Os Tetraoxide(VIII) HSTDP

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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name	:	Os Tetraoxide(VIII) HSTDP
Product code	:	5027796
REACH Registration Number	:	This substance is not registered under REACh as the annual quantity does not require registration or the substance or its use is excluded from registration under Article 2 of the REACh Regulation (EC 1907/2006).
Substance name	:	osmium tetraoxide
CAS-No.	:	20816-12-0
Index-No.	:	076-001-00-5
EC-No.	:	244-058-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture	:	Industrial use

1.3 Details of the supplier of the safety data sheet

Company	:	Heraeus South Africa (Pty.) Ltd. Oddy Place 6-7 6001 Port Elizabeth
Telephone	:	+27414042800
E-mail address of person responsible for the SDS	:	sds@heraeus.com (Heraeus Holding: EHS Chemical Safety)

1.4 Emergency telephone number

Emergency telephone number	:	+49 6132-84463 International Emergency Number This telephone number is available 24 hours per day, 7 days per week.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Acute toxicity, Category 2	H300: Fatal if swallowed.
Acute toxicity, Category 2	H330: Fatal if inhaled.
Acute toxicity, Category 1	H310: Fatal in contact with skin.
Skin corrosion, Sub-category 1B	H314: Causes severe skin burns and eye damage.
Serious eye damage, Category 1	H318: Causes serious eye damage.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Danger

Hazard statements : H300 + H310 + H330 Fatal if swallowed, in contact with skin or if inhaled.
H314 Causes severe skin burns and eye damage.

Supplemental Hazard Statements : EUH071 Corrosive to the respiratory tract.

Precautionary statements :

Prevention:

P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P262 Do not get in eyes, on skin, or on clothing.

Response:

P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

Substance name	:	osmium tetraoxide
CAS-No.	:	20816-12-0
Index-No.	:	076-001-00-5
EC-No.	:	244-058-7

Chemical nature : Substance

Chemical name	CAS-No. Index-No.EC-No.	Concentration (% w/w)
osmium tetraoxide	20816-12-0076-001-00-5 244-058-7	>= 90 - <= 100

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : First aider needs to protect himself.
Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.

If inhaled : Move to fresh air.
Get medical attention.

In case of skin contact : Wash off immediately with plenty of water.
Take off all contaminated clothing immediately.
Get medical attention immediately.
Wash off with soap and plenty of water.

In case of eye contact : In case of eye contact, remove contact lens and rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Keep eye wide open while rinsing.
Protect unharmed eye.
Call a physician immediately.

If swallowed : Immediately give large quantities of water to drink.
Do NOT induce vomiting.
Get medical attention immediately.

4.2 Most important symptoms and effects, both acute and delayed

Risks : Fatal if swallowed, in contact with skin or if inhaled.
Causes serious eye damage.
Corrosive to the respiratory tract.
Causes severe burns.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : Exposure to decomposition products may be a hazard to health.

Hazardous combustion products : No hazardous combustion products are known

5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

Further information : Use a water spray to cool fully closed containers.
Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Follow safe handling advice and personal protective equipment recommendations.
Ensure adequate ventilation.
Evacuate personnel to safe areas.
Refer to protective measures listed in sections 7 and 8.

6.2 Environmental precautions

Environmental precautions : Do not allow contact with soil, surface or ground water.
Do not let product enter drains.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Pick up and arrange disposal without creating dust.
Sweep up or vacuum up spillage and collect in suitable container for disposal.

6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Provide sufficient air exchange and/or exhaust in work rooms.

Wear personal protective equipment.
Avoid inhalation, ingestion and contact with skin and eyes.
Smoking, eating and drinking should be prohibited in the application area.

Hygiene measures : Keep away from food and drink. Wash hands before breaks and at the end of workday. Keep working clothes separately. Remove and wash contaminated clothing and gloves, including the inside, before re-use.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep tightly closed in a dry, cool and well-ventilated place. Keep locked up or in an area accessible only to qualified or authorised persons.

Storage class (TRGS 510) : 6.1B, Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Engineering measures

Provide sufficient air exchange and/or exhaust in work rooms.

Personal protective equipment

Eye protection : Safety glasses with side-shields

Hand protection

Remarks : Before removing gloves clean them with soap and water. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.

Filter type : Filter type ABEK-P

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	:	powder, crystalline
Colour	:	colourless
Odour	:	pungent
Odour Threshold	:	No data available
pH	:	6 (25 °C)
Melting point/range	:	40 °C (1.013 hPa)
Boiling point/boiling range	:	130 °C (1.013 hPa)
Flash point	:	Not applicable
Evaporation rate	:	Not applicable
Flammability (solid, gas)	:	Not applicable
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	10 hPa
Relative vapour density	:	Not applicable
Relative density	:	No data available
Density	:	4,91 g/cm3 (23 °C, 1.013 hPa)
Solubility(ies)		
Water solubility	:	65 g/l soluble (20 °C, 1.013 hPa)
Solubility in other solvents	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	Not applicable
Viscosity, kinematic	:	Not applicable
Explosive properties	:	No data available
Oxidizing properties	:	No data available

9.2 Other information

Molecular weight	:	254,19 g/mol

Self-ignition : No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : No dangerous reaction known under conditions of normal use.

10.4 Conditions to avoid

Conditions to avoid : No data available

10.5 Incompatible materials

Materials to avoid : No data available

10.6 Hazardous decomposition products

No data available

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Fatal if swallowed, in contact with skin or if inhaled.

Components:

osmium tetraoxide:

Acute oral toxicity : LD50 (Rat): 15 mg/kg

Acute inhalation toxicity : LC50 (Rat): 0,42 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: Corrosive to the respiratory tract.

Acute dermal toxicity : Acute toxicity estimate: 5 mg/kg
Method: Expert judgement
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

Skin corrosion/irritation

Causes severe burns.

Components:

osmium tetraoxide:

Result	:	Corrosive after 3 minutes to 1 hour of exposure
Remarks	:	Based on harmonised classification in EU regulation 1272/2008, Annex VI

Serious eye damage/eye irritation

Causes serious eye damage.

Components:

osmium tetraoxide:

Species	:	Rabbit
Result	:	Irreversible effects on the eye

Respiratory or skin sensitisation

Skin sensitisation

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Germ cell mutagenicity

Not classified based on available information.

Carcinogenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

STOT - single exposure

Corrosive to the respiratory tract.

STOT - repeated exposure

Not classified based on available information.

Aspiration toxicity

Not classified based on available information.

SECTION 12: Ecological information

12.1 Toxicity

Components:

osmium tetraoxide:

Ecotoxicology Assessment

Acute aquatic toxicity	:	Toxic effects cannot be excluded
Chronic aquatic toxicity	:	Toxic effects cannot be excluded

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

12.6 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : If recycling is not practicable, dispose of in compliance with local regulations.

Contaminated packaging : Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number

ADN : UN 2471

ADR : UN 2471

RID : UN 2471

IMDG : UN 2471

IATA : UN 2471

14.2 UN proper shipping name

ADN : OSMIUM TETROXIDE

ADR : OSMIUM TETROXIDE

RID : OSMIUM TETROXIDE

IMDG : OSMIUM TETROXIDE

IATA : Osmium tetroxide

14.3 Transport hazard class(es)

ADN	:	6.1
ADR	:	6.1
RID	:	6.1
IMDG	:	6.1
IATA	:	6.1

14.4 Packing group

ADN

Packing group	:	I
Classification Code	:	T5
Hazard Identification Number	:	66
Labels	:	6.1

ADR

Packing group	:	I
Classification Code	:	T5
Hazard Identification Number	:	66
Labels	:	6.1
Tunnel restriction code	:	(C/E)

RID

Packing group	:	I
Classification Code	:	T5
Hazard Identification Number	:	66
Labels	:	6.1

IMDG

Packing group	:	I
Labels	:	6.1
EmS Code	:	F-A, S-A

IATA (Cargo)

Packing instruction (cargo aircraft)	:	673
Packing group	:	I
Labels	:	Toxic

IATA (Passenger)

Packing instruction (passenger aircraft)	:	666
Packing group	:	I
Labels	:	Toxic

14.5 Environmental hazards

ADN

Environmentally hazardous	:	no

ADR

Environmentally hazardous	:	no

RID

Environmentally hazardous	:	no

IMDG

Marine pollutant : no

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for product as supplied.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	:	Not applicable
REACH - List of substances subject to authorisation (Annex XIV)	:	Not applicable
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	:	Not applicable
Regulation (EC) No 850/2004 on persistent organic pollutants	:	Not applicable
Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals	:	Not applicable
REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII)	:	Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

H1	ACUTE TOXIC

Water contaminating class (Germany)	:	WGK 3 highly hazardous to water Classification according to AwSV, Annex 1 (4)

Other regulations:

The product is subject to the supply restrictions of the Ordinance on the Prohibition of Chemicals.
Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.
Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

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, use, processing, storage, transportation, disposal and release 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.

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