

CANON OPTRON INC.
 SDS Number: EA04
 Product Name: Ag

SAFETY DATA SHEET

rev. 6.5 Date of Issue 2014/9/1
 Revised Date 2018/6/6

SECTION 1 Chemicals and company identification

Chemical identifier	Ag
SDS number	EA04
Company name	CANON OPTRON INC.
Address	1744-1, Kanakubo, Yuki-shi, Ibaraki-ken, 307-0015 Japan
Section name	Internal Control Promotion Div.
Telephone number	+81-296-21-3700 (Sales Dept.)
Fax number	+81-296-21-3770
Emergency telephone number	+81-296-21-3700 (Sales Dept.)
Recommended uses and restrictions on 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")

Physicochemical hazard	Explosives	Classification not possible	
	Flammable gases (including chemically unstable gases)	Not applicable	
	Aerosols	Not applicable	
	Oxidizing gases	Not applicable	
	Gases 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	
	Health hazard	Acute toxicity (oral)	Not classified
		Acute toxicity (dermal)	Not classified
		Acute toxicity (inhalation)	Classification not possible
Skin corrosion/irritation		Not classified	

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	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
	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
Environmental hazard	Hazard to the aquatic environment(acute hazard)	Classification not possible
	Hazard to the aquatic environment(long-term hazard)	Classification not possible
	Hazard to the ozone layer	Classification not possible
Label element		
Pictogram (Symbol)	Exclamation	Health Hazard
		
Signal word	Danger	
Hazard statement	<p>May cause an allergic skin reaction. Causes eye irritation. Causes damage to organs. Causes damage to organs through prolonged or repeated exposure.</p>	
Precautionary statement		
【Safety measures】	<p>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 gloves/protective clothing/eye protection/face protection.</p>	

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【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.

SECTION 3 Composition and information ingredients

Substance/Mixture	Substance
Chemical name or generic name	Silver
Chemical formula	Ag
CAS No.	7440-22-4
Concentration or concentration range	99.99%<
TSCA Inventory	Silver
EINECS number	231-131-3
Radioactive information	It does not use a radioactive substance as a material. Thus, evidence of ionizing radiation occurs is not present.

SECTION 4 First-aid measures

Inhalation	It is possible to move to fresh air victims and keep at rest in a position comfortable for breathing. If you feel bad, get medical attention, diagnosis.
Skin	Be washed immediately and the skin. Wash with plenty of soap and water. If skin irritation or rash occurs, get medical attention, attention. If you feel bad, get medical attention, diagnosis. Be laundered before reuse contaminated clothing.
Eye	Rinse cautiously with water for several minutes. Then, be removed, if present and easy to do wear contact lenses. To continue the cleaning afterwards. If eye irritation persists, if you feel bad, it is possible to receive medical attention, attention. If you feel bad, get medical attention, diagnosis.
Ingestion	Rinse the mouth. If you feel bad, get medical attention, diagnosis.
Protection of first aiders	No data available

SECTION 5 Fire-fighting measures

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Extinguishing media	The product itself does not burn. The use of appropriate fire extinguishing agent according to the types of surrounding fire.
Extinguishing media are unsuitable	No data available
Specific hazards	There is a possibility that irritating, or to generate a toxic gas by fire.
Specific extinguishing methods	The Move containers from fire area if this can be done without risk. Immovable case, it is cooled with water spray in and around the container.
Protection of fire-fighters	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, I isolate leakage area as the appropriate distance in all directions. To prohibit the entrance of non-emergency personnel. 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. I stay upwind.
Environmental precautions	The Note is discharged into rivers or the like, so as not to cause damage to the environment.
Methods and materials for containment and methods and materials for cleaning up	Stop leak if it can be done without risk.
Secondary disaster prevention measures	Because of the risk of slippery when left on the floor, to handle frequently.

SECTION 7 Handling and storage precautions

Handling	
Technical measures	And made capital measures described in "SECTION 8 Exposure controls and personal protection", to 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.
Storage	
Safe storage conditions	To keep it under lock and key.
Safety packaging material	No packaging, regulation of the container, but put to those that do not damage sealable.

SECTION 8 Exposure controls and personal protection

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Permissible concentration

ACGIH

TLV-TWA 0.1mg/m ³ (2005 edition)
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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.
Personal protective equipment	
Respiratory protection	Dust mask
Hand protection	Protective glove
Eye protection	Dust-proof glasses
Skin and body 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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pH	<i>No data available</i>
Melting point/Freezing point	<i>962°C</i>
Boiling point/Initial boiling point and boiling range	<i>2212°C</i>
Flash point	<i>No data available</i>
Evaporation rate	<i>No data available</i>
Flammability (solid, gas)	<i>No data available</i>
Explosive limits	
LEL	<i>No data available</i>
UEL	<i>No data available</i>
Vapour pressure	<i>0.000000565Pa (25 °C) (in terms of value)</i>
Vapour density (air = 1)	<i>No data available</i>
Specific gravity (Relative density) (Density)	<i>10.5</i>
Solubility	
Water	<i>Insoluble</i>
Other solvents	<i>No data available</i>

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n-octanol/Water partition coefficient	<i>No data available</i>
Auto-ignition temperature	<i>No data available</i>
Decomposition temperature	<i>No data available</i>
Viscosity (Coefficient of viscosity)	<i>No data available</i>
Other data	<i>None</i>

SECTION 10 Stability and reactivity

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Reactivity	<i>No data available</i>
Chemical stability	<i>It is stable under normal conditions.</i>
Hazardous reactions	<i>I 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. I readily reacts with concentrated sulfuric acid and dilute nitric acid. I pose a risk of fire.</i>
Conditions to avoid	<i>None</i>
Incompatible materials	<i>Strong acids, strong bases, strong hydrogen peroxide solution, ammonia (dry), dilute nitric acid, concentrated sulfuric acid.</i>
Hazardous decomposition products	<i>Not applicable</i>

SECTION 11 Hazard information

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Acute toxicity(oral)	<i>Oral Rat LD50> 5000mg/kg</i>
Acute toxicity(dermal)	<i>Dermal rat LD50> 2000mg/kg</i>
Acute toxicity(inhalation)	<i>No information</i>
Skin corrosion/irritation	<i>There is a description of Slightly irritaing test with rabbits.</i>
Eye damage/eye irritation	<i>There is a description of is recovering mild irritation, at 48 hours in the rabbit test.</i>
Respiratory sensitization/Skin sensitization	<i>I cause contact allergic dermatitis in the exposure of the powder. There is a description of the resulting allergic reaction by exposure to trinkets containing silver.</i>
Germ cell mutagenicity	<i>No data available</i>
Carcinogenicity	<i>There is no information of the classification of IARC evaluation organization, etc.. No carcinogenicity was observed in the study were injected intramuscularly the powder to rats. And there is no evidence of carcinogenicity to humans.</i>
Reproductive toxicity	<i>No information</i>

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Specific target organ toxicity(single exposure)	<i>Failure of the lungs with pulmonary edema in four hours exposure to metallic silver vapor which is heated occurs. I cause irritation of the respiratory tract in occupational exposure of dust.</i>
Specific target organ toxicity(repeated exposure)	<i>To produce a silver poisoning the dye is deposited skin, mucous membranes in occupational exposure to the powder, but appears as a dysfunction is described and is a reduction in night vision. There is a description of became bronchitis from deposition to the lung by long-term inhalation of dust.</i>
Aspiration hazard	<i>No data available</i>
Others	None

SECTION 12 Ecological information

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Ecotoxicity

Fish	<i>No data available</i>
Crustaceantoxicity(single exposure)	<i>No data available</i>
Algae	<i>No data available</i>
Other organisms	<i>No data available</i>
Persistence and degradability	<i>No data available</i>
Bioaccumulative potential	<i>No data available</i>
Mobility in soil	<i>No data available</i>
Hazard to the ozone layer	<i>No data available</i>
Others	<i>No data available</i>

SECTION 13 Notes on disposal

Waste from residues	Entrust the process to industrial waste disposal contractor has received a license from the governor.
Contaminated container and contaminated packaging	Recycle or in the clean container and take appropriate disposal in accordance with the criteria of the relevant legislation sequence municipality.

SECTION 14 Transport information

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International regulation

UN classification	<i>Not applicable</i>
UN number	<i>None</i>
UN proper shipping name	<i>None</i>
Packing group	<i>Not applicable</i>
Japanese laws and regulations	<i>Land regulation information Not applicable Maritime regulatory information non-hazardous materials Aviation regulatory information non-hazardous materials</i>

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Conditions and specific safety measures of transport

*During transport, I avoid direct rays of the sun, the loading of container damage, corrosion, so that there is no leakage, it is surely the prevention of collapse of cargo.
 Do not top up heavy objects.*

SECTION 15 Regulatory information (Japan)

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PRTR Law	<i>There is it in the case of an application or an application</i>
Occupational Safety and Health Law	<i>There is it in the case of an application or an application</i>
Poisonous and Deleterious Substances control Law	<i>None</i>
Explosives control Law	<i>None</i>
High-pressure gas security Law	<i>None</i>
Fire fighting Law	<i>None</i>
Chemical substances control Law	<i>None</i>
Ship safety Law	<i>None</i>
Aviation Law	<i>None</i>
Prevention of marine pollution Law	<i>None</i>
Pneumoconiosis Law	<i>None</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.

Literature Reference

[References]

Industrial Safety and Health Act All Data of MSDS Target Substances: The Chemical Daily Co., Ltd (2003)

Poisonous and Deleterious Substances Control Act All Data of MSDS Target Substances: The Chemical Daily Co., Ltd (2003)

Pollutant Release and Transfer Register All Data of MSDS Target Substances: The Chemical Daily Co., Ltd (2003)

Recommendations for Allowable Concentrations (Fiscal 2017): Japan Society for Occupational Health Journal of Occupational Health, Vol. 59 2017

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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)