CANON OPTRON INC.
SDS Number: EO26
Product Name: OH－6

SAFETY DATA SHEET

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

SECTION 1 Chemicals and company identification

Chemical idetifier	OH－6
SDS number	EO26
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 tumber	+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)	Classification not possible
	Acute toxicity(dermal)	Classification not possible
	Acute toxicity(inhalation)	Classification not possible
	Skin corrosion/irritation	Classification not possible

	Eye damage/eye irritation	Category 2B
	Respiratory sensitization	Classification not possible
	Skin sensitization	Classification not possible
	Germ cell mutagenicity	Classification not possible
	Carcinogenicity	Category 2
	Reproductive toxicity	Classification not possible
	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 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） Health Hazard

Signal word Warning

Hazard statement
Causes eye irritation.
Suspected of causing cancer.

Precautionary statement

【Safety measures】
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wash hands thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.

【First-aid measures】
IF IN EYES：Rinse cautiously with water for several minutes.Remove contact lenses, if present and easy to do. Continue rising.
If exposed or concerned：Get medical advice/attention.
If eye irritation persists：Get medical advice/attention.

【Storage】 Store locked up.

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

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SECTION 3 Composition and information ingredients

Substance/Mixture: Mixture

Chemical name or generic name	*Zirconium oxide*	*Titanium oxide*	*Niobium*
Chemical formula	*ZrO2*	*TiO2*	*Nb*
CAS No.	*1314-23-4*	*13463-67-7*	*7440-03-1*
Concentration or concentration range	99.9<		
TSCA Inventry	*Zirconium oxide (ZrO2)*	*Titanium oxide (TiO2)*	*Niobium*
EINECS number	*215-227-2*	*236-675-5*	*231-113-5*

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 victim immediately and keep at rest in a position comfortable for breathing.
If you feel bad, you should contact your doctor.

Skin: Take off all contaminated clothing immediately Remove /.
I flush for 15 minutes or more with soap and plenty of water. If symptoms blisters and pain comes, get medical attention if necessary.

Eye: Be flush eyes for at least 15 minutes with clean water immediately. If you are using the contact lenses, as long as it is not fixed, it can be washed and removed.
Be subject to medical attention without fail.

Ingestion: Rinse mouth immediately.
Be subject to medical attention without fail.

Protection of first aiders: Rescuers Wear protective equipment protective eyewear, such as protective gloves.

SECTION 5 Fire-fighting measures

Extinguishing media: The product itself does not burn.

Extinguishing media are unsuitable: No data available

Specific hazards: No data available

Specific extinguishing methods: The movable container, and transferred to a safe place as soon as possible in case of surrounding fire.

Protection of fire-fighters: In fire fighting, I want to wear (gloves, glasses, mask) the appropriate protective equipment.

SECTION 6 Accidental release measures

Personal precautions,protective equipment,and emergencyprocedures: Wear it (which specify what suited the nature of the product) protective equipment, such as spray or on skin, we do not want to dust inhalation, the gas at the time of work.

Environmental precautions: Do not flowing in rivers and sewage directly spillage.

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Methods and materials for containment and methods and materials for cleaning up	And collected in drums or paper bags are collected to wear or have rake those leaked. I to absorb in saw-dust or sediment residue content of the small amount of recovery after.
Secondary disaster prevention measures	No data available

SECTION 7 Handling and storage precautions

Handling

Technical measures	I wear the appropriate protective equipment safety glasses, protective gloves, etc.. After handling Wash hands, face, etc., and gargle.
Safety handling precations	When handling, to handle in place with equipment for general ventilation or local exhaust under.

Storage

Safe storage conditions	Store tightly closed container in a well-ventilated place. Should be stored separately (Al. Ca. Mg. K. Na. Zn. and Li) with strong acids.
Safety packaging material	No data available

SECTION 8 Exposure controls and personal protection

	ZrO2	***TiO2***	***Nb***
Permissible concentration			
ACGIH	*TWA 5 mg/m3 (as Zr)* *STEL 10 mg/m3 (as Zr)* *(2005 edition)*	*TWA 10 mg/m3* *(2009 edition)*	*No data available*

Engineering controls: To use devices that are sealed as much as possible, local exhaust ventilation or equipment.

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	Pellets, granules
Colour	Gray
Odour	None

	ZrO2	***TiO2***	***Nb***

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pH	*No data available*	*In (1 IN 10) litmus paper SUSPENSION IN WATER neutral: HSDB (2005)*	*No data available*
Melting point/Freezing point	*2700℃*	*1855℃*	*2470℃*
Boiling point/Initial boiling point and boiling range	*4300℃*	*2500～3000℃*	*4742℃*
Flash point	*None*	*Noncombustibility*	*None*
Evaporation rate	*No data available*	*No data available*	*No data available*
Flammability (solid, gas)	*No data available*	*No data available*	*No data available*
Explosive limits			
LEL	*None*	*Not explode*	*None*
UEL	*None*	*Not explode*	*None*
Vapour pressure	*No data available*	*No data available*	*No data available*
Vapour density (air = 1)	*No data available*	*No data available*	*No data available*
Specific gravity (Relative density)	*5.73*	*4.23*	*8.56*
(Density)			
Solubility			
Water	*Insoluble*	*Insoluble*	*Insoluble*
Other solvents	*No data available*	*Organic solvents: insoluble*	*No data available*
n-octanol/Water partition coefficient	*No data available*	*No data available*	*No data available*
Auto-ignition temperature	*No data available*	*No data available*	*No data available*
Decomposition temperature	*No data available*	*1860℃ : Sax (11th, 2004)*	*No data available*
Viscosity (Coeffiient of viscosity)	*No data available*	*No data available*	*No data available*
Other data	*None*	*None*	*None*

SECTION 10 Stability and reactivity

	ZrO2	***TiO2***	***Nb***
Reactivity	*No data available*	*No data available*	*No data available*
Chemical stability	*It is stable in storage conditions and normal handling.*	*It is considered to be stable in storage and handling in accordance with the laws and regulations*	*It is stable in storage conditions and normal handling.*

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Hazardous reactions	*No data available*	*No data available*	*I want to generate hydrogen response to hydrofluoric acid. And chlorine, react at 200 ℃ or more, resulting in a niobium pentachloride. The nitrogen, the reaction was at 1000 ℃ or more, resulting in a nitride.*
Conditions to avoid	*Heating, sunlight*	*No data available*	*No data available*
Incompatible materials	*Strong oxidant*	*No data available*	*No data available*
Hazardous decomposition products	*No data available*	*No data available*	*No data available*

SECTION 11 Hazard information

	ZrO2	***TiO2***	***Nb***
Acute toxicity(oral)	*No data available*	*Rat LD50> 20000mg/kg*	*Oral – Rat LD:> 10g/kg Intraperitoneal – rat LD:> 10g/kg Oral – mouse LD:> 10g/kg Intraperitoneal – mouse LD:> 10g/kg*
Acute toxicity(dermal)	*No data available*	*Rabbit approxLD50> 10000mg/kg*	*No data available*
Acute toxicity(inhalation)	*Intraperitoneal – Mouse LD50: 87mg/kg*	*Rat LC> 6.82mg/L/4h*	*If inhaled, nasal, throat is stimulated.*
Skin corrosion/irritation	*If inhaled, to stimulate the respiratory system and mucous membranes.*	*Mild irritation at the application 0.5g, 24-hour test using rabbit*	*No data available*
Eye damage/eye irritation	*No data available*	*Mild irritation at the test using rabbit*	*To give a foreign body sensation Once in the eye, it is irritating to the eyes.*
Respiratory sensitization/Skin sensitization	*No data available*	*Result of no sensitization skin sensitization test using guinea pigs (Maurer optimisation test).*	*No data available*
Germ cell mutagenicity	*No data available*	*Described (NTPDB (2005)) negative (both in vivo somatic cell mutagenicity test) in the chromosome aberration test and bone marrow cell micronucleus test by intraperitoneal administration of mouse*	*No data available*

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Carcinogenicity	*No data available*	*(IARC Monograph Vol.93, in preparation) that are classified as Group 2B merged with (particle size 10-50nm) ultra-fine titanium oxide in the IARC. It should be noted that in the feeding study of 103 weeks in mice and rats, and, using the mouse and rat ((1979) NTP TR No.97) both animal species also has been concluded that there is no carcinogenic to the substance have an increased incidence of lung tumors by inhalation of ultrafine titanium oxide, was not observed in mice has been observed in the rat (PATTY (5th, 2001)). On the other hand, in the case of humans by the results of epidemiological studies or case reports of multiple, clear evidence of an association with this substance has not been shown (IARC 47 (1989), ACGIH (2001), HSDB (2005)).*	*No data available*
Reproductive toxicity	*No data available*	*No data available*	*No data available*
Specific target organ toxicity(single exposure)	*No data available*	*20000 mg / kg or more (DFGOT (1991)) is, has been considered intake of this substance is substantially non-toxic in humans further, 1 pound lethal dose by oral administration in rats (453.6 g: as the human body weight 60kg without showing a hazard by intake of 7560 mg / kg), it is described (ACGIH (2001)) and was excreted in the feces within 24 hours. In addition, there is no specific data is described Hyuumu of the irritating to the respiratory tract (HDSB (2005)).*	*No data available*

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Specific target organ toxicity(repeated exposure)	*No data available*	*In the study of one of the four trials 103 -week dietary administration or 13 weeks in rats and mice , there is no impact to be due to exposure at a dose of (1250 mg / kg / day) 25000 pppm exceed the guidance value upper limit (NTP TR No.97 (1979)). On the other hand , it is very little labor who have occupational exposure for more than 20 years , it is not accompanied by changes in lung function, but pneumoconiosis changes were revealed by X-ray inspection (DFGOTvol.2 (1991)) there is a description of and , but epidemiological study with the primary study objective titanium oxide is whether it has a fibrotic action is carried out a number , the majority of the association between pulmonary fibrosis and this substance a negative causal relationship hard evidence shown has not been found (DFGOTvol.2 (1991), ACGIH (2001), IARC vol. 47 (1989), PATTY (5th, 2001)). And , by a two -year inhalation exposure , (, 6 h / day 5 days / week: dust) 250 mg/m3 exceeding the guidance value upper limit on the rat significant impact has not been observed even at a concentration of (IUCLID (2000)) .*	*No data available*
Aspiration hazard	*No data available*	*No data available*	*No data available*
Others	None		

SECTION 12 Ecological information

	ZrO2	***TiO2***	***Nb***
Ecotoxicity			
Fish	*No data available*	*Medaka fish toxicity LC50/48H:> 20mg / L*	*No data available*
Crustaceantoxicity(singleexposure)	*No data available*	*No data available*	*No data available*
Algae	*No data available*	*No data available*	*No data available*
Other organisms	*No data available*	*No data available*	*No data available*
Persistence and degradablility	*No data available*	*No data available*	*No data available*

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Bioaccumulative potential	*No data available*	*There is no degradation by microorganisms in the body of fish and shellfish, there is no accumulation of one or. Bioaccumulation. Or material is determined low, that it is not a 2. Highly concentrated property. (CSCL existing inspection)*	*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*
Others	*No data available*	*Bioaccumulation (magnification) carp; <1.1 to 9.6 times (2mg / L), carp; <10 times (0.2mg / L)*	*No data available*

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

	ZrO2	***TiO2***	***Nb***
International regulation			
UN classification	*Not applicable*	*Not applicable*	*Not applicable*
UN number	*None*	*None*	*None*
UN proper shipping name	*None*	*None*	*None*
Packing group	*Not applicable*	*Not applicable*	*Not applicable*
Japanese lows and regulations	*None*	*Not land regulation information: N Not applicable maritime regulatory information Not applicable aviation regulations information*	*None*

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Conditions and specific safety measures of transport	*No data available*	*Requires retention of yellow card when transporting.* *Do not transport with food and feedstuffs.* *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.*	*No data available*

SECTION 15 Regulatoly information（Japan）

	ZrO2	***TiO2***	***Nb***
PRTR Law	*None*	*None*	*No data available*
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*	*No data available*
Poisonous and Deleterious Substances control Law	*None*	*None*	*No data available*
Explosives control Law	*None*	*None*	*No data available*
High-pressure gas security Law	*None*	*None*	*No data available*
Fire fighting Law	*None*	*None*	*No data available*
Chemical substances control Law	*None*	*None*	*No data available*
Ship safety Law	*None*	*None*	*No data available*
Aviation Law	*None*	*None*	*No data available*
Prevention of marine pollution Law	*None*	*None*	*No data available*
Pneumoconiosis Law	*None*	*There is it in the case of an application or an application*	*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.

Literature Reference

SAFETY DATA SHEET

[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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