

SAFETY DATA SHEET

SDS No.1050-24011

Revised Date October 8, 2024 1/5 page

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : 2 Layer cartridge(10% silver nitrate/44% sulfuric acid-impregnated silica gel)
NAME OF MANUFACTURER : GL Sciences Inc.
ADDRESS : 22-1 Nishishinjuku 6-chome Shinjuku-ku Tokyo 163-1130, Japan
CHARGE SECTION : International Sales Section
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PRODUCT No. : 1050-24011
SDS No. : 1050-24011
Research use only.

2. HAZARDS IDENTIFICATION

GHS CLACCIFICATION : Acute toxicity - inhalation - : Category 2
Skin corrosion/irritation : Category 1
Serious eye damage/eye irritation : Category 1
Specific target organ toxicity (Single exposure) : Category 1< respiratory system, gastrointestinal tract>
Specific target organ toxicity (Repeated exposure) : Category 1<respiratory system>
Hazardous to the aquatic environment - Acute hazard : Category 1
Hazardous to the aquatic environment - Chronic hazard : Category 1

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
H400 Very toxic to aquatic life
H410 Very toxic to aquatic life with long lasting effects

PRECAUTIONARY STATEMENTS :

P260 Do not breathe 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.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P284 [In case of inadequate ventilation] wear respiratory protection.
P310 Immediately call a POISON CENTER or doctor.
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. Rinse skin with water/shower.
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+P311 IF exposed or concerned: Call a POISON CENTER or doctor.
P310 Immediately call a POISON CENTER or doctor.
P314 Get medical advice/attention if you feel unwell.

P363	Wash contaminated clothing before use.
P391	Collect spillage.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container at a disposal facility in accordance with local regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL IDENTITY : 2 Layer cartridge(10% silver nitrate/44% sulfuric acid-impregnated silica gel)
 SYNONYMS : - - -
 CHEMICAL FOMULA : Combination of 4 components

CHEMICAL IDENTITY	CONTENT	CHEMICAL FOMULA	CAS No.	TSCA INVENTORY	EINECS No.	EC INDEX No.
Silica gel	65.5 %	SiO ₂	7631-86-9	Listed	231-545-4	Not established
Sulfuric acid	20.8 %	H ₂ SO ₄	7664-93-9	Listed	231-639-5	016-020-00-8
Silver Nitrate	3.2 %	HNO ₃	7761-88-8	Listed	231-853-9	047-001-00-2
Sodium sulfate, anhydrous	10.5 %	Na ₂ SO ₄	7757-82-6	Listed	231-820-9	Not established

4. FIRST AID MEASURES

GENERAL ADVICE : Wash off immediately with soap and plenty of water. In the case of respirable dust and/or fumes, 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 or water or shower. Use soap to help assure removal. 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. Consult a physician.

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

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA : Carbon dioxide, dry chemical powder, foam, water spray

FIRE & EXPLOSION HAZARDS : CO are included in a flue gas. Use cylinder-type air respiratory apparatus at the fire extinguishing in the room.
 Pay attention to shatter-resistant this product.

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.

ENVIROMENTAL PRECATIONS : Prevent entering dusts to environment.
 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 : Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure. Handle this product with appropriate protective equipments.

STORAGE : Store away from sunlight in a cool well-ventilated dry place.
 Keep container tightly closed.

INCOMPATIBLE PRODUCTS : Strong oxidizers, strong bases, strong acids.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

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

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

CONTROL PARAMETERS

CONTENT	ACGIH TLV	OSHA PEL	NIOSH REL
Silica gel	3mg/m ³ (as other respirable dust)	80 mg/m ³ /%SiO(2)+2 (as amorphous silica)	6 mg/m ³ (as amorphous silica)
Sulfuric acid	1mg/m ³	0.2mg/m ³	1mg/m ³
Silver Nitrate	0.01mg/m ³ (as Ag)	0.01mg/m ³ (as Ag)	0.01mg/m ³ (as Ag)

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 to light white grayish (Silver nitrate-impregnated silica gel)
white to light yellowish (Sulfuric acid-impregnated silica gel)

PHYSICAL SHAPE : Solid

ODOR : Odorless

MELTING POINT / FREEZING POINT : No data available

BOILING POINT OR INITIAL BOILING POINT AND BOILING RANGE : No data available

FLAMMABILITY : No data available

LOWER AND UPPER EXPLOSION LIMIT / FLAMMABILITY LIMIT : No data available

FLASH POINT : No data available

AUTO-IGNITION TEMPERATURE : No data available

DECOMPOSITION TEMPERATURE : No data available

pH : No data available

KINEMATIC VISCOSITY : No data available

SOLUBILITY IN Water : No data available

Organic solvent : No data available

PARTITION COEFFICIENT n-octanol/water (log value) : No data available

VAPOUR PRESSURE : No data available

DENSITY AND/OR RELATIVE DENSITY : No data available

RELATIVE VAPOUR DENSITY : Not applicable

PARTICLE CHARACTERISTICS : Not applicable

10. STABILITY AND REACTIVITY

REACTIVITY : Stable under recommended condition

CHEMICAL STABILITY : Hygroscopicity. Potassium hydroxide/Sulfuric acid-impregnated silica gel is easy to absorb moisture.

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

INCOMPATIBLE MATERIALS : Strong acids, oxidizers, strong bases, reductants

HAZARDOUS DECOMPOSITION PRODUCTS : Nitrogen oxides, sulfur oxides

11. TOXICOLOGICAL INFORMATION

- ACUTE TOXICITY : Sulfuric acid-impregnated silica gel is classified in Category 3.(0.78mg/L, calculated)
- SKIN CORROSION/IRRITATION : (Silver nitrate) Skin; marmot; may cause skin corrosive (CERI hazard data 2001-57,2002)
(Sulfuric acid) pH <1, corrosive material
- EYE DAMAGE/EYE IRRITATION : (Sulfuric acid) rabbit; 5% solution - moderate, 10 % solution - severe irritation (SIDS,2001)
(Silver nitrate) Eye; rabbit; moderate to severe irritation (CERI hazard data 2001-57,2002)
- RESPIRATORY OR SKIN SENSITIZATION : There are no test data on the skin sensitization properties of sulfuric acid. Sulfuric acid has been used industrially for decades, and while skin disorders due to its skin irritant effect are well known, there have been no case reports of skin sensitization. Although sulfate ions are present in large amounts in the body (~33 mmol/L in serum and 50 times that amount in cells), allergic reactions do not occur. In the allergic test for metal sulfates, it is inferred from the negative result for zinc sulfate that the test is allergic positive for metal but negative for sulfate ions. Based on these results, it can be concluded that sulfuric acid is not allergenic to humans, states (SIDS, 1998).
- GERM CELL MUTAGENICITY : There are no data from either in vivo germline or somatic cell studies, and in vitro mutagenicity studies have shown positive results only in a single indicator (chromosomal aberration test) test system (ATSDR, 1998), but negative results for other indicators.
- CARCINOGENICITY : Classifications of each component are not possible.
- REPRODUCTIVE TOXICITY : (Silver nitrate) damage to testicle.(IUCLID,2000)
- SPECIFIC TARGET ORGAN TOXICITY -single exposure- : (Sulfuric acid) damage to human respiratory tract and lungs(DFGOT(2001), ATSDR(1998)).
(Silver nitrate) damage to human respiratory tract and blood system(PATY (4th,2000),ICSC(J)(1998),CERI hazard data 2001-57(2002)).
- SPECIFIC TARGET ORGAN TOXICITY -repeated exposure- : (Sulfuric acid) animals; damage to respiratory system and lungs(SIDS(2001), ATSDR(1998)).
(Silver nitrate) damage to human respiratory system, kidneys and cardiovascular system (CERI hazard data 2001-57,2002).
- ASPIRATION TOXICITY : (Potassium hydroxide) inhalation is cause of pneumonia and progress to death (ACGIH,2001).

12. ECOLOGICAL INFORMATION

- Hazardous to the aquatic environment - Acute hazard : Crustacean; Daphnia magna, EC50=0.0006 mg/L/48h (CERI hazard data,2002)
- Hazardous to the aquatic environment - Chronic hazard : Silver compound is a metal compound and its behavior under water is unclear. BCF=600.
- BIODEGRADABILITY : No data available
- BIOACCUMULATION POTENTIAL : There is a bioaccumulation with Silver nitrate (BCF=600).
- MOBILITY IN SOIL : No data available
- OZONE LAYER EFFECTS : These components are not listed in Montreal Protocol.

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

International Regulations

Maritime regulations	:	Conform to the provisions of IMO.
UN No.	:	3260
Proper Shipping Name	:	Corrosive solid, acidic, inorganic, N.O.S.
Class	:	8
Packing Group	:	III
Marine Pollutant	:	Not applicable
Aviation regulations	:	Conform to the provisions of ICAO/IATA.
UN No.	:	3260
Proper Shipping Name	:	Corrosive solid, acidic, inorganic, N.O.S.
Class	:	8
Packing Group	:	III

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.