

CANON OPTRON INC.  
 SDS Number: EZ03  
 Product Name: ZrO2

# SAFETY DATA SHEET

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

## SECTION 1 Chemicals and company identification

Chemical identifier	ZrO2
SDS number	EZ03
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 number	+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")

No data available

### Label element

Pictogram (Symbol)	No data available
Signal word	No data available
Hazard statement	No data available

### Precautionary statement

**【Safety measures】** Obtain special instructions before use.  
 Wash hands thoroughly after handling.  
 Do not eat, drink or smoke when using this product.  
 Do not breathe dust/fume/gas/mist/vapours/spray.

### 【First-aid measures】

If swallowed:

Call a poison center or doctor/physician if you feel unwell.  
 Rinse mouth.

If in eyes:

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 Immediately call poison center or doctor/physician

### 【Storage】

Store in a well-ventilated place, keep container tightly closed.  
 Store locked up.

### 【Disposal】

Dispose of contents/container in accordance with national regulations.

## SECTION 3 Composition and information ingredients

Substance/Mixture	Substance
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Chemical name or generic name	Zirconium oxide
Chemical formula	ZrO2
CAS No.	1314-23-4
Concentration or concentration range	99.9% (include HfO2)
TSCA Inventory	Zirconium oxide (ZrO2)
EINECS number	215-227-2
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 emergency procedures	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.
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.

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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 precautions 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.

Safety packaging material No data available

## SECTION 8 Exposure controls and personal protection

ZrO2

## Permissible concentration

## ACGIH

TWA 5 mg/m3 (as Zr)  
STEL 10 mg/m3 (as Zr)  
(2005 edition)

## 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 White

Odour None

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## pH

No data available

## Melting point/Freezing point

2700°C

## Boiling point/Initial boiling point and boiling range

4300°C

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Flash point	None
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Explosive limits	
LEL	None
UEL	None
Vapour pressure	No data available
Vapour density (air = 1)	No data available
Specific gravity (Relative density)	5.73
(Density)	※ as ZrO <sub>2</sub> , 3.90 ~ 5.15 (pellet)
Solubility	
Water	Insoluble
Other solvents	No data available
n-octanol/Water partition coefficient	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity (Coefficient of viscosity)	No data available
Other data	None

## SECTION 10 Stability and reactivity

**ZrO<sub>2</sub>**

Reactivity	No data available
Chemical stability	It is stable in storage conditions and normal handling.
Hazardous reactions	No data available
Conditions to avoid	Heating, sunlight
Incompatible materials	Strong oxidant
Hazardous decomposition products	No data available

## SECTION 11 Hazard information

**ZrO<sub>2</sub>**

Acute toxicity(oral)	No data available
Acute toxicity(dermal)	No data available
Acute toxicity(inhalation)	Intraperitoneal – Mouse LD50: 87mg/kg
Skin corrosion/irritation	If inhaled, to stimulate the respiratory system and mucous membranes.
Eye damage/eye irritation	No data available

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Respiratory sensitization/Skin sensitization	<i>No data available</i>
Germ cell mutagenicity	<i>No data available</i>
Carcinogenicity	<i>No data available</i>
Reproductive toxicity	<i>No data available</i>
Specific target organ toxicity(single exposure)	<i>No data available</i>
Specific target organ toxicity(repeated exposure)	<i>No data available</i>
Aspiration hazard	<i>No data available</i>
Others	None

## SECTION 12 Ecological information

**ZrO2**

Ecotoxicity	
Fish	<i>No data available</i>
Crustaceantoxicity(single exposure)	<i>No data available</i>
Algae	<i>No data available</i>
Other organisms	<i>No data available</i>
Persistence and degradability	<i>No data available</i>
Bioaccumulative potential	<i>No data available</i>
Mobility in soil	<i>No data available</i>
Hazard to the ozone layer	<i>No data available</i>
Others	<i>No data available</i>

## 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**

International regulation	
UN classification	<i>Not applicable</i>
UN number	<i>None</i>
UN proper shipping name	<i>None</i>
Packing group	<i>Not applicable</i>

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Japanese laws and regulations	None
Conditions and specific safety measures of transport	No data available

## SECTION 15 Regulatory information (Japan)

ZrO2

PRTR Law	None
Occupational Safety and Health Law	There is it in the case of an application or an application
Poisonous and Deleterious Substances control Law	None
Explosives control Law	None
High-pressure gas security Law	None
Fire fighting Law	None
Chemical substances control Law	None
Ship safety Law	None
Aviation Law	None
Prevention of marine pollution Law	None
Pneumoconiosis Law	None
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

## [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

## [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)