

CANON OPTRON INC.

SDS Number: EO06-2

Product Name: OH-5

SAFETY DATA SHEET

rev. 8.0 Date of Issue 2013/10/16

Revised Date 2025/4/18

SECTION 1 Chemicals and company identification

Product name	OH-5
Product code	EO06-2
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
Health hazards	Desensitize explosives	Classification not possible
	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

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Environmental hazards	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
	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.	

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【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】

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【Disposal】

Dispose of contents/container in accordance with national regulations.

【Other hazards】

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SECTION 3 Composition/information on ingredients

Substance/Mixture	Mixture	
Chemical name	Zirconium oxide	Titanium oxide
Chemical formula	ZrO ₂	Ti ₂ O ₃
Concentration or concentration range	ZrO ₂ : 88- 94% Ti ₂ O ₃ : 6- 12% Total = 100%	
CAS No.	1314-23-4	1344-54-3
TSCA Inventory	Zirconium oxide (ZrO ₂)	Titanium oxide (Ti ₂ O ₃)
EINECS number	215-227-2	215-697-9
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 rinsing. 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. Should be stored separately (Al, Ca, Mg, K, Na, Zn, and Li) with strong acids, metals. Store locked up.
Safety packaging material	No data available

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SECTION 8 Exposure controls/personal protection

	<u>ZrO2</u>	<u>Ti2O3</u>
Permissible concentration		
ACGIH	TLV-TWA: 5 mg/m ³ TLV-TWA: 10 mg/m ³ (as zirconium and compound, zirconium) (2015 version)	No data available
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	Pellets, granules
Colour	Ash gray or black
Odour	None

	<u>ZrO2</u>	<u>Ti2O3</u>
Melting point/freezing point	2,680°C (Merck(15th,2013))	Decomposed at 2130 °C
Boiling point or initial boiling point and boiling range	4300°C	No data available
Flammability	No data available	No data available
Upper/lower flammability or explosive limits	No data available	No data available
Flash point	Noninflammability (GESTIS (2015))	No data available
Auto-ignition temperature	Noninflammability (GESTIS (2015))	No data available
Decomposition temperature	No data available	No data available
pH	No data available	No data available
Kinematic viscosity	No data available	No data available

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Solubility

Water	Insoluble	Insoluble
Other solvents	No data available	No data available
Partition coefficient: n-octanol/water	No data available	No data available
Vapour pressure	No data available	No data available
Density and/or relative density (Density)	No data available	2.8~3.2
Relative vapor density	※ 4.3 or more (pellet) as OH-5	
Particle characteristics	No data available	No data available
Other information	No data available	No data available

SECTION 10 Stability and reactivity

ZrO2Ti2O3

Reactivity	No data available	No data available
Chemical stability	No data available	It is stable in storage conditions and normal handling. It is TiO2 by reacting with oxygen and heated to 300 °C than in air.
Possibility of hazardous reactions	No data available	Do not react in the storage conditions and normal handling.
Conditions to avoid	No data available	No data available
Incompatible materials	No data available	No data available
Hazardous decomposition products	No data available	No data available

SECTION 11 Toxicological information

ZrO2Ti2O3

Acute toxicity(oral)	No data available	No data available
Acute toxicity(dermal)	No data available	No data available
Acute toxicity (Inhalation: Gases)	Solid (GHS definition)	No data available
Acute toxicity (Inhalation: Vapours)	Solid (GHS definition)	No data available
Acute toxicity (Inhalation: Dusts and mists)	No data available	No data available
Skin corrosion/irritation	No data available	No data available

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Serious eye damage/irritation	No data available	There is a possibility that irritates the eyes, the skin and the respiratory tract.
Respiratory or skin sensitization	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
Carcinogenicity	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.	No data available
Reproductive toxicity	No data available	No data available
Specific target organ toxicity(single exposure)	No data available	No data available

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 Specific target organ
 toxicity(repeated exposure)

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 of this substance cannot be denied completely in humans, the substance was classified as "Classification not possible."

No data available

Aspiration hazard

No data available

No data available

Other information

No data available

SECTION 12 Ecological information

ZrO2Ti2O3

Toxicity

 Hazardous to the aquatic
 environment Short-
 term(acute)

No data available

No data available

 Hazardous to the aquatic
 environment Long-
 term(chronic)

No data available

No data available

Persistence and degradability

No data available

No data available

Bioaccumulative potential

No data available

No data available

Mobility in soil

No data available

No data available

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Hazard to the ozone layer	No data available	No data available
Other adverse effects	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

	<u>ZrO2</u>	<u>Ti2O3</u>
International regulation		
UN number	Not applicable	Not applicable
UN proper shipping name	Not applicable	Not applicable
UN classification	Not applicable	Not applicable
Transport hazard class	Not applicable	Not applicable
Packing group	Not applicable	Not applicable
Hazardous to the aquatic environment	No data available	No data available
Maritime transport in bulk according to IMO instruments	No data available	No data available
Japanese laws and regulations	Land regulation information Not applicable Maritime regulatory information non-hazardous materials Aviation regulatory information non-hazardous materials	No data available
Special precautions for users	Requires retention of yellow card when transporting. When transporting, protect from direct sunlight and take on cargo without breakage of container, corrosion and leakage.	No data available
Special Provisions	-	-

SECTION 15 Regulatory information (Japan)

	<u>ZrO2</u>	<u>Ti2O3</u>
Occupational Safety and Health Law	There is it in the case of an application or an application	No data available
PRTR Law	Not applicable	No data available
Poisonous and Deleterious Substances control Law	Not applicable	No data available

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Labor Standards Act	There is it in the case of an application or an application	No data available
Chemical substances control Law	Not applicable	No data available
Fire fighting Law	Not applicable	No data available
Air Pollution Control Act	Not applicable	No data available
Water Pollution Prevention Act	Not applicable	No data available
Water Supply Act	Not applicable	No data available
Sewerage Act	Not applicable	No data available
Marine Pollution Prevention Law	Not applicable	No data available
Waste Management and Public Cleansing Act	Not applicable	No data available
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)