

SAFETY DATA SHEET

According to JIS Z 7253:2019
Revision Date 28-Oct-2020
 Version 3.01

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product name	PI Osmium Oxide Type II
Product code	160-24491

Manufacturer	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
Supplier	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
Emergency telephone number	+81-6-6203-3741 / +81-3-3270-8571
Recommended uses and restrictions on use	For research purposes

Section 2: HAZARDS IDENTIFICATION

GHS classification**Classification of the substance or mixture**

Acute toxicity - Oral	Category 4
Acute toxicity - Inhalation (Vapors)	Category 1
Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (single exposure)	Category 1
Category 1 liver, respiratory system, kidneys, adrenal gland, spleen	
Specific target organ toxicity (repeated exposure)	Category 1, Category 2
Category 1 respiratory system	
Category 2 liver, kidneys, adrenal gland, blood forming system, spleen	

Pictograms**Signal word**

Danger

Hazard statements

- H314 - Causes severe skin burns and eye damage
- H318 - Causes serious eye damage
- H302 - Harmful if swallowed
- H330 - Fatal if inhaled
- H370 - Causes damage to the following organs: liver, respiratory system, kidneys, adrenal gland, 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: liver, kidneys, adrenal gland, blood forming system, 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: Call a POISON CENTER or doctor/physician if you feel unwell
- 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 Mixture

Chemical Name	Weight-%	Molecular weight	ENCS	ISHL No.	CAS RN
Polymer	79.0	N/A	N/A	N/A	N/A-16-2449
Osmium(VIII) Oxide	21.0	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. Immediate medical attention is required.

Skin contact

Wash off immediately with soap and plenty of water. Immediate medical attention is required.

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

Specific hazards arising from the chemical product

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

Special extinguishing method

No information available

Special protective actions for fire-fighters**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.

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

Avoid contact with reducing agents and combustible materials. 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

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

Storage

Safe storage conditions

Storage conditions

Keep container protect from light tightly closed. Store in a cool (2-10 °C) place. Packed with an inert gas.

Safe packaging material

Glass

Incompatible substances

Combustible materials, Reducing agent

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

Impermeable protective 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

Form	
Color	black
Appearance	crystals - powder or mass
Odor	No data available
Melting point/freezing point	No data available
Boiling point, initial boiling point and boiling range	No data available
Flammability	No data available
Evaporation rate:	No data available
Flammability (solid, gas):	No data available
Upper/lower flammability or explosive limits	
Upper :	No data available
Lower :	No data available
Flash point	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
pH	No data available
Viscosity (coefficient of viscosity)	No data available
Dynamic viscosity	No data available
Solubilities	No data available
n-Octanol/water partition coefficient:(log Pow)	No data available
Vapour pressure	No data available
Specific Gravity / Relative density	No data available
Vapour density	No data available
Particle characteristics	No data available

Section 10: STABILITY AND REACTIVITY

Stability

Reactivity	No data available
Chemical stability	May be altered by light.
Hazardous reactions	None under normal processing
Conditions to avoid	Extremes of temperature and direct sunlight
Incompatible materials	Combustible materials, Reducing agent
Hazardous decomposition products	Carbon monoxide (CO), Carbon dioxide (CO ₂), Metal oxides

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	Based on the NITE GHS classification results.	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/irritation source information

Osmium(VIII) Oxide	Based on the NITE GHS classification results.
Respiratory or skin sensitization	
Chemical Name	Respiratory or Skin sensitization source information
Osmium(VIII) Oxide	Based on the NITE GHS classification results.
Reproductive cell mutagenicity	
Chemical Name	germ cell mutagenicity 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	Short-term (acute) hazardous to the aquatic environment source information	Long-term (chronic) hazardous to the aquatic environment 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

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

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

Section 15: REGULATORY INFORMATION

International Inventories

EINECS/ELINCS	-
TSCA	-

Japanese regulations

Fire Service Act	Not applicable
Poisonous and Deleterious Substances Control Law	Not applicable
Industrial Safety and Health Act	Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18) Notifiable Substances (Law Art.57-2, Enforcement Order Art.18-2 Attached Table No.9)No.258
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

Section 16: OTHER INFORMATION

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

This SDS is according to JIS Z 7253: 2019. 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(2019). *JIS: Japanese Industrial Standards

End of Safety Data Sheet