

## Osmic acid

Version number: GHS 1.0

Date of compilation: 2023-12-26

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

#### 1.1 Product identifier

Identification of the substance	<b>Osmic acid</b>
CAS number	20816-12-0
Alternative name(s)	Osmium tetroxide
Alternative number(s)	RM1461

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

Relevant identified uses	Laboratory chemicals, Manufacture of substances
Uses advised against	Do not use for squirting or spraying. Do not use for products which come into direct contact with the skin.

#### 1.3 Details of the supplier of the safety data sheet

HiMedia Laboratories Pvt. Ltd.  
Plot No. C40, Road No. 21Y, Wagle Industrial Area, MIDC  
Thane West Maharashtra 400604  
India

Telephone: +91 22 69034800, +91 22 61169797  
e-mail: info@himedialabs.com  
Website: www.himedialabs.com

e-mail (competent person) info@himedialabs.com (HiMedia Laboratories Pvt. Ltd)

#### 1.4 Emergency telephone number

Emergency information service This number is only available during the following office hours: Mon-Fri 09:00 AM - 05:00 PM

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

Classification acc. to GHS

Section	Hazard class	Category	Hazard class and category	Hazard statement
3.1O	acute toxicity (oral)	2	Acute Tox. 2	H300
3.1D	acute toxicity (dermal)	1	Acute Tox. 1	H310
3.1I	acute toxicity (inhal.)	2	Acute Tox. 2	H330
3.2	skin corrosion/irritation	1B	Skin Corr. 1B	H314

For full text of abbreviations: see SECTION 16.

The most important adverse physicochemical, human health and environmental effects

Skin corrosion produces an irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis.

#### 2.2 Label elements

Labelling

- Signal word danger

## Osmic acid

Version number: GHS 1.0

Date of compilation: 2023-12-26

### - Pictograms

GHS05, GHS06



### - Hazard statements

H300+H310+H330

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

H314

Causes severe skin burns and eye damage.

### - Precautionary statements

P260

Do not breathe dust/fume/gas/mist/vapours/spray.

P262

Do not get in eyes, on skin, or on clothing.

P280

Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

P301+P310

IF SWALLOWED: Immediately call a POISON CENTER/doctor.

P303+P361+P353

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

P304+P340

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338

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

P403+P233

Store in a well-ventilated place. Keep container tightly closed.

## 2.3 Other hazards

Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) in a concentration of  $\geq 0,1\%$ .

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Name of substance

Osmic acid

Identifiers

CAS No

20816-12-0

EC No

244-058-7

Index No

076-001-00-5

(GB CLP)

Specific Conc. Limits	M-Factors	ATE	Exposure route
-	-	5 mg/kg 5 mg/kg 0.05 mg/l/4h	oral dermal inhalation: dust/mist

Molecular formula

OsO<sub>4</sub>

Molar mass

254.23 g/mol

## Osmic acid

Version number: GHS 1.0

Date of compilation: 2023-12-26

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

##### General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

##### Following inhalation

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. In case of respiratory tract irritation, consult a physician. Provide fresh air.

##### Following skin contact

Rinse skin with water/shower.

##### Following eye contact

Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart.

##### Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting.

#### 4.2 Most important symptoms and effects, both acute and delayed

Symptoms and effects are not known to date.

#### 4.3 Indication of any immediate medical attention and special treatment needed

none

### SECTION 5: Firefighting measures

#### 5.1 Extinguishing media

##### Suitable extinguishing media

Water, Foam, ABC-powder

##### Unsuitable extinguishing media

Water jet

#### 5.2 Special hazards arising from the substance or mixture

Nature of decomposition products not known.

#### 5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

### SECTION 6: Accidental release measures

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

##### For non-emergency personnel

Remove persons to safety.

##### For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases.

#### 6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

## Osmic acid

Version number: GHS 1.0

Date of compilation: 2023-12-26

### 6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains, Take up mechanically

Advice on how to clean up a spill

Take up mechanically.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

### 6.4 Reference to other sections

Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Recommendations

- Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation. Take precautionary measures against static discharge. Use only in well-ventilated areas. Ground/bond container and receiving equipment.

- Specific notes/details

Dust deposits may accumulate on all deposition surfaces in a technical room.

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

### 7.2 Conditions for safe storage, including any incompatibilities

Managing of associated risks

- Explosive atmospheres

Removal of dust deposits.

- Ventilation requirements

Keep any substance that emits harmful vapours or gases in a place that allows these to be permanently extracted. Use local and general ventilation.

- Specific designs for storage rooms or vessels

- Storage temperature

Recommended storage temperature: 10 – 30 °C

- Packaging compatibilities

Only packagings which are approved (e.g. acc. to ADR) may be used.

### 7.3 Specific end use(s)

See section 16 for a general overview.

## Osmic acid

Version number: GHS 1.0

Date of compilation: 2023-12-26

### SECTION 8: Exposure controls/personal protection

#### 8.1 Control parameters

Occupational exposure limit values (Workplace Exposure Limits)											
Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m <sup>3</sup> ]	STEL [ppm]	STEL [mg/m <sup>3</sup> ]	Ceiling-C [ppm]	Ceiling-C [mg/m <sup>3</sup> ]	Notation	Source
GB	dust		WEL		10					i	EH40/2005
GB	dust		WEL		4					r	EH40/2005
GB	osmium tetroxide	20816-12-0	WEL	0.0002	0.002	0.0006	0.006			Os	EH40/2005

**Notation**

Ceiling-C	ceiling value is a limit value above which exposure should not occur
i	inhalable fraction
Os	calculated as Os (osmium)
r	respirable fraction
STEL	short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)
TWA	time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours
	time-weighted average (unless otherwise specified)

#### 8.2 Exposure controls

##### Appropriate engineering controls

General ventilation.

##### Individual protection measures (personal protective equipment)

##### Eye/face protection

Wear eye/face protection.

##### Skin protection

##### - Hand protection

In the case of wanting to use the gloves again, clean them before taking off and air them well.

##### - Other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.

##### Respiratory protection

Particulate filter device (EN 143).

##### Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

### SECTION 9: Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

## Osmic acid

Version number: GHS 1.0

Date of compilation: 2023-12-26

Physical state	solid
Colour	Yellow to yellow-green crystals or powder
Odour	characteristic
Melting point/freezing point	not determined
Boiling point or initial boiling point and boiling range	not determined
Flammability	non-combustible
Lower and upper explosion limit	not determined
Flash point	not applicable
Auto-ignition temperature	not determined
Decomposition temperature	not relevant
pH (value)	not applicable
Kinematic viscosity	not relevant
Solubility(ies)	not determined

### Partition coefficient

Partition coefficient n-octanol/water (log value)	not relevant (inorganic)
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Vapour pressure	not determined
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### Density and/or relative density

Density	not determined
Relative vapour density	information on this property is not available

Particle characteristics	no data available
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## 9.2 Other information

Information with regard to physical hazard classes	hazard classes acc. to GHS (physical hazards): not relevant
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### Other safety characteristics

Solid content	100 %
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## Osmic acid

Version number: GHS 1.0

Date of compilation: 2023-12-26

### SECTION 10: Stability and reactivity

#### 10.1 Reactivity

Concerning incompatibility: see below "Conditions to avoid" and "Incompatible materials".

#### 10.2 Chemical stability

See below "Conditions to avoid".

#### 10.3 Possibility of hazardous reactions

No known hazardous reactions.

#### 10.4 Conditions to avoid

There are no specific conditions known which have to be avoided.

#### 10.5 Incompatible materials

There is no additional information.

#### 10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

### SECTION 11: Toxicological information

#### 11.1 Information on toxicological effects

##### Classification acc. to GHS

##### Acute toxicity

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

##### - Acute toxicity estimate (ATE)

Oral	5 mg/kg
Dermal	5 mg/kg
Inhalation: dust/mist	0.05 mg/l/4h

##### Skin corrosion/irritation

Causes severe skin burns and eye damage.

##### Serious eye damage/eye irritation

Causes serious eye damage.

##### Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

##### Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

##### Carcinogenicity

Shall not be classified as carcinogenic.

##### Reproductive toxicity

Shall not be classified as a reproductive toxicant.

##### Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

##### Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

## Osmic acid

Version number: GHS 1.0

Date of compilation: 2023-12-26

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

### 11.2 Information on other hazards

There is no additional information.

## SECTION 12: Ecological information

### 12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

### 12.2 Persistence and degradability

Data are not available.

### 12.3 Bioaccumulative potential

Data are not available.

### 12.4 Mobility in soil

Data are not available.

### 12.5 Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

### 12.6 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) in a concentration of  $\geq 0,1\%$ .

### 12.7 Other adverse effects

Data are not available.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Waste treatment-relevant information

Recycling/reclamation of other inorganic materials.

Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used. Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

### Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

## Osmic acid

Version number: GHS 1.0

Date of compilation: 2023-12-26

### SECTION 14: Transport information

#### 14.1 UN number or ID number

ADR/RID	UN 2471
IMDG-Code	UN 2471
ICAO-TI	UN 2471

#### 14.2 UN proper shipping name

ADR/RID	OSMIUM TETROXIDE
IMDG-Code	OSMIUM TETROXIDE
ICAO-TI	Osmium tetroxide

#### 14.3 Transport hazard class(es)

ADR/RID	6.1
IMDG-Code	6.1
ICAO-TI	6.1

#### 14.4 Packing group

ADR/RID	I
IMDG-Code	I
ICAO-TI	I

#### 14.5 Environmental hazards

non-environmentally hazardous acc. to the dangerous goods regulations

#### 14.6 Special precautions for user

Provisions for dangerous goods (ADR) should be complied within the premises.

#### 14.7 Maritime transport in bulk according to IMO instruments

The cargo is not intended to be carried in bulk.

#### Information for each of the UN Model Regulations

##### Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) - Additional information

Classification code	T5
Danger label(s)	6.1



Special provisions (SP)	802(ADN)
Excepted quantities (EQ)	E5
Limited quantities (LQ)	0
Transport category (TC)	1
Tunnel restriction code (TRC)	C/E
Hazard identification No	66
Emergency Action Code	2X

## Osmic acid

Version number: GHS 1.0

Date of compilation: 2023-12-26

### Regulations concerning the International Carriage of Dangerous Goods by Rail (RID) - Additional information

Classification code T5  
Danger label(s) 6.1



Special provisions (SP) 802(ADN)  
Excepted quantities (EQ) E5  
Limited quantities (LQ) 0  
Transport category (TC) 1  
Hazard identification No 66

### International Maritime Dangerous Goods Code (IMDG) - Additional information

Marine pollutant P (hazardous to the aquatic environment)  
Danger label(s) 6.1



Special provisions (SP) -  
Excepted quantities (EQ) E5  
Limited quantities (LQ) 0  
EmS F-A, S-A  
Stowage category B

### International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information

Danger label(s) 6.1



Excepted quantities (EQ) E5

## SECTION 15: Regulatory information

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

#### Relevant provisions of the European Union (EU)

##### Deco-Paint Directive

VOC content	0 %
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##### Industrial Emissions Directive (IED)

VOC content	0 %
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#### Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

not listed

## Osmic acid

Version number: GHS 1.0

Date of compilation: 2023-12-26

### Regulation concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

not listed

### Water Framework Directive (WFD)

List of pollutants (WFD)			
Name of substance	CAS No	Listed in	Remarks
Osmic acid		a)	

#### Legend

a) Indicative list of the main pollutants

### Regulation on persistent organic pollutants (POP)

not listed

### National regulations (GB)

#### List of substances subject to authorisation (GB REACH, Annex 14) / SVHC - candidate list

not listed

### Restrictions according to GB REACH, Annex 17

not listed

### National inventories

Country	Inventory	Status
US	TSCA	substance is listed (ACTIVE)

#### Legend

TSCA Toxic Substance Control Act

## 15.2 Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance.

## SECTION 16: Other information

### Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
ADR	Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)
ATE	Acute Toxicity Estimate
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
Ceiling-C	Ceiling value
DGR	Dangerous Goods Regulations (see IATA/DGR)
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
ED	Endocrine disruptor
EH40/2005	EH40/2005 Workplace exposure limits ( <a href="http://www.nationalarchives.gov.uk/doc/open-government-licence/">http://www.nationalarchives.gov.uk/doc/open-government-licence/</a> )

## Osmic acid

Version number: GHS 1.0

Date of compilation: 2023-12-26

Abbr.	Descriptions of used abbreviations
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
GB CLP	The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use) (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/720 (as amended)
GB REACH	The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/758 (as amended)
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
ICAO-TI	Technical instructions for the safe transport of dangerous goods by air
IMDG	International Maritime Dangerous Goods Code
IMDG-Code	International Maritime Dangerous Goods Code
index No	The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
ppm	Parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
STEL	Short-term exposure limit
TWA	Time-weighted average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and very Bioaccumulative
WEL	Workplace exposure limit

### Key literature references and sources for data

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR). Regulations concerning the International Carriage of Dangerous Goods by Rail (RID). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

### List of relevant phrases (code and full text as stated in section 2 and 3)

Code	Text
H300	Fatal if swallowed.
H310	Fatal in contact with skin.
H314	Causes severe skin burns and eye damage.
H330	Fatal if inhaled.

## Osmic acid

Version number: GHS 1.0

Date of compilation: 2023-12-26

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### Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.