CANON OPTRON INC.
SDS Number: EO03
Product Name: OA－500

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	OA－500
Product code	EO03
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 tumber	+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)	Classification not possible
	Acute toxicity(dermal)	Classification not possible
	Acute toxicity (Inhalation: Gases)	Not applicable
	Acute toxicity (Inhalation: Vapors)	Classification not possible

	Acute toxicity (Inhalation: Dusts and mists)	Classification not possible
	Skin corrosion/irritation	Classification not possible
	Serious eye damage/eye irritation	Classification not possible
	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)	Classification not possible
	Specific target organ toxicity(repeated exposure)	Classification not possible
	Aspiration hazard	Classification not possible
Environmental hazards	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 Exclamation

Signal word Warning

Dangerous goods hazard information May cause an allergic skin reaction.

Precautionary statements

【Safety measures】 Avoid breathing dust/fume/gas/mist/vapours/spray.
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.
Specific treatment .
If skin irritation or rash occurs: Get medical advice/attention.
Take off contaminated clothing and wash it before reuse.

【Storage】 -

【Disposal】 Dispose of contents/container in accordance with national regulations.

【Other hazards】 -

SECTION 3 Composition/information on ingredients

Substance/Mixture: Mixture

Chemical name	*Tantalum oxide*	*Zirconium oxide*	*Yttrium oxide*
Chemical formula	*Ta2O5*	*ZrO2*	*Y2O3*

Concentration or concentration range:
Ta2O5 : 60- 70
ZrO2 : 25- 35
Y2O3 : 1- 8

CAS No.	1314-61-0	1314-23-4	1314-36-9
TSCA Inventry	*Tantalum oxide (Ta2O5)*	*Zirconium oxide (ZrO2)*	*Yttrium oxide (Y2O3)*
EINECS number	*215-238-2*	*215-227-2*	*215-233-5*

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.

Most important symptoms and effects, both acute and delayed: No data available

Protection of first aiders: Rescuers, wear suitable protective equipment as the situation demands.

Special precautions for physicians: No data available

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SECTION 5 Firefighting measures

Suitable extinguishing media	This product itself is not flammable.
Unsuitable extinguishing media	No data available
Specific hazards	No data available
Specific extinguishing methods	In the case of a fire in the periphery, the portable container is quickly moved to a safe place.
Special protective equipment for firefighters	Wear suitable protective equipment (gloves, glasses and a mask) in fire-fighting.

SECTION 6 Accidental release measures

Personal precautions, protective equipment, and emergency procedures	Protection equipment (specified as those in which the properties of the product are suitable) worn during operation so that airborne droplets, etc., do not adhere to the skin and dusts and gases are not absorbed.
Environmental precautions	The leakage may not directly flow into rivers or sewage.
Methods and material for containment and cleaning up	The leaked material is scooped up, or swept up and gathered to be recovered in a paper bag or a drum. After recovery, a small amount of the residue is absorbed in sediment, sawdust, etc.
Secondary disaster prevention measures	No data available

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	Handling work must be practiced in a room where there is a local or total ventilation facility.
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.

Conditions for safe storage, including any incompatibilities

Safe storage conditions	Store in a well-ventilated place. Keep container tightly closed.
Safety packaging material	No data available

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SECTION 8 Exposure controls/personal protection

	Ta2O5	***ZrO2***	***Y2O3***
Permissible concentration			
ACGIH	*TWA 5 mg/m³ (as Ta) (2004 edition)*	*TLV-TWA: 5 mg/m³ TLV-TWA: 10 mg/m³ (as zirconium and compound, zirconium) (2015 version)*	*TLV-TWA: 1 mg/m³ (as yttrium and compound, yttrium) (2015 version)*

Appropriate engineering controls: Use sealed devices, equipment, or a local exhaust ventilation as much as possible.

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
- Colour: White
- Odour: None

	Ta2O5	***ZrO2***	***Y2O3***
Melting point/freezing point	*1862～1882℃*	*2,680℃ (Merck(15th,2013))*	*2,420 degrees Celsius (inorganic compound, chelate dictionary (1997))*
Boiling point or initial boiling point and boiling range	*No data available*	*4300℃*	*Approximately 4,300 degrees Celsius (inorganic compound, chelate dictionary (1997))*
Flammability	*No data available*	*No data available*	*No data available*
Upper/lower flammability or explosive limits	*No data available*	*No data available*	*No data available*
Flash point	*No data available*	*Noninflammability (GESTIS (2015))*	*Noninflammability (GESTIS (2015))*

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Auto-ignition temperature	*No data available*	*Noninflammability (GESTIS (2015))*	*Noninflammability (GESTIS (2015))*
Decomposition temperature	*No data available*	*No data available*	*No data available*
pH	*No data available*	*No data available*	*No data available*
Kinematic viscosity	*No data available*	*No data available*	*No data available*
Solubility			
Water	*Insoluble*	*Insoluble*	*Insoluble (GESTIS (2015))*
Other solvents	*No data available*	*No data available*	*No data available*
Partition coefficient: n-octanol/water	*No data available*	*No data available*	*No data available*
Vapour pressure	*No data available*	*No data available*	*No data available*
Density and/or relative density	*8.2*	*No data available*	*No data available*
(Density)	※ 3.4 ~ 4.0 (pellet) as OA-500		
Relative vapor density	*No data available*	*No data available*	*No data available*
Particle characteristics	*No data available*	*No data available*	*No data available*
Other information	*No data available*	*No data available*	*No data available*

SECTION 10 Stability and reactivity

	Ta2O5	***ZrO2***	***Y2O3***
Reactivity	*No data available*	*No data available*	*No data available*
Chemical stability	*It is stable in storage conditions and normal handling.*	*No data available*	*No data available*
Possibility of hazardous reactions	*Violently react with bromine trifluoride. It reacts violently with chlorine trifluoride, emit flames. This occurs at around 410 ℃, reaction with lithium increases to 595 ℃.*	*No data available*	*No data available*
Conditions to avoid	*No data available*	*No data available*	*No data available*
Incompatible materials	*Bromine trifluoride, chlorine trifluoride, lithium*	*No data available*	*No data available*
Hazardous decomposition products	*No data available*	*No data available*	*No data available*

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SECTION 11 Toxicological information

	Ta2O5	***ZrO2***	***Y2O3***
Acute toxicity(oral)	*Oral – Rat LD50: 8g/kg, intraperitoneal – rat LD:> 5g/kg Oral – Mouse LD50:> 4g/kg*	*No data available*	*For a rat LD50 price,> 5,000 mg/kg (GESTIS (Access on September 2015)) There is information.*
Acute toxicity(dermal)	*No data available*	*No data available*	*No data available*
Acute toxicity (Inhalation: Gases)	*If inhaled, to stimulate the respiratory system and mucous membranes.*	*Solid (GHS definition)*	*Solid (GHS definition)*
Acute toxicity (Inhalation: Vapours)	*No data available*	*Solid (GHS definition)*	*Solid (GHS definition)*
Acute toxicity (Inhalation: Dusts and mists)	*No data available*	*No data available*	*No data available*
Skin corrosion/irritation	*No data available*	*No data available*	*It is written that this substance showed no irritation to rabbit skin (HSDB (Access on September 2015)). However, due to its unknown details, it was considered as insufficient data to be used for the judging as "Not classified."*
Serious eye damage/irritation	*No data available*	*No data available*	*From the information that this substance showed slight irritation to rabbit eyes (HSDB (Access on September 2015)), it was classified in Category 2B.*

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Respiratory or skin sensitization	*No data available*	*The classification is not possible due to lack of data.* *Besides, in DFGOT vol. 12 (1999), zirconium and its compounds are classified as a respiratory sensitizer from the information on zirconium and other zirconium compounds, but this substance was classified as "Classification not possible" due to no information on the substance.* *It is reported that this substance causes Granulomatous skin reactions in humans (DFGOT vol. 12 (1999)). In DFGOT vol. 12 (1999), zirconium and its compounds are classified as a sensitizer (Sah).* *From the above, this substance was classified in Category 1.*	*No data available*
Germ cell mutagenicity	*No data available*	*No data available*	*No data available*
Carcinogenicity	*No data available*	*As described in this hazard class for zirconium (CAS number: 7440-67-7), ACGIH classified zirconium and its compounds in A4 in carcinogenicity (ACGIH (7th, 2001)). Therefore, this substance was classified as "Classification not possible" for this hazard class.*	*The classification is not possible due to lack of data.* *Besides, it is reported that in a test in which mice were administered yttrium nitrate in the diet (feeding with a food containing 5 ppm as Y) for life, a dosed group showed an increased tendency in incidence of malignant tumors (leukemia, lymphoma, lung adenocarcinoma) of 33.3% in comparison with 14.6% in a control group (not statistically significant) (HSDB (Access on September 2015), DFGOT (1998; German language), Netherlands evaluation document (2000)).*
Reproductive toxicity	*No data available*	*No data available*	*No data available*
Specific target organ toxicity(single exposure)	*No data available*	*No data available*	*No data available*

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Specific target organ toxicity(repeated exposure)	*No data available*	*As for humans, it is reported that effects on lungs were not observed in workers exposed to this substance (DFGOT vol. 12 (1999)).* *On the other hand, changes in the lung (asthma, bronchitis, pneumoconiosis, sarcoid granulomatosis, granulomatous interstitial pneumonia) were reported, but it is reported that association with this substance is not clear because they were also exposed to other substances that could cause lung damage (DFGOT vol. 12 (1999)).* *However, there are cases where zirconium was confirmed in granulomatous lesions in the lungs of three, and extrinsic allergic alveolitis was observed just in one.* *It is reported that histological examination of the lungs revealed "various stages of epithelioid cell granuloma induced by foreign matter" with foreign matter inclusions in giant cells and fibrosis, and the principal component of foreign matter is zirconium, and similar changes were also found in skin, and granulomatous lesions were observed in mammary and axillary lymph nodes (DFGOT vol. 12 (1999)).* *As for experimental animals, it is reported that toxic effects were not found in an inhalation toxicity test using rats, rabbits, dogs, guinea pigs, and cats (DFGOT vol. 12 (1999), ACGIH (7th, 2001)). It is also reported that in a diet administration test using rats, toxic effects were not observed (DFGOT vol. 12 (1999)).*	*No data available*

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		As above, because effects of this substance cannot be denied completely in humans, the substance was classified as "Classification not possible."	
Aspiration hazard	*No data available*	*No data available*	*No data available*
Other information	No data available		

SECTION 12 Ecological information

	Ta2O5	***ZrO2***	***Y2O3***
Toxicity			
Hazardous to the aquatic environment Short-term(acute)	*No data available*	*No data available*	*No data available*
Hazardous to the aquatic environment Long-term(chronic)	*No data available*	*No data available*	*No data available*
Persistence and degradablility	*No data available*	*No data available*	*No data available*
Bioaccumulative potential	*No data available*	*No data available*	*No data available*
Mobility in soil	*No data available*	*No data available*	*No data available*
Hazard to the ozone layer	*No data available*	*No data available*	*No data available*
Other adverse effects	*No data available*	*No data available*	*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

	Ta2O5	***ZrO2***	***Y2O3***
International regulation			
UN number	*Not applicable*	*Not applicable*	*Not applicable*
UN proper shipping name	*Not applicable*	*Not applicable*	*Not applicable*
UN classification	*Not applicable*	*Not applicable*	*Not applicable*
Transport hazard class	*Not applicable*	*Not applicable*	*Not applicable*
Packing group	*Not applicable*	*Not applicable*	*Not applicable*
Hazardous to the aquatic environment	*No data available*	*No data available*	*No data available*

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Maritime transport in bulk according to IMO instruments	*No data available*	*No data available*	*No data available*
Japanese lows and regulations	*Land regulation information Not applicable Maritime regulatory information non-hazardous materials Aviation regulatory information non-hazardous materials*	*Land regulation information Not applicable Maritime regulatory information non-hazardous materials Aviation regulatory information non-hazardous materials*	*Land regulation information Not applicable Maritime regulatory information non-hazardous materials Aviation regulatory information non-hazardous materials*
Special precautions for users	*No data available*	*Requires retention of yellow card when transporting. When transporting, protect from direct sunlight and take on cargo without breakage of container, corrosion and leakage.*	*Requires retention of yellow card when transporting. 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	－	－	－

SECTION 15 Regulatoly information（Japan）

	Ta2O5	***ZrO2***	***Y2O3***
Occupational Safety and Health Law	*There is it in the case of an application or an application*	*There is it in the case of an application or an application*	*There is it in the case of an application or an application*
PRTR Law	*Not applicable*	*Not applicable*	*Not applicable*
Poisonous and Deleterious Substances control Law	*Not applicable*	*Not applicable*	*Not applicable*
Labor Standards Act	*Not applicable*	*Not applicable*	*Not applicable*
Chemical substances control Law	*Not applicable*	*Not applicable*	*Not applicable*
Fire fighting Law	*Not applicable*	*Not applicable*	*Not applicable*
Air Pollution Control Act	*Not applicable*	*Not applicable*	*Not applicable*
Water Pollution Prevention Act	*Not applicable*	*Not applicable*	*Not applicable*
Water Supply Act	*Not applicable*	*Not applicable*	*Not applicable*
Sewerage Act	*Not applicable*	*Not applicable*	*Not applicable*
Marine Pollution Prevention Law	*Not applicable*	*Not applicable*	*Not applicable*
Waste Management and Public Cleansing Act	*Not applicable*	*Not applicable*	*Not applicable*

Note Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

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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）