acute toxicity - inhalation -	:	Category 2
Skin corrosion/irritation	:	Category 1A
Eye damage/irritation	:	Category 1
Specific target organ toxicity (Single exposure)	:	Category 1<respiratory system>
Specific target organ toxicity (Repeated exposure)	:	Category 1<respiratory system>
Hazardous to the aquatic environment - Acute hazard	:	Category 3

HAZARDS SYMBOL :

SIGNAL WORD : Danger

HAZARD STATEMENTS :

H330	Fatal if inhaled
H314	Cause severe skin burns and eye damage
H318	Cause serious eye damage
H370	Cause damage to organs
H372	Cause damage to organs through prolonged or repeated exposure
H402	Harmful to aquatic life

PRECAUTIONARY STATEMENTS :

P260	Do not breathing dust/fume/gas/mist/vapours/spray.
P264	Wash hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P284	[In case of inadequate ventilation] wear respiratory protection.
P273	Avoid release to the environment.
P310	Immediately call a POISON CENTER or doctor.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breat hing.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN or hair: Take off immediately all contaminated clothing. Rins e skin with water.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove co ntact lenses, if present and easy to do. Continue rinsing.
P308+P311	IF exposed or concerned: Call a POISON CENTER or doctor.
P314	Get medical attention if you feel unwell.
P363	Wash contaminated clothing before reuse.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container in accordance with all applicable regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL IDENTITY : Mixture

CHEMICAL NAME	CONTENT	CHEMICAL FORMULA	CAS RN	TSCA INVENTRY	EINECS No.
Sulfuric Acid	44 %	H_2SO_4	7664-93-9	Listed	231-639-5
Silicagel	56 %	SiO_2	112926-00-8	Listed	-

4. FIRST AID MEASURES

GENERAL ADVICE : Wash off immediately with soap and plenty of water. In the case of respirable dust, use self-contained breathing apparatus and dust impervious protective suit. Use personal protective equipment.

INHALATION : Move victim to fresh air. If breathing is difficult, give oxygen. If irritation persists, consult a physician.

SKIN CONTACT : Remove contaminated clothes and shoes, rinse skin with plenty of water or shower. Use soap to help assure removal. If irritation persists, consult a physician.

EYE CONTACT : Remove any contact lenses at once. Flush eyes well with flooding large amounts of running water for at least 15 minutes. Assure adequate flushing by separating the eyelids with sterile fingers. If irritation persists, consult a physician. Never rub your eyes.

INGESTION : Rinse mouth, give plenty of water to dilute the substance. Do not induce vomiting. Never give anything by mouth to an unconscious person. Consult a physician.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA : Powder, foam (alcohol foam), carbon dioxide, water spray.

FIRE & EXPLOSION HAZARDS : Toxic and irritating dust, fumes or smoke may be emitted.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTERS

: Fireman should wear normal protective equipment (full bunker gear) and positive-pressure self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS : Remove ignition sources and ventilate the area. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid raising dust and avoid contact with skin and eyes.

ENVIRONMENTAL PRECAUTIONS : Prevent spills from entering sewers, watercourses or low areas.

Comply with local disposal regulations.

METHODS FOR CLEANING UP : Do not touch spilled material without suitable protection. After material is completely picked up, wash the spill site with soap and water and ventilate the area. Pull all wastes in a plastic bag for disposal and seal it tightly. Remove, clean, or dispose contaminated clothing.

7. HANDLING AND STORAGE

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

Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure. Handle this product with suitable protection.

After using this product, dispose of contents/container in accordance with all applicable regulations and appropriate ways.

STORAGE : Store away from sunlight, heat and all ignition sources in well-ventilated dry place. Keep container tightly closed.

INCOMPATIBLE PRODUCTS : Strong oxidizers, acids, reductants.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

ENGINEERING MEASURES : Use exhaust ventilation to keep airborne concentrations below exposure limits. Use adequate ventilation.

VENTILATION : Local Exhaust ; Necessary, Mechanical(General) ; Recommended

CONTROL PARAMETERS

CHEMICAL NAME	ACGIH	OSHA PEL	NIOSH REL
Sulfuric Acid	TWA 0.2 mg/m^3	TWA 1 mg/m^3	TWA 1 mg/m^3
Silica gel	Inhalable dust TWA=10mg/m^3, Respirable dust TWA=3mg/m^3 (as PNOS)	TWA 20mppcf (80mg/m^3/%SiO_2) (as amorphous silica)	TWA 6mg/m^3 (as amorphous silica)

PERSONAL PROTECTION

RESPIRATORY PROTECTION : Half or full face piece respirator, self-contained breathing apparatus, supplied air respirator, etc. Use respirators approved under appropriate government standards and follow all regulations.

HAND PROTECTION : Safety gloves

EYE PROTECTION : Safety glasses(goggles)

SKIN PROTECTION : Protective clothing

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE : White - slightly yellowish white

PHYSICAL STATE : Solid(Powder)

ODOR : No data available

pH : Strong acid (in water)

BOILING POINT : No data available

MELTING POINT : No data available

FLASH POINT : No data available

FLAMMABILITY : No data available

AUTOIGNITION TEMPERATURE : No data available

VAPOR PRESSURE : No data available

SPECIFIC GRAVITY (DENSITY) : No data available

SOLUBILITY IN

Water : Insoluble

Organic solvent : Insoluble

PARTITION COEFFICIENT ;

n-octanol/water : No data available

DECOMPOSITION TEMPERATURE

: No data available

10. STABILITY AND REACTIVITY

REACTIVITY : Stable under recommended using and storage conditions.

CHEMICAL STABILITY : React with water.

CONDITION TO AVOID : Sunlight, heat, moisture, contact with incompatible materials.

INCOMPATIBILE MATERIALS : Acidic materials, oxidants, reductants

HAZARDOUS DECOMPOSITION PRODUCTS

: CO, CO_2, Sulfur compounds

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY -oral- : This product is not classified.

(Sulfuric Acid) : Rat LD50 = 2,140 mg/kg (SIDS, 2001) and there is a report of deaths due to human oral intake (intake is unknown).

ACUTE TOXICITY -dermal- : The classification is not possible in this product.

ACUTE TOXICITY -inhalation- : This product is classified in Category 2.

(Sulfuric Acid) : Rat LC50(4 hours exposure) = 0.375mg/L and(1 hour exposure) = 347ppm(4 hours equivalent: 0.347 mg/L) (SIDS, 2001).

SKIN CORROSION/IRRITATION : This product is classified in Category 1A.

(Sulfuric Acid) : Since the pH of concentrated sulfuric acid is 1 or less, it is judged as a corrosive substance according to the GHS classification standard.

EYE DAMAGE/EYE IRRITATION : This product is classified in Category 1.

(Sulfuric Acid) : In the case of a human accident, it was described that severe eye damage accompanied by dissolution of anterior chamber was observed (ATSDR, 1998), moderate to 5% solution for rabbit eye and strong for 10% solution. Description that irritation was observed (SIDS, 2001) Also, this substance has a pH of 2 or less.

(Silica gel) : Mild conjunctival redness in eye irritation tests(OECD TG 404, Precipitated silica(Sident9)) using rabbits (SIDS (2006)、ECETOC JACC (2006)).

Slight or no irritation in eye irritation tests(Precipitated silica) using rabbits (SIDS (2006)).

SKIN SENSITIZATION : The classification is not possible in this product.

GERM CELL MUTAGENICITY : The classification is not possible in this product.

CARCINOGENICITY : The classification is not possible in this product.

REPRODUCTIVE TOXICITY : The classification is not possible in this product.

SPECIFIC TARGET ORGAN TOXICITY - single exposure -

: This product is classified in Category 1.

(Sulfuric Acid) : Low-dose inhalation exposure to humans causes airway irritation symptoms such as cough and shortness of breath (DFGOT, 2001), while high-dose exposure causes acute effects such as coughing, shortness of breath and clot discharge, as well as decreased lung function and There is a description that persistent effects such as fibrosis and emphysema were observed and that bleeding and dysfunction of the lungs were observed after inhalation exposure to guinea pigs for 8 hours (ATSDR, 1998).

(Silica gel) : Irritating to respiratory tract (SIDS (2006), ECETOC JACC (2006))

SPECIFIC TARGET ORGAN TOXICITY - repeated exposure -

: This product is classified in Category 1.

(Sulfuric Acid) : The 28-day inhalation exposure test in SIDS (2001) rats shows cell proliferation in the laryngeal mucosa within the guidance value range of Category 1, and the ATSDR (1998) guinea pig 14-139-day repeated inhalation exposure test in Category 1 Concentrations within the guidance range of nasal septal edema, pulmonary emphysema, atelectasis, bronchial congestion, edema, hemorrhage, thrombosis, and other airway and lung disorders are further assessed in the 78-week inhalation exposure study in cynomolgus monkeys. It has been reported that histological changes such as hyperplasia of cells and thickening of wall in bronchi were observed at doses within the guidance value of Category 1 (0.048 mg / L, 23.5 Hr / Day).

ASPIRATION HAZARD : This is not possible in this product.

12. ECOLOGICAL INFORMATION

Hazardous to the aquatic environment - Acute hazard –

: This product is classified in Category 3.

(Sulfuric Acid) : Fish (Lepomis macrochirus) 96hr-LC50=16-28mg/L(SIDS,2003)

Hazardous to the aquatic environment - Chronic hazard –

: The classification is not possible in this product.

BIODEGRADABILITY : No data available

BIOACCUMULATIVE POTENTIAL : No data available

MOBILITY IN SOIL : No data available

HAZARDOUS TO THE OZONE LAYER

: Not listed in Montreal Protocol list.

13. DISPOSAL INFORMATION

Dispose in a hazardous-waste site in accordance with all applicable regulations. Any disposal practice must be in compliance with country, local, state, and federal laws and regulations (contact country, local or state environment agency for specific rules).

14. TRANSPORT INFORMATION

IATA

UN NUMBER	:	3260
UN PROPER SHIPPING NAME	:	CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (22% Sulfuric Acid-impregnated Silicagel)
CLASS	:	8, Corrosives
PACKING GROUP	:	III
ADR/RID	:	3260, Corrosives
DOT	:	3260, Corrosives
MARINE POLLUTANT	:	Not classified

15. REGULATORY INFORMATION

For classification and labeling of chemicals in accordance with the applicable rules and regulations in the EU or each country, refer to GHS classification of this product (See Section 2).

US REGULATION	:	OSHA HCS 2012/29 CFR 1910.1200
EU REGULATION	:	CLP Regulation ((EC) No. 1272/2008)

16. OTHER INFORMATION

NOTICE:

The information contained in the SDS description is applicable exclusively to the chemical substance identified herein and for its intended use as an analytical reference standard or reagent and to the unit quantity intended for that purpose. The information does not relate to, and may not be appropriate for, any application or larger quantity of the substance described. Our products are intended for the use by individuals possessing sufficient technical skill and qualification on use the material potential hazardous chemical. Accordingly, no representation or warranty, express or implied, with respect to merchantability and fitness for a particular purpose is made with respect to the information contained herein.

Attention:

This product in terms of chemical identity and the unit amount provide is intended for use in chemical analysis and not for human consumption, nor any other purpose.