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

SAFETY DATA SHEET

rev. 8.0 Date of Issue 2013/10/16
Revised Date 2024/3/15

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% Total = 100%		
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

SAFETY DATA SHEET

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

SAFETY DATA SHEET

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))

SAFETY DATA SHEET

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

SAFETY DATA SHEET

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.

SAFETY DATA SHEET

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

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)). As above, because effects	No data available

SAFETY DATA SHEET

		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

SAFETY DATA SHEET

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	There is it in the case of an application or an application	There is it in the case of an application or an application
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.		

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

SAFETY DATA SHEET

rev. 8.0 Date of Issue 2013/10/16
Revised Date 2024/3/15

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)