SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME	:	10% Silver Nitrate-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.	:	5010-29014, 5010-
SDS No.	:	5010-29014

Research use only.

2. HAZARDS IDENTIFICATION

GHS CLASSIFICATION :

Skin corrosion/irritation	:	Category 1
Eye damage/irritation	:	Category 1
Specific target organ toxicity (Single exposure)	:	Category 3(respiratory irritation)
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 :

H314	Cause severe skin burns and eye damage
H318	Cause serious eye damage
H335	May cause respiratory irritation
H372	Cause damage to respiratory system 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 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.
P273	Avoid release to the environment.
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.
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.
P314	Get medical attention if you feel unwell.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
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.
Silver Nitrate	10 %	$AgNO_3$	7761-88-8	Listed	231-859-3
Silicagel	90 %	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
Silver Nitrate	TWA 0.01 mg/m^3	TWA 0.01 mg/m^3(as Ag)	TWA 0.01 mg/m^3(as Ag)
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 grayish 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.
Color gradually from gray to black by sunlight.

CHEMICAL STABILITY : No data available

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

INCOMPATIBILE MATERIALS : Acidic materials, oxidants, reductants, alkaline compounds

HAZARDOUS DECOMPOSITION PRODUCTS

: No data available

11. TOXICOLOGICAL INFORMATION

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

(Silver Nitrate) : Rat LD50=1,170 mg/kg(IUCLID,2000)

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

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

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

(Silver Nitrate) : It has been described that this substance causes corrosion to the skin (CICAD 44(2003)). In addition, chemical burns due to contact with this substance have been reported in occupational exposure (ATSDR(1990)). In addition, this substance is classified into Category “C; R34” in EU DSD classification and “Skin Corr. 1B H314” in EU CLP classification.

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

(Silver Nitrate) : The substance has been described as causing severe corrosiveness to the eyes (CICAD 44(2003)). In addition, chemical burns due to eye contact have been reported in occupational exposure (ATSDR(1990)). In addition, this substance is classified into Category “C; R34” in EU DSD classification and “Skin Corr. 1B H314” in EU CLP classification.

(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 3.

(Silver Nitrate) : The substance is corrosive and airway irritant (ATSDR(1990), PATTY(6th, 2012)). In humans, exposure to dust inhalation causes irritation of airway mucus, acute oral poisoning symptoms such as burning sensation or pai n in the mouth, salivation, vomiting, abdominal pain, diarrhea, severe gas troenteritis, decreased blood pressure, decreased respiratory rate, dizzine ss, Convulsions, diaphragmatic myopathy, coma, central nervous system disorders, death have been reported (HSDB(Access on September 2014)). There is no data for experimental animals.

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

SPECIFIC TARGET ORGAN TOXICITY - repeated exposure -

: This product is classified in Category 1.

(Silver Nitrate) : Twenty-five out of 30 workers exposed to silver dust for less than 1 year to over 10 years at the silver nitrate and silver oxide manufacturing plants have upper respiratory tract irritation symptoms (sneezing, runny nose, stuffy nose, sore throat pain) There are descriptions that 10 persons complained of abdominal pain (severe pain and reduced by antacid) (ATSDR(1990), ACGIH(7th, 2001)). Among them, abdominal pain may be due to the effect of mucous membrane irritation that orally ingested a part of dust, and it is a symptom of a few cases (one third of the whole), and description of other digestive symptoms such as diarrhea and vomiting It was thought that it should not be targeted for the target organ. On the other hand, in the experimental animals, rats were administered a drinking dose of 222 mg Ag / kg / day (equivalent to 349.6 mg / kg / day) to rats for 37 weeks, and increased mortality was observed after 23 weeks. There is no description of organ toxicity other than silverosis (ACGIH(7th,2001)). In addition, in a study in which 89 mg Ag / kg / day (equivalent to 140 mg / kg / day) was administered to rats for nine months. Although it has been described that ventricular hypertrophy was observed (ATSDR(1990), ACGIH(7th,2001)), cardiovascular effects have not been reported in human and other animal studies, and the results are reliable. It is said that there is no (ATSDR(1990)). Besides this, there is no data available for classification in experimental animals.

ASPIRATION HAZARD : The classification is not possible in this product.

12. ECOLOGICAL INFORMATION

Hazardous to the aquatic environment - Acute hazard –

: This product is classified in Category 1.

(Silver Nitrate) : Crustacean(Daphnia magna) 48hr-EC50=0.0014 mg/L(0.0009 mg Ag/L)(CIC ADs 44,2002)

Hazardous to the aquatic environment - Chronic hazard –

: This product is classified in Category 1.

(Silver Nitrate) : When chronic toxicity data are used, the environmental kinetics for inorg anic compounds are unknown, and there are 60 days LOEC = 0.00016 mg/LCICADs 44,2002) of fish (rainbow trout). When using acute toxicity d ata for trophic levels where chronic toxicity data are not available, the e nvironmental dynamics of inorganic compounds are unknown, and 48 hou rs EC50 = 0.0014 mg/L(0.0009 mg for crustaceans(Daphnia magna)Ag/L) (CICADs 44,2002).

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. (10%Silver Nitrate-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.