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Ver.10

Safety Data Sheet Silver Oxide

1. Product and company information

Product Name : Silver Oxide
Company Name : Toyo Chemical Industrial Co., Ltd.
Address : 2-26-13 Naka-Izumi, Komae-City, Tokyo
Tel : +81-3-3489-5152
Fax : +81-3-3488-1706
Emergency Contact : +81-3-3489-5152
Recommended use of the product and restrictions on use : Electrical conductive paste, Catalyst, Reagent, Silver oxide battery

2. Hazard identification

GHS classification of the substance : Not subject to classification or cannot be classified
GHS Label elements
Pictograms : None
Signal word : None
Hazard statements : None
Precautionary statement
Safety measures : Avoid breathing dust.
Wash hand thoroughly after handling.
Do not eat, drink or smoke when using this product.
Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection/face protection.
Emergency measures : If swallowed : Call a doctor if you feel unwell.
If on skin : Gently wash with plenty of soap and water.
If skin irritation occurs : Get medical advice/attention.
If in eyes : Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.
Spilled material should be collected.
Storage : Store locked up.
Disposal : Dispose of contents/container entrust to a specialized waste disposal company.

3. Composition/information on ingredients

Substance or Mixture :		Substance			
Chemical name	Molecular formula (molecular weight)	CAS No.	Reference numbers in gazetted list in Japan (CSCL)	Reference numbers in gazetted list in Japan (ISHL)	Concentration or concentration range
Silver(I) Oxide	Ag ₂ O (231.74)	20667-12-3	1-9	—	100%

4. First-aid measures

If inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Get medical advice/attention if you feel unwell.
Skin contact : Take off or remove immediately all contaminated clothing.
Wash with plenty of water/soap.
If skin irritation occurs, Get medical advice/attention.

Eye contact :	Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. If eye irritation persists, Get medical advice/attention.
Ingestion :	Rinse mouth. Get medical advice/attention if you feel unwell.
Protection of people implementing emergency measures :	Rescuers should wear suitable protective equipment according to the circumstances. (See section 8. Exposure controls / personal protection)

5. Fire-fighting measures

Suitable extinguishing media :	Water, carbon dioxide gas, foam, powder
Do not use extinguishing media :	No information
Specific hazards :	Be careful not to inhale dust.
Specific fire extinguishing method :	The substance nonflammable, but in case of fire in the surroundings, immediately move the container to a safe place. If it cannot be moved, cool it by sprinkling water around the container and its surroundings. In case of ignition, extinguish with plenty of water. At this time, care should be taken so that the concentrated waste liquid is not discharged into rivers.
Special protective actions fire-fighters :	Wear suitable air respirators and protective clothing (heat resistant). (See section 8. Exposure controls / personal protection)

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures :	Workers must wear appropriate protective equipment (see section 8. Exposure controls / personal protection) and avoid contact with eyes and skin and inhalation. Do not touch the leakage and do not walk on it. Immediately isolate appropriate distances in all directions as leak areas. Prohibit the entrance except the person concerned.
Environmental precautions :	Avoid discharging into the environment.
Methods and materials for containment and cleaning up :	Sweep up any leaks and collect in a sealable empty container for later disposal.
Preventing secondary accidents :	No information

7. Handling and storage

Handling	
Technical measures :	Take the equipment measures described in "8. Exposure controls/personal protection" and wear protective equipment. Described in "8. Exposure controls/personal protection" perform local exhaust and general ventilation. Obtain instructions for use before use. Do not handle until all safety precautions have been read and understood.
Precautions for safe handling :	Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Avoid swallowing. Avoid put on skin. Do not put it in eyes. Avoid discharging into the environment.
Contact evasion:	See "10. Stability and reactivity" section.
Storage	
Safe storage conditions :	Store locked up. Store in a closed container, dry and cool place. Store in a cool, dark place away from direct sunlight.
Container and packing materials :	Airtight containers (glass, polyethylene, polypropylene, stainless steel etc.)

8. Exposure controls/personal protection

Control concentration :	Not set
Tolerable concentration :	
Japan Society for Occupational Health (2025)	0.01mg/m ³ Silver and silver compounds (as Ag)
ACGIH (2024)	0.01mg/m ³ TLV-TWA Silver, and compounds. Soluble compounds, as Ag
Equipment measures :	Workplaces storing or handling this material should be equipped with an eyewash facilities and safety shower. Enclose the equipment or install a local exhaust ventilation to prevent exposure.
Protective Equipment	
Respiratory protection :	Wear suitable respiratory equipment (gas mask (in case of fire: air respirator), dust mask). (Refer to JIS T8151 Particulate respirators, JIS T8152 Gas respirators, JIS T8155 Compressed air open-circuit self-contained breathing apparatus)
Hand protection :	Wear protective gloves. (Rubber gloves, etc.) (Refer to JIS T8116 Chemical protective gloves)
Eye protection :	Wear appropriate eye protection (regular glasses, plain glasses with side plates, goggles). (Refer to JIS T8147 Protective Glasses)
Skin and body protection :	Wear protective clothing, and protective shoes, etc. (Refer to JIS T8115 Chemical Protective Clothing, JIS T8117 Chemical Protective Boots)

9. Physical and chemical properties

Physical state :	Powder
Color :	Black - dark brown
Odor :	Odorless
Melting point/freezing point :	No information
Boiling point, initial boiling point, and boiling range :	No information
Dlammability :	
Lower and upper explosion limit / flammability limit :	Solids are not applicable
Flash point :	Solids are not applicable
Aut-ignition temperature :	Solids are not applicable
Decomposition temperature :	Decomposed at 200 °C or more
pH :	No information
Kinematic viscosity :	Solids are not applicable
Solubility :	Soluble in nitric acid. Insoluble in water.
Partition coefficient: n-octanol / water (log value) :	No information
Vapor pressure :	No information
Density and/or relative density	d ²⁵ 7.22
Relative vapour density :	Solids are not applicable
Particle characteristics	No information

10. Stability and reactivity

Reactivity :	No information
Chemical stability :	Is decomposed by heat, light.
Possibility of harmful reactions :	Care must be taken because these produce explosive silver nitride (fulminating silver) in the presence of ammonia.
Conditions to be avoided :	Light, heat
Incompatible substances :	Ammonia, Nitric acid
Hazardous degradable organisms :	Silver

11. Toxicological information

Acute toxicity	
Oral :	Based on the report that the mouse LD50 value was 1,027 mg / kg, But classification not possible due to lack of data.
Dermal :	Classification not possible due to lack of data.
Inhalation : Gases	The definition of GHS is a solid.
Inhalation : Vapours	The definition of GHS is a solid.
Inhalation : Dusts and mists	Classification not possible due to lack of data.
Skin corrosios/irritation :	Classification not possible due to lack of data.
Serious eye damage/irritation :	Classification not possible due to lack of data.
Respiratory sensitization :	Classification not possible due to lack of data.
Skin sensitization :	Classification not possible due to lack of data.
Germ-cell mutagenicity :	Classification not possible due to lack of data.
Carcinogenicity :	Classification not possible due to lack of data.
Reproductive toxicity :	Classification not possible due to lack of data.
Specific target organ toxicity (single exposure) :	Classification not possible due to lack of data.
Specific target organ toxicity (repeated exposure) :	Classification not possible due to lack of data.
Aspiration hazard :	Classification not possible due to lack of data.

12. Ecological information

Toxicity	
Hazardous to the aquatic environment (acute) :	Classification not possible due to lack of data.
Hazardous to the aquatic environment (chronic) :	Classification not possible due to lack of data.
Persistence and degradability :	No information
Bioaccumulative potential :	No information
Mobility in soil :	No information
Hazard to the ozone layer :	The materials concerned are not listed by an affiliated book of Montreal Protocol.

13. Disposal precautions:

Residual waste :	Prior to disposal, treatments such as detoxification, stabilization and neutralization are carried out to the extent possible to reduce the hazard level. Dispose of in accordance with relevant laws and local government standards. Outsource to an industrial waste disposal ontractor licensed by the prefectural governor, or if a local public entity does the disposal, outsource it there. If outsourcing waste disposal, thoroughly notify the disposal companies of the dangers and harmfulness before outsourcing. Avoid discharging wastewater and washing wastewater containing this substance of directly i rivers, or landfill, or dumping.
Dirty containers and packaging :	Containers should be cleaned and recycled or disposed of properly in accordance with relevant laws and local government standards. When disposing of empty containers, completely remove the contents.

14. Transport information

International regulations	
UN No. :	No information
Proper shipping name :	No information
Class :	No information
Sub risk :	No information
Packing group :	No information
Marine pollutant (sea) :	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code : Not applicable

Japanese regulations

Land regulations information : Not applicable
Maritime regulations information : Not applicable
Aviation regulations information : Not applicable
Special safety measures : When transporting, avoid direct sunlight, load containers without damage, corrosion, or leakage, and securely prevent collapse of cargo.

15. Regulatory information (Japanese law)

Air pollution control act Hazardous air pollutants (45 of Central environment council 9th report)

*Laws and regulations are examples and do not cover domestic laws and regulations.

16. Other information

References, etc. : GHS classification results database: NITE website
GHS model SDS information: JISHA website
Ministry of health, labor and welfare website
JIS Z7252 : 2019
JIS Z7253 : 2019
Selection Manual for Protective Equipment for Prevention of Skin Damage, etc.
(Ministry of Health, Labour and Welfare Feb.2024)

*Caution:

Although hazard and harmfulness evaluations are based on the data and information available at the current time, they may not be sufficient.

Please handle with care.

Furthermore, the data and evaluations described herein are not in any way guaranteed. The descriptions refer to normal handling.

Regarding special handling, please handle based on the safety measures which are suitable for the intended applications and methods of use.

This SDS is an English translation of a document prepared in Japanese in accordance with JIS Z7253:2019.