

CANON OPTRON INC.

SDS Number: EA04

Product Name: Ag

## SAFETY DATA SHEET

rev. 7.2 Date of Issue 2014/9/1

Revised Date 2022/10/3

## SECTION 1 Chemicals and company identification

Product name	Ag
Product code	EA04
Company name	CANON OPTRON INC.
Address	1744-1, Kanakubo, Yuki-shi, Ibaraki-ken, 307-0015 Japan
Section name	Sales Department
Telephone number	+81-296-21-3700
Fax number	+81-296-21-3770
Emergency telephone number	+81-296-21-3700
Use	Vacuum deposition material

## SECTION 2 Hazards identification

GHS Classification (A classification by JIS Z 7252 "classification methods such as chemical substances based on GHS")

Physical hazards	Explosives	Classification not possible
	Flammable gases	Not applicable
	Aerosols	Not applicable
	Oxidizing gases	Not applicable
	Gas under pressure	Not applicable
	Flammable liquids	Not applicable
	Flammable solids	Classification not possible
	Self-reactive substances and mixtures	Classification not possible
	Pyrophoric liquids	Not applicable
	Pyrophoric solids	Classification not possible
	Self-heating substances and mixtures	Classification not possible
	Substances and mixtures which, in contact with water, emit flammable gases	Classification not possible
	Oxidizing liquids	Not applicable
	Oxidizing solids	Classification not possible
	Organic peroxides	Classification not possible
	Corrosive to metals	Classification not possible
	Desensitize explosives	Classification not possible
Health hazards	Acute toxicity (oral)	Not classified
	Acute toxicity (dermal)	Not classified
	Acute toxicity (Inhalation: Gases)	Not applicable
	Acute toxicity (Inhalation: Vapors)	Classification not possible

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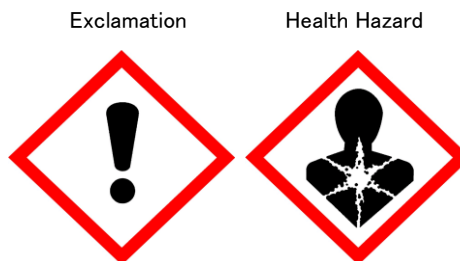
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Environmental hazards	Acute toxicity (Inhalation: Dusts and mists)	Classification not possible
	Skin corrosion/irritation	Not classified
	Serious eye damage/eye irritation	Category 2B
	Respiratory sensitization	Classification not possible
	Skin sensitization	Category 1
	Germ cell mutagenicity	Classification not possible
	Carcinogenicity	Classification not possible
	Reproductive toxicity	Classification not possible
	Reproductive toxicity, effects on or via lactation	Classification not possible
	Specific target organ toxicity(single exposure)	Category 1
	Specific target organ toxicity(repeated exposure)	Category 1
	Aspiration hazard	Classification not possible
	Hazardous to the aquatic environment Short-term(acute)	Classification not possible
	Hazardous to the aquatic environment Long-term(chronic)	Classification not possible
	Hazardous to the ozone layer	Classification not possible

## Label elements

hazard Pictograms



Signal word

Danger

Dangerous goods hazard information

May cause an allergic skin reaction.  
 Causes eye irritation.  
 Causes damage to organs Respiratory system.  
 Causes damage to organs through prolonged or repeated exposure  
 Eyes,Respiratory organs.

Precautionary statements

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## 【Safety measures】

Do not breathe dust/fume/gas/mist/vapours/spray.  
 Avoid breathing dust/fume/gas/mist/vapours/spray.  
 Wash hands thoroughly after handling.  
 Do not eat, drink or smoke when using this product.  
 Contaminated work clothing should not be allowed out of the workplace.  
 Wear Protective glovess/protective clothing/eye protection/face protection.

## 【First-aid measures】

IF ON SKIN: Wash with plenty of soap and water.  
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 If exposed or concerned: Call a poison center or doctor/physician.  
 Get medical advice/attention if you feel unwell.  
 Specific treatment .  
 If skin irritation or rash occurs: Get medical advice/attention.  
 If eye irritation persists: Get medical advice/attention.  
 Take off contaminated clothing and wash it before reuse.

## 【Storage】

Store locked up.

## 【Disposal】

Dispose of contents/container in accordance with national regulations.

## 【Other hazards】

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## SECTION 3 Composition/information on ingredients

Substance/Mixture	Substance
Chemical name	<i>Silver</i>
Chemical formula	<i>Ag</i>
Concentration or concentration range	99.99%<
CAS No.	7440-22-4
TSCA Inventory	<i>Silver</i>
EINECS number	<i>231-131-3</i>
Radioactive information	Radioactive substances are not used as the material. Therefore, there is no reason that ionizing radiation would be generated.

## SECTION 4 First aid measures

Inhalation	Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention if you feel unwell.
Skin contact	Take off immediately all contaminated clothing. Rinse affected areas with water/shower. IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: : Get medical advice/attention.
Eye contact	Rinse cautiously with water for several minutes.Remove contact lenses, if present and easy to do. Continue rising. If eye irritation persists: Get medical advice/attention.
Ingestion	Rinse mouth. Get medical advice/attention.

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Most important symptoms and effects, both acute and delayed	Effects of long-term or repeated exposure: May cause discoloration of the eyes, nose, throat, and skin (argyria; silver poisoning).
Protection of first aiders	Rescuers, wear suitable protective equipment as the situation demands.
Special precautions for physicians	No data available

## SECTION 5 Firefighting measures

Suitable extinguishing media	This product itself is not flammable. The use of appropriate fire extinguishing agent according to the types of surrounding fire.
Unsuitable extinguishing media	No data available
Specific hazards	There is a possibility that irritating, or to generate a toxic gas by fire.
Specific extinguishing methods	It move a container from the fire area if not dangerous. Immovable case, it is cooled with water spray in and around the container.
Special protective equipment for firefighters	When fire fighting work, and should be worn for a suitable chemical protective clothing and respiratory air.

## SECTION 6 Accidental release measures

Personal precautions, protective equipment, and emergency procedures	Immediately, It isolate leakage area as the appropriate distance in all directions. It prohibit the entrance except the person concerned. Wear, the operator avoid inhalation of gas and contact with eyes, to the skin (see section "protection measures and 8. Exposure prevention") appropriate protective equipment. It stay upwind.
Environmental precautions	The Note is discharged into rivers or the like, so as not to cause damage to the environment.
Methods and material for containment and cleaning up	If it is not dangerous to do so, stop the leak. Collection and neutralization: Sweep up leaked material and collect it in a sealable empty container.
Secondary disaster prevention measures	Because of the risk of slippery when left on the floor, to handle frequently.

## SECTION 7 Handling and storage

Precautions for safe handling	
Technical measures	Take measures for equipment as described in "8. Exposure controls/personal protection" and wear protective equipment.
Safety handling precautions	Do not swallow contact, or inhalation. Avoid contact with eyes. Do not inhale dust, fumes. Wash hands thoroughly after handling. Be used only in well-ventilated area or outdoors.
Avoidance of contact	Refer to "10. Stability and reactivity."
Hygiene measures	Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product.

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Conditions for safe storage,  
including any incompatibilities

Safe storage conditions Store locked up.

Safety packaging material No packaging, regulation of the container, but put to those that do not damage sealable.

## SECTION 8 Exposure controls/personal protection

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Permissible concentration

ACGIH

TLV-TWA 0.1mg/m<sup>3</sup>  
(2005 edition)

Appropriate engineering controls

And placing a safety shower and eye wash in the workplace handling or storage of this material.

Making a ventilation exhaust in order to keep the exposure limits or less concentration in the air.

When dust, fumes generated in the high heat step, installing a ventilation system in order to keep the concentration below manage air pollutants.

Individual protection measures,  
such as personal protective  
equipment

Respiratory protection Dustproof mask

Hand protection Protective gloves

Eye/face protection Dust-proof glasses

Skin protection Protective clothing

## SECTION 9 Physical and chemical properties

Appearance

Physical state Solid

Form Pellet, wiry

Colour White or off-white

Odour None

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Melting point/freezing point

962°C

Boiling point or initial boiling point  
and boiling range

2212°C

Flammability

No data available

Upper/lower flammability or  
explosive limits

No data available

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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	
Water	Insoluble
Other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Vapour pressure	0.000000565Pa (25 °C) (in terms of value)
Density and/or relative density (Density)	10.5
Relative vapor density	No data available
Particle characteristics	No data available
Other information	No data available

## SECTION 10 Stability and reactivity

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Reactivity	No data available
Chemical stability	It is stable under normal conditions.
Possibility of hazardous reactions	It darken to exposure to sulfur ozone, or hydrogen sulfide. Contact not strong acids, and strong bases. Sensitive compounds shock is formed by acetylene. (To release oxygen gas by decomposing violently) sometimes concentrated hydrogen peroxide solution and fine pieces of silver will explode. The substance can form explosive compounds upon drying, upon contact with ammonia. It readily reacts with concentrated sulfuric acid and dilute nitric acid. It pose a risk of fire.
Conditions to avoid	No data available
Incompatible materials	Strong acids, strong bases, strong hydrogen peroxide solution, ammonia (dry), dilute nitric acid, concentrated sulfuric acid.
Hazardous decomposition products	Not applicable

## SECTION 11 Toxicological information

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Acute toxicity(oral)	SPECIES: Rat ENDPOINT: LD50 VALUE: >5000 mg/kg
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Acute toxicity(dermal)	<i>Dermal rat LD50&gt; 2000mg/kg</i>
Acute toxicity (Inhalation: Gases)	<i>Solid (GHS definition)</i>
Acute toxicity (Inhalation: Vapours)	<i>No data available</i>
Acute toxicity (Inhalation: Dusts and mists)	<i>No data available</i>
Skin corrosion/irritation	<i>Since it is reported to be "Slightly irritating" on rabbits (IUCALID (2000)), it was classified as out of Category.</i>
Serious eye damage/irritation	<i>It was referred to as Category 2B from the statement of mild irritation by rabbit test / recovered in 48 hours (IUCALID (2000)).</i>
Respiratory or skin sensitization	<i>Classified as Category 1 because of the descriptions that powder exposure causes allergic contact dermatitis (ACGIH (2001)) and that contact to accessories containing silver produced allergic reactions (PATY (5th, 2001)).</i>
Germ cell mutagenicity	<i>No data available</i>
Carcinogenicity	<i>There are descriptions that carcinogenicity was not observed in the test in which powder was intramuscularly injected to rats (PATY (5th, 2001)). And there is no carcinogenic evidence to humans (PATY (5th, 2001), (HSDB (2003))). But there is no information of classification evaluation organizations such as IARC, so it was determined that it cannot be classified.</i>
Reproductive toxicity	<i>No data available</i>
Specific target organ toxicity(single exposure)	<i>The substance was classified as Category 1 (respiratory system). Based on the reports that lung disorders with pulmonary edema developed after exposure to heated metallic silver fumes for 4 hours (ACGIH (2001)), and that irritation to the airways develops after occupational exposure to the dust (ATSDR ToxFAQs (1997)).</i>
Specific target organ toxicity(repeated exposure)	<i>The argyria (argyria) which is pigmentation in the skin and mucosa is produced by occupational exposure to powders (ACGIH (2001)) (PATY (5th, 2001)), but as the description of dysfunction of decreased night vision (ATSDR ToxFAQs (1997)), it was classified into Category 1 (eye). It was classified into Category 1 (respirator: inhalation) with the description that it became bronchitis by deposition to the lungs by prolonged inhalation of a dust (PATY (5th, 2001))(HSDB (2003)) .</i>
Aspiration hazard	<i>Solid (GHS definition)</i>
Other information	<i>No data available</i>

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## SECTION 12    Ecological information

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## Toxicity

Hazardous to the aquatic  
environment Short-  
term(acute)

*No data available*

Hazardous to the aquatic  
environment Long-  
term(chronic)

*No data available*

Persistence and degradability

*No data available*

Bioaccumulative potential

*No data available*

Mobility in soil

*No data available*

Hazard to the ozone layer

*No data available*

Other adverse effects

*No data available*

## SECTION 13    Disposal considerations

Waste treatment methods

Process is contracted to industrial waste disposers who received approval of a  
prefectural governor.

Contaminated container and  
contaminated packaging

The container is recycled after being cleaned, or is appropriately processed  
according to the standards of related laws and regulations.  
When disposing of empty containers, the contents should be completely removed.

## SECTION 14    Transport information

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## International regulation

UN number

*Not applicable*

UN proper shipping name

*Not applicable*

UN classification

*Not applicable*

Transport hazard class

*Not applicable*

Packing group

*Not applicable*

Hazardous to the aquatic  
environment

*No data available*

Maritime transport in bulk  
according to IMO instruments

*No data available*

Japanese laws and regulations

*Land regulation information Not applicable*  
*Maritime regulatory information non-hazardous materials*  
*Aviation regulatory information non-hazardous materials*

Special precautions for users

*When transporting, protect from direct sunlight and take on cargo without  
breakage of container, corrosion and leakage.*  
*Do not stack heavy good thereupon.*

Special Provisions

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## SECTION 15 Regulatoly information (Japan)

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Occupational Safety and Health Law	<i>There is it in the case of an application or an application</i>
PRTR Law	<i>There is it in the case of an application or an application</i>
Poisonous and Deleterious Substances control Law	<i>Not applicable</i>
Labor Standards Act	<i>Not applicable</i>
Chemical substances control Law	<i>Not applicable</i>
Fire fighting Law	<i>Not applicable</i>
Air Pollution Control Act	<i>There is it in the case of an application or an application</i>
Water Pollution Prevention Act	<i>Not applicable</i>
Water Supply Act	<i>Not applicable</i>
Sewerage Act	<i>Not applicable</i>
Marine Pollution Prevention Law	<i>Not applicable</i>
Waste Management and Public Cleansing Act	<i>Not applicable</i>
Note	Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

## SECTION 16 Other information

The Safety Data Sheet (SDS) has been prepared based on currently available materials, information and data, and may be revised based on new information. Further, the important points in the SDS are made for the purpose of normal handling. When handling the user product in a specialized manner, take the appropriate safety measures for the application or method. Further, Canon Optron Inc. has paid sufficient attention to the described contents of the SDS, but does not guarantee the accuracy of its contents.

The SDS prepared by our company includes all findings from our investigation for reference. Not applicable to all items listed.

## Literature Reference

## [WEB site]

National Institute of Technology and Evaluation Homepage

Japan Advanced Information Center of Safety and Health Homepage

Ministry of Health, Labour and Welfare Homepage

## [Regulatory review Tools]

ezCRIC (Japan Chemical Database Ltd)