

## SAFETY DATA SHEET

According to JIS Z 7253:2012  
**Revision Date** 21-Jun-2019  
 Version 4.01

## Section 1: PRODUCT AND COMPANY IDENTIFICATION

<b>Product name</b>	Osmium(VIII) Oxide
<b>Product code</b>	153-00401, 157-00404, 159-00403
<b>CAS RN</b>	20816-12-0
<b>Formula</b>	OsO <sub>4</sub>
<b>Manufacturer</b>	FUJIFILM Wako Pure Chemical Corporation 1-2 Doshomachi 3-Chome Chuo-ku, Osaka 540-8605, Japan Phone: +81-6-6203-3741 Fax: +81-6-6203-5964
<b>Supplier</b>	FUJIFILM Wako Pure Chemical Corporation 1-2 Doshomachi 3-Chome, Chuo-ku, Osaka 540-8605, Japan Phone: +81-6-6203-3741 Fax: +81-6-6203-2029
<b>Emergency telephone number</b>	+81-6-6203-3741 / +81-3-3270-8571
<b>Recommended uses and restrictions on use</b>	For research purposes

## Section 2: HAZARDS IDENTIFICATION

## GHS classification

Classification of the substance or mixture

Acute toxicity - Oral

Category 3

Acute toxicity - Inhalation (Dusts/Mists)

Category 1

Skin corrosion/irritation

Category 1

Serious eye damage/eye irritation

Category 1

Specific target organ toxicity (single exposure)

Category 1

Category 1 adrenal gland, kidneys, liver, respiratory system, spleen

Specific target organ toxicity (repeated exposure)

Category 1, Category 2

Category 1 respiratory system

Category 2 adrenal gland, blood forming system, kidneys, liver, spleen

## Pictograms



Signal word

Danger

## Hazard statements

H314 - Causes severe skin burns and eye damage

H318 - Causes serious eye damage

H301 - Toxic if swallowed

H330 - Fatal if inhaled

H370 - Causes damage to the following organs: adrenal gland, kidneys, liver, respiratory system, spleen

H372 - Causes damage to the following organs through prolonged or repeated exposure: respiratory system

H373 - May cause damage to the following organs through prolonged or repeated exposure: adrenal gland, blood forming system, kidneys, liver, spleen

**Precautionary statements-(Prevention)**

- Wash face, hands and any exposed skin thoroughly after handling
- Do not eat, drink or smoke when using this product
- Do not breathe dust/fume/gas/mist/vapors/spray
- Wear protective gloves/protective clothing/eye protection/face protection

**Precautionary statements-(Response)**

- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Immediately call a POISON CENTER or doctor/physician
- IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- Wash contaminated clothing before reuse.
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
- Rinse mouth.
- Do NOT induce vomiting.

**Precautionary statements-(Storage)**

- Store locked up.

**Precautionary statements-(Disposal)**

- Dispose of contents/container to an approved waste disposal plant

**Others**

**Other hazards** Not available

### Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

**Single Substance or Mixture** Substance

**Formula** OsO4

Chemical Name	Weight-%	Molecular weight	ENCS	ISHL No.	CAS RN
Osmium(VIII) Oxide	98.0	254.23	N/A	N/A	20816-12-0

**Impurities and/or Additives :** Not applicable

### Section 4: FIRST AID MEASURES

**Inhalation**

Remove to fresh air. If symptoms persist, call a physician.

**Skin contact**

Wash off immediately with soap and plenty of water. If symptoms persist, call a physician.

**Eye contact**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediate medical attention is required.

**Ingestion**

Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately. Do not induce vomiting without medical advice.

**Protection of first-aiders**

Use personal protective equipment as required.

### Section 5: FIRE FIGHTING MEASURES

**Suitable extinguishing media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment

**Unsuitable extinguishing media**

No information available

**Special extinguishing method**

No information available

**Specific hazards arising from the chemical product**

Thermal decomposition can lead to release of irritating and toxic gases and vapors.

#### Protection of fire-fighters

Use personal protective equipment as required. Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

## Section 6: ACCIDENTAL RELEASE MEASURES

#### Personal precautions, protective equipment and emergency procedures

For indoor, provide adequate ventilation process until the end of working. Deny unnecessary entry other than the people involved by, for example, using a rope. While working, wear appropriate protective equipments to avoid adhering it on skin, or inhaling the gas. Work from windward, and retract the people downwind.

#### Environmental precautions

To be careful not discharged to the environment without being properly handled waste water contaminated. See Section 12 for additional ecological information.

#### Methods and materials for contaminant and methods and materials for cleaning up

Sweep up and gather scattered particles, and collect it in an empty airtight container.

#### Recovery, neutralization

No information available

#### Secondary disaster prevention measures

Clean contaminated objects and areas thoroughly observing environmental regulations.

## Section 7: HANDLING AND STORAGE

### Handling

#### Technical measures

To cut with care and wear protective gloves and protective goggles to ampoule time of the opening (Cutting method to check the label). Avoid contact with reducing agents. Use with local exhaust ventilation.

#### Precautions

Do not rough handling containers, such as upsetting, falling, giving a shock, and dragging. Prevent leakage, overflow, and scattering. Not to generate steam and dust in vain. Seal the container after use. After handling, wash hands and face, and then gargle. In places other than those specified, should not be smoking or eating and drinking. Should not be brought contaminated protective equipment and gloves to rest stops. Deny unnecessary entry of non-emergency personnel to the handling area.

#### Safety handling precautions

Use personal protective equipment as required. Avoid contact with skin, eyes or clothing.

### Storage

#### Safe storage conditions

**Storage conditions** Store away from sunlight in a cool (2-10 °C) well-ventilated dry place.

**Safe packaging material** Ampoule

**Incompatible substances** Strong reducing agents

## Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Engineering controls

In case of indoor workplace, seal the source or use a local exhaust system. Provide the safety shower facility, and hand- and eye-wash facility. And display their position clearly.

#### Exposure limits

Chemical Name	JSOH (Japan)	ISHL (Japan)	ACGIH
Osmium(VIII) Oxide 20816-12-0	N/A	N/A	STEL: 0.0006 ppm Os TWA: 0.0002 ppm Os

#### Personal protective equipment

**Respiratory protection** Dust mask

**Hand protection** Protection gloves

**Eye protection** protective eyeglasses or chemical safety goggles

**Skin and body protection** Long-sleeved work clothes

#### General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

## Section 9: PHYSICAL AND CHEMICAL PROPERTIES

<b>Form</b>	
<b>Color</b>	White - pale yellow
<b>Appearance</b>	crystals
<b>Odor</b>	Pungent odor
<b>pH</b>	neutral (aq.)
<b>Melting point/freezing point</b>	42 °C
<b>Boiling point, initial boiling point and boiling range</b>	130 °C
<b>Flash point</b>	No data available
<b>Evaporation rate:</b>	No data available
<b>Flammability (solid, gas):</b>	No data available
<b>Upper/lower flammability or explosive limits</b>	
<b>Upper :</b>	No data available
<b>Lower :</b>	No data available
<b>Vapour pressure</b>	1.46 kPa
<b>Vapour density</b>	8.8 (air = 1)
<b>Specific Gravity / Relative density</b>	4.90
<b>Solubilities</b>	Ethanol : soluble . water : very slightly soluble.
<b>n-Octanol/water partition coefficient:(log Pow)</b>	No data available
<b>Auto-ignition temperature:</b>	No data available
<b>Decomposition temperature:</b>	No data available
<b>Viscosity (coefficient of viscosity)</b>	No data available
<b>Dynamic viscosity</b>	No data available

## Section 10: STABILITY AND REACTIVITY

### Stability

<b>Stability</b>	Stable under recommended storage conditions.
<b>Reactivity</b>	No data available

### Hazardous reactions

None under normal processing

### Conditions to avoid

Extremes of temperature and direct sunlight

### Incompatible materials

Strong reducing agents

### Hazardous decomposition products

No information available

## Section 11: TOXICOLOGICAL INFORMATION

### Acute toxicity

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Osmium(VIII) Oxide	162 mg/kg ( Mouse )	N/A	40 ppm ( Rat )

Chemical Name	Acute toxicity -oral- source information	Acute toxicity -dermal- source information	Acute toxicity -inhalation gas-source information
Osmium(VIII) Oxide	LD50(oral,mouse):162mg/g(PATTY(5th, 2001)).	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

Chemical Name	Acute toxicity -inhalation vapor- source information	Acute toxicity -inhalation dust-source information	Acute toxicity -inhalation mist-source information
Osmium(VIII) Oxide	Based on the NITE GHS Classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

### Skin irritation/corrosion

Chemical Name	Skin corrosion irritation source information
Osmium(VIII) Oxide	Based on the NITE GHS classification results.

**Serious eye damage/ irritation**

Chemical Name	Serious eye damage source information
Osmium(VIII) Oxide	Based on the NITE GHS classification results.

**Respiratory or skin sensitization**

Chemical Name	Respiratory, Skin sensitization source information
Osmium(VIII) Oxide	Based on the NITE GHS classification results.

**Reproductive cell mutagenicity**

Chemical Name	Mutagenic source information
Osmium(VIII) Oxide	Based on the NITE GHS classification results.

**Carcinogenicity**

Chemical Name	Carcinogenicity source information
Osmium(VIII) Oxide	Based on the NITE GHS classification results.

**Reproductive toxicity**

Chemical Name	Reproductive toxicity source information
Osmium(VIII) Oxide	Based on the NITE GHS classification results.

**STOT-single exposure**

Chemical Name	STOT -single exposure- source information
Osmium(VIII) Oxide	Based on the NITE GHS classification results.

**STOT-repeated exposure**

Chemical Name	STOT -repeated exposure- source information
Osmium(VIII) Oxide	Based on the NITE GHS classification results.

**Aspiration hazard**

Chemical Name	Aspiration Hazard source information
Osmium(VIII) Oxide	Based on the NITE GHS classification results.

**Section 12: ECOLOGICAL INFORMATION**

**Ecotoxicity** No information available

**Other data**

Chemical Name	Aquatic toxicity -Acute- source information	Aquatic toxicity -Chronic- source information
Osmium(VIII) Oxide	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

**Persistence and degradability** No information available

**Bioaccumulative potential** No information available

**Mobility in soil** No information available

**Hazard to the ozone layer** No information available

**Section 13: DISPOSAL CONSIDERATIONS****Waste from residues**

Disposal should be in accordance with applicable regional, national and local laws and regulations.

**Contaminated container and contaminated packaging**

Do not reuse container

**Section 14: TRANSPORT INFORMATION****ADR/RID**

**UN number** UN2471  
**Proper shipping name:** Osmium tetroxide  
**UN classification** 6.1  
**Subsidiary hazard class**  
**Packing group** I  
**Marine pollutant** Yes

**IMDG**

UN number	UN2471
Proper shipping name:	Osmium tetroxide
UN classification	6.1
Subsidiary hazard class	P
Packing group	I
Marine pollutant (Sea)	Yes
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available

**IATA**

UN number	UN2471
Proper shipping name:	Osmium tetroxide
UN classification	6.1
Subsidiary hazard class	
Packing group	I
Environmentally Hazardous Substance	Yes

<b>Section 15: REGULATORY INFORMATION</b>
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**International Inventories**

EINECS/ELINCS	Listed
TSCA	Listed

**Japanese regulations**

Fire Service Act	Not applicable
Poisonous and Deleterious Substances Control Law	Not applicable
Industrial Safety and Health Act	Notifiable Substances (Law Art.57-2, Enforcement Order Art.18-2 Attached Table No.9)No.258 Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18)
Regulations for the carriage and storage of dangerous goods in ship	Toxic Substances - Poison (Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1)
Civil Aeronautics Law	Toxic and Infectious Substances (Ordinance Art.194, MITL Notification for Air Transportation of Explosives etc., Attached Table 1)
Marine Pollution Prevention Law	Marine pollutants (P and PP substances)
Pollutant Release and Transfer Register Law	Not applicable
Export Trade Control Order	Not applicable

<b>Section 16: OTHER INFORMATION</b>
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**Key literature references and sources for data etc.**

NITE: National Institute of Technology and Evaluation (JAPAN)  
<http://www.safe.nite.go.jp/japan/db.html>  
 IATA dangerous Goods Regulations  
 RTECS:Registry of Toxic Effects of Chemical Substances  
 Japan Industrial Safety and Health Association GHS Model SDS  
 Dictionary of Synthetic Organic Chemistry, SSOCJ, Koudansha Scientific Co.Ltd.  
 Chemical Dictionary, Kyouritsu Publishing Co., Ltd.  
 etc

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.  
 GHS Classification is according to JIS Z7252(2014). \*JIS: Japanese Industrial Standards

**End of Safety Data Sheet**