

CANON OPTRON INC.

SDS Number: EW04
Product Name: WO3(D, F)

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	WO3(D, F)
Product code	EW04
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)	Category 4
	Acute toxicity(dermal)	Classification not possible
	Acute toxicity (Inhalation: Gases)	Not applicable
	Acute toxicity (Inhalation: Vapors)	Classification not possible

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	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	Classification not possible
	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)	Category 2
	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	Health Hazard
		
Signal word	Warning	
Dangerous goods hazard information	Harmful if swallowed. Causes damage to organs through prolonged or repeated exposure Lungs.	
Precautionary statements		
【Safety measures】	Do not breathe dust/fume/gas/mist/vapours/spray. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product.	

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【First-aid measures】	IF SWALLOWED :Immediately call poison center or doctor/physician if you feel unwell. Get medical advice/attention if you feel unwell. Rinse mouth.
【Storage】	—
【Disposal】	Dispose of contents/container in accordance with national regulations.
【Other hazards】	—

SECTION 3 Composition/information on ingredients

Substance/Mixture	Mixture	
Chemical name	<i>Tungsten oxide</i>	<i>Aluminum oxide</i>
Chemical formula	<i>WO3</i>	<i>Al2O3</i>
Concentration or concentration range	WO3 : 97.0– 99.9 Al2O3 : 0.1– 3.0	
CAS No.	1314–35–8	1344–28–1
TSCA Inventory	<i>Tungsten oxide (WO3)</i>	<i>Aluminum oxide (Al2O3)</i>
EINECS number	<i>215–231–4</i>	<i>215–691–6</i>
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

SECTION 5 Firefighting measures

Suitable extinguishing media	This product itself is not flammable.
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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

SECTION 8 Exposure controls/personal protection

	<u>WO3</u>	<u>Al2O3</u>
Permissible concentration		
ACGIH	<p>TWA 5mg/m³ (as W) STEL 10mg/m³ (as W) (2010 version)</p>	<p>(Particulate asbestos-free, less than 1% crystalline silica) TLV-TWA 10mg/m³</p>

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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	Yellow
Odour	None

	<u>WO3</u>	<u>Al2O3</u>
Melting point/freezing point	1472°C	2072°C
Boiling point or initial boiling point and boiling range	1837°C	2980°C
Flammability	No data available	No data available
Upper/lower flammability or explosive limits	No data available	No data available
Flash point	Noncombustibility	Noncombustibility
Auto-ignition temperature	Noncombustibility	Noncombustibility
Decomposition temperature	No data available	No data available
pH	6.1 : GESTIS (Access on Apr. 2010)	No data available
Kinematic viscosity	No data available	No data available
Solubility		
Water	Insoluble	Insoluble
Other solvents	No data available	The slightly soluble in non-polar organic solvent
Partition coefficient: n-octanol/water	No data available	No data available
Vapour pressure	No data available	0.073Pa (mp.)
Density and/or relative density	7.2	3.97

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(Density)	※ 5.8 ~ 6.4 (pellet) as WO3 (D)	
Relative vapor density	No data available	No data available
Particle characteristics	No data available	No data available
Other information	No data available	No data available

SECTION 10 Stability and reactivity

	<u>WO3</u>	<u>Al2O3</u>
Reactivity	No data available	No data available
Chemical stability	It is considered to be stable in storage and handling in accordance with the laws and regulations	Stability
Possibility of hazardous reactions	No data available	Possibility of hazardous reaction is negligible.
Conditions to avoid	No data available	Generation of dust, diffusion.
Incompatible materials	No data available	Not applicable
Hazardous decomposition products	No data available	Not applicable

SECTION 11 Toxicological information

	<u>WO3</u>	<u>Al2O3</u>
Acute toxicity(oral)	Rat LD50 value: 840 mg / kg bw (ATSDR (2005))	SPECIES: Rat ENDPOINT: LD50 VALUE: > 5000 mg/kg
Acute toxicity(dermal)	No data available	No data available
Acute toxicity (Inhalation: Gases)	Solid (GHS definition)	Solid (GHS definition)
Acute toxicity (Inhalation: Vapours)	No data available	No data available
Acute toxicity (Inhalation: Dusts and mists)	No data available	No data available
Skin corrosion/irritation	No data available	No data available
Serious eye damage/irritation	No data available	No data available
Respiratory or skin sensitization	No data available	No data available
Germ cell mutagenicity	In the Ames test negative (NTB DB (Access on May 2010))	The in vivo mutagenicity test has not been carried out, and in the in vitro mutagenicity test, we could only find the Ames test (negative). Therefore we presupposed that we could not classify it for the lack of data.

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Carcinogenicity	<i>No data available</i>	<i>Not classified because of "A"</i>
Reproductive toxicity	<i>No data available</i>	<i>No data available</i>
Specific target organ toxicity(single exposure)	<i>Although it was reported that in the case of intratracheal instillation to rats, proliferation of leukocytes and histiocytes with subsequent slight fibrosis were seen in the lungs, especially at the injection site (DFGMAK-Doc. 23 (2007)), no other data were available. Thus, "Classification not possible" was concluded due to lack of sufficient data.</i>	<i>It was set as category 3 (respiratory irritation) from the statement of upper respiratory irritation (ICSC (2000)).</i>
Specific target organ toxicity(repeated exposure)	<i>In the 70 days feeding study with rats, deaths were observed in the groups given at dietary concentration of 0.5% (converted dose level as that of 90-day study; approx. 194 mg/kg) and more, but only body weight loss was described at lower concentration of 0.1% (DFGMAK-Doc. 23 (2007)). In humans, it was reported that in the survey of workers with long industrial experience, no pneumoconiosis developed among those exposed to solely tungsten or its insoluble compounds (ACGIH (2001)). On the other hand, there was the report mentioning that symptom of pulmonary fibrosis was observed in the workers exposed to dust containing this substance (ATSDR (2005)). But, the report also described that the original data lacked critical information regarding the smoking history and past medical histories of workers examined. As described above, in spite of multiple hazard information, these were insufficient to use properly as evidence to classify. Therefore, the classification was concluded as "Classification not possible".</i>	<i>It was classified into Category 1 according the statement that by occupational exposure of aluminas, pulmonary fibrosis was occurred (EHC (1997)).</i>
Aspiration hazard	<i>No data available</i>	<i>No data available</i>
Other information	<i>No data available</i>	

SECTION 12 Ecological information

WO3Al2O3

Toxicity

Hazardous to the aquatic environment Short-term(acute)	<i>No data available</i>	<i>No data available</i>
Hazardous to the aquatic environment Long-term(chronic)	<i>No data available</i>	<i>No data available</i>
Persistence and degradability	<i>No data available</i>	<i>No data available</i>
Bioaccumulative potential	<i>No data available</i>	<i>No data available</i>

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Mobility in soil	<i>No data available</i>	<i>No data available</i>
Hazard to the ozone layer	<i>This substance is not listed in Annexes to the Montreal Protocol.</i>	<i>No data available</i>
Other adverse effects	<i>No data available</i>	<i>No data available</i>

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>WO3</u>	<u>AI2O3</u>
International regulation		
UN number	<i>Not applicable</i>	<i>Not applicable</i>
UN proper shipping name	<i>Not applicable</i>	<i>Not applicable</i>
UN classification	<i>Not applicable</i>	<i>Not applicable</i>
Transport hazard class	<i>Not applicable</i>	<i>Not applicable</i>
Packing group	<i>Not applicable</i>	<i>Not applicable</i>
Hazardous to the aquatic environment	<i>No data available</i>	<i>No data available</i>
Maritime transport in bulk according to IMO instruments	<i>No data available</i>	<i>No data available</i>
Japanese laws and regulations	<i>No data available</i>	<i>Land regulation information Not applicable Maritime regulatory information non-hazardous materials Aviation regulatory information non-hazardous materials</i>
Special precautions for users	<i>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 transport with food and feedstuffs. Do not stack heavy good thereupon.</i>	<i>When transporting, protect from direct sunlight and take on cargo without breakage of container, corrosion and leakage.</i>
Special Provisions	-	-

SECTION 15 Regulatory information (Japan)

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Occupational Safety and Health Law	<i>No data available</i>	<i>There is it in the case of an application or an application</i>
PRTR Law	<i>No data available</i>	<i>Not applicable</i>
Poisonous and Deleterious Substances control Law	<i>No data available</i>	<i>Not applicable</i>
Labor Standards Act	<i>No data available</i>	<i>Not applicable</i>
Chemical substances control Law	<i>No data available</i>	<i>Not applicable</i>
Fire fighting Law	<i>No data available</i>	<i>Not applicable</i>
Air Pollution Control Act	<i>No data available</i>	<i>Not applicable</i>
Water Pollution Prevention Act	<i>No data available</i>	<i>There is it in the case of an application or an application</i>
Water Supply Act	<i>No data available</i>	<i>There is it in the case of an application or an application</i>
Sewerage Act	<i>No data available</i>	<i>Not applicable</i>
Marine Pollution Prevention Law	<i>No data available</i>	<i>Not applicable</i>
Waste Management and Public Cleansing Act	<i>No data available</i>	<i>Not applicable</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.

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)