# Safety Data Sheet

# Silver Carbonate

Created: Feb. 17, 2010
Revised: Nov. 01, 2016

## 1. Chemical Articles and Company Information

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|---|---|
| Name of Chemical Article: | Silver (I) Carbonate |
| Company Name: | Toyo Chemical Industrial Co., Ltd. |
| Address: | 2-26-13 Naka-Izumi, Komae-City, Tokyo |
| Tel.: | +81-3-3489-5152 |
| Fax: | +81-3-3-3488-1706 |
| Emergency Contact: | As above |
| Recommended Applications and Use Restrictions: | Catalysts and reagents |

## 2. Summary of Hazards

GHS Classification

| | | |
|---|---|---|
| Damage to health | Acute toxicity (oral) | Class 5 |

GHS Label Elements

Picture descriptions:

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| Cautionary terms: | Warning |
| Hazard information: | Risk of harm if ingested |
| Cautions | |
| Safety Measures: | Wear respiratory protective equipment, protective gloves, protective clothing, goggles, and face mask.<br>Prevent contact with eyes, skin, and clothing.<br>Do not inhale the dust.<br>Wash hands thoroughly after handling.<br>When using the product, do not eat, drink, or smoke.<br>Avoid discharging into the environment. |
| Emergency Measures: | If inhaled, move to a location with fresh air, and rest in a posture that facilitates breathing.<br>If respiratory-related symptoms appear, consult a physician for treatment.<br>If ingested, do not induce vomiting. Rinse out the mouth, and consult a physician promptly for diagnosis and treatment.<br>If the substance contacts the eye, irrigate with water thoroughly for several minutes.<br>If contact lenses can be removed easily, remove and wash them.<br>If eye irritation persists, consult a physician and receive treatment.<br>If the substance adheres to the skin, wash using copious amounts of soap and water.<br>If skin irritation or eruptions occur, consult a physician and receive treatment.<br>If exposed or fear exposure, consult a physician to receive diagnosis and treatment.<br>If you feel unwell, consult a physician to receive diagnosis and treatment.<br>Gather any leaks. |
| Storage: | Securely seal the containers, and store in a locked, well-ventilated location. |
| Disposal: | Entrust disposal of containers and contents to a specialist waste disposal company who is licensed by the prefectural governor. |

## 3. Composition and Component Information

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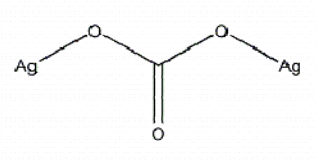
| Single Substance or Mixture: | Single Substance |
| Chemical name or general name: | Silver (I) Carbonate |
| Another name: | - |
| Concentration or concentration range: | 100% |
| Molecular formula (molecular weight): | $Ag_2CO_3$ (275.75) |
| Chemical characteristics (rational or structural formula): |   |
| CAS No.: | 534-16-7 |
| Reference numbers in gazetted list in japan (CSCL and ISHL): | 1-1016 |
| Impurities and stabilization additives that contribute to the classification: | No information |

## 4. Emergency Measures

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| If inhaled: | Move to a location with fresh air, and rest in a posture that facilitates breathing.<br>If you feel unwell, consult a physician to receive diagnosis and treatment. |
| Adhesion to skin: | Remove soiled clothing and shoes, and thoroughly wash any adhesions or contact body parts with cold or lukewarm water.<br>If changes in appearance manifest, or pain continues, consult a physician. |
| Contact with eyes: | If the substance contacts the eye, irrigate with water thoroughly for several minutes.<br>If eye irritation persists, consult a physician and receive treatment. |
| If ingested: | Rinse mouth.<br>If you feel unwell, consult a physician to receive diagnosis and treatment. |
| The most important sign of an acute symptom and the tardive symptom and symptom: | No information |
| Protection of people implementing emergency measures: | Rescuers should wear suitable protective equipment according to the circumstances. |
| Special precautions for physicians: | No information |

## 5. Measures during Fires

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| Extinguishing agents: | Copious amounts of water, dry sand |
| Extinguishing agents that must not be used: | No information |
| Characteristic dangers: | Non-flammable, so itself is not burned, but strong heat risks causing harmful gas to be emitted, so wear protective equipment when firefighting. |
| Characteristic extinguishing methods: | Promptly move containers in the vicinity of the fire to a safe location. If moving is not possible, scatter water on the containers and their surroundings to cool. |
| Protection of firefighters: | When firefighting, wear full (heat resistant) protective clothing including suitable breathing equipment. |

## 6. Measures during Leaks

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| Physical precautions, protective equipment, and measures during emergencies: | Cordon off the periphery of the dispersal area to prohibit the entrance of personnel. Workers must wear suitable protective equipment (See “8. Exposure Avoidance and Protection Measures”), and avoid dust and fume inhalation, and contact with the eyes and skin. |
| Environmental precautions: | Avoid discharging into the environment. |

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| Methods and materials for contamination and methods and materials for cleaning up: | No information |
| Collection and neutralization: | Sweep together any leaks to prevent dust inhalation, and collect in an empty sealable container. |
| Preventing secondary accidents: | No information |

## 7. Handling and Storage Precautions

Handling

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| Technical measures: | Install local exhausters, and eye and hand washing facilities, in the handling locations.<br>Ideally, handle in locations with local exhausters and overall ventilators. |
| Precautions for safe handling: | Prior to use, obtain an instruction book.<br>Do not handle until all safety precautions and readings are understood.<br>When using the product, do not eat, drink, or smoke.<br>Do not touch, inhale, or drink.<br>Prevent contact with eyes, skin, and clothing.<br>Wash hands thoroughly after handling.<br>Avoid discharging into the environment. |
| Contact evasion: | In item of "10. Stability and Reactivity" reference. |

Storage

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| Safe storage conditions: | Lock the storage location.<br>Store in a well-ventilated, cool location.<br>Store away from the light.<br>Technical measures:No information |
| Container and packing materials: | Airtight containers (glass, polyethylene, stainless steel, etc.) |

## 8. Exposure Avoidance and Protection Measures

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|---|---|
| Control concentration: | No information |
| Tolerable concentration: | |
| Japan Society for Occupational Health (2015) | 0.01mg/$m^3$ (as Ag) |
| ACGIH (2014) | TLV-TWA (0.01 mg/m3) As Ag Soluble compounds |
| Equipment Measures: | Install local exhausters, and eye and hand washing facilities, in the handling locations.<br>Install a ventilating device to keep an air pollutant management density or less. |

Protective Equipment

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| Respirator: | Wear suitable respirator. (Poison masks (respirator during fires), dust masks, etc.) |
| Hand protective equipment: | Wear protective gloves. (Rubber gloves, etc.) |
| Eye protective equipment: | Wear eye protective equipment. (Goggles, etc.) |
| Skin and body protective equipment: | Wear protective face equipment, clothing, and protective shoes, etc. (Protective clothing, protective boots, etc.) |

## 9. Physical and Chemical Properties

Physical properties

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| Shape: | Crystalline powder |
| Color: | Light yellow to light green |
| Odor: | Odorless |
| Odor threshold value: | No information |
| pH: | No information |
| Melting point and coagulation point: | No information |
| Boiling point, initial boiling point, and boiling range: | No information |
| Ignition Point: | Non-flammable |
| Vaporization speed (butyl acetate=1): | No information |
| Burnability (solids and gas): | Non-flammable |

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|---|---|
| Explosion range: | No information |
| Vapor pressure: | No information |
| Vapor density (vapor=1): | No information |
| Specific gravity (density): | $d^{20}$ 6.08 |
| Solubility: | Water: 20ºC 3mg/100ml Water: 60ºC 50mg/100ml |
| n-Octanol/water partition coefficient: | No information |
| Spontaneous ignition temperature: | Non-flammable |
| Dissolution temperature: | Dissolves in $Ag_2O$ and $CO_2$ at 218ºC |
| Viscosity: | No information |

## 10. Stability and Reactivity

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| Reactivity: | No information |
| Stability: | A stable and non-flammable substance under normal conditions.<br>In the presence of organic residue, the silver separates and discolors due to light. |
| Possibility of harmful reactions: | Strong oxidants |
| Conditions to be avoided: | Sunlight, heat |
| Incompatible substances: | Strong oxidants |
| Hazardous degradation products: | Silver, silver oxide, $CO_2$ |

## 11. Harmfulness Information

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| Acute toxicity: | |
| Oral: | Oral: Rat LD50 >3,731mg/kg |
| Pass; skin: | No data available |
| Inhalation:Gas | The definition of GHS is a solid. |
| Inhalation:Steam | The definition of GHS is a solid. |
| Inhalation:Dust,Mist | No data available |
| Skin corrosiveness and irritation: | No data available |
| Critical injury to eyes and eye irritant: | No data available |
| Respiratory organ sensitivity: | No data available |
| Skin sensitivity: | No data available |
| Germ-cell mutagenicity: | No data available |
| Carcinogenicity: | No data available |
| Reproductive toxicity: | No data available |
| Specific marker organs and systemic toxicity (single exposure): | No data available |
| Specific marker organs and systemic toxicity (repeated exposures): | |
| Inhalable respiratory organ harmfulness: | No data available |

## 12. Environmental Impact Information

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| Ecotoxicity | |
| Aquatic environmental harm (acute hazard): | No data available |
| Aquatic environmental harm (long-term hazard): | No data available |
| Hazard to the ozone layer: | The materials concerned are not listed by an affiliated book of Montreal Protocol. |

## 13. Disposal Precautions:

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| Residual waste: | Obey the related laws and regulations, and local government standards for waste disposal.<br>Entrust disposal to industrial waste disposal company or local public body that is authorized by the prefectural governor where available.<br>If outsourcing waste disposal, thoroughly notify the disposal companies of the dangers and harmfulness before outsourcing. |

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| Dirty containers and packaging: | Suitably process containers according to the related laws and regulations, and local government standards.<br>When disposing of empty containers, make sure to discard the contents completely. |

## 14. Shipping Precautions

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| International Regulations | |
| UN No.: | - |
| Proper Shipping Name: | - |
| Class: | - |
| Sub Risk: | - |
| Packing Group: | - |
| Marine Pollutant: | - |
| Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: | No |
| Japanese Regulations | |
| Land Regulation Information | Obey Poisonous and Deleterious Substances Control Law |
| Maritime Regulation Information | Obey Ship Safety Law regulations. |
| Aviation Regulation Information | Obey the Civil Aeronautics Law regulations. |
| Special safety measures | Yellow card display is required during transport.<br>During transport, avoid direct sunlight, and load so that the containers are not damaged, corroded, or leaking, and secure the load to prevent toppling. |

## 15. Applicable Laws

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| Poisonous and Deleterious Substances Control Law: | Non-medical deleterious substances |

## 16. Other Information

Bibliography:

GHS classification results database: NITE website

GHS model SDS information: JISHA website

Reagent guidebook (Revised 2003)

Collection of Poisonous Materials Standard Notifications

Dictionary of Chemistry (1987 30th printing: Kyoritsu Shuppan)

16112 Chemical Products (2012 The Chemical Daily)

*Caution:

Hazard and harmfulness evaluations were created using the data and information available at the current time, but is not necessarily thorough, so handle with care.

Further, the data and evaluations described herein are not in any way guaranteed. The descriptions refer to normal handling, so for special handling, first implement safety measures conforming to the new application and methods of use.

This SDS is translated into English.(Original version is Japanese)