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MATERIAL SAFETY DATA SHEET (MSDS)**OSMIC ACID****1. Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Trade name : OSMIC ACID

Product code : O0150300001

Identification of the product : Osmium tetroxide
CAS No: 20816-12-0
EC No :244-058-7
Annex No :076-001-00-5

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

Use : Industrial. For professional use only.

1.3. Details of the supplier of the safety data sheet

Company identification SUVCHEM
Chaitanya Tower, 2nd Floor, Office # 206,
Siddharth Nagar, S.V. Road,
Goregaon (West), Mumbai - 400062,
Maharashtra, India.
Contact: +91 22 28725393 / 94 / 95
Email ID: info@suvchem.com/care@suvchem.com

1.4. Emergency telephone number

Phone no. : + 91 22 28725393 / 94 / 95 (9:00am - 6:00 pm) [Office hours]

2. Hazards identification -DSD**2.1. Classification of the substance or mixture****Classification EC 67/548 or EC 1999/45**

Classification : T+; R26/27/28
C; R34

Hazard Class and Category Code(s), Regulation (EC) No 1272/2008 (CLP)

Health hazards : Acute toxicity, Oral - Category 1 - Danger (CLP : Acute Tox. 1) H300
Skin corrosion - Category 1B - Danger (CLP : Skin Corr. 1B) H314
Serious eye damage - Category 1 - Danger (CLP : Eye Dam. 1) H318
Acute toxicity, Inhalation - Category 2 - Danger (CLP : Acute Tox. 2) H330
Acute toxicity, dermal - Category 1 - Danger (CLP : Acute Tox. 1) H310

2.2. Label elements

MATERIAL SAFETY DATA SHEET (MSDS)
OSMIC ACID
2. Hazards identification -DSD (continued)
Labelling EC 67/548 or EC 1999/45
Symbol(s)

Symbol(s)

: T+ : Very toxic

R Phrase(s)

 : R26/27/28 : Very toxic by inhalation, in contact with skin and if swallowed.
 R34 : Causes burns.

S Phrase(s)

 : S1/2 : Keep locked up and out of reach of children.
 S7/9 : Keep container tightly closed and in well-ventilated place.
 S26 : In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
 S45 : In case of accident or if you feel unwell, seek medical advice immediately (show the label when possible).

Contains

: Osmium tetroxide

Labelling Regulation EC 1272/2008 (CLP)
Hazard pictograms

Signal words

: Danger

Hazard statements

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

Precautionary statements
• General

 : P102: Keep out of reach of children.
 P103: Read label before use.
 P101: If medical advice is needed, have product container or label at hand.

• Prevention

 : P284: Wear respiratory protection.
 P280: Wear protective gloves, protective clothing, eye protection, face protection.
 P271: Use only outdoors or in a well-ventilated area.
 P260: Do not breathe dust, fume, gas, mist, vapours, spray.
 P264: Wash thoroughly after handling.
 P270: Do not eat, drink or smoke when using this product.

• Response

 : P301+P330+P331: IF SWALLOWED : Rinse mouth. Do NOT induce vomiting.
 P305+P351+P338: IF IN EYES : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P304+P340: IF INHALED : Remove to fresh air and keep at rest in a position comfortable for breathing.
 P302+P350: IF ON SKIN : Gently wash with plenty of soap and water.
 P303+P361+P353: IF ON SKIN (or hair) : Remove immediately all contaminated clothing. Rinse skin with water/shower.

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MATERIAL SAFETY DATA SHEET (MSDS)

OSMIC ACID

2. Hazards identification -DSD (continued)

- **Storage** : P363: Wash contaminated clothing before reuse.
 P361: Remove immediately all contaminated clothing.
 : P403+P233: Store in well-ventilated place. Keep container tightly closed.
 P405: Store locked up.
- **Disposal considerations** : P501: Dispose of this material and its container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.
- Contains** : Osmium tetroxide

2.3. Other hazards

- Other hazards** : The substance does not fulfil the criteria to be identified as PBT substance or vPvB substance according to Annex XIII of Regulation REACH.

3. Composition/information on ingredients

Substance / Preparation : Osmium tetroxide

EC No :244-058-7
 Annex No :076-001-00-5
 Substance.

Substance name	Contents	CAS No	EC No	Annex No	REACH Ref.	Classification
Osmium tetroxide	100 %	20816-12-0	244-058-7	076-001-00-5	----	T; R23/24/25 Acute Tox. 3 (skin) _ H311 Acute Tox. 3 (inhal) _ H331 Acute Tox. 3 (oral) _ H301

Contains no other components or impurities which will influence the classification of the product.

4. First aid measures

4.1. Description of first aid measures

- Inhalation** : Remove to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor. Specific treatment is urgent (see on this label).
- Skin contact** : Immediately call a POISON CENTER or doctor. Specific treatment (see on this label). Wash with plenty of soap and water. Remove/Take off immediately all contaminated clothing. Wash contaminated clothing before reuse.
- Eye contact** : Immediately call a POISON CENTER or doctor. Remove contact lenses, if present and easy to do. Continue rinsing. Rinse cautiously with water for several minutes.
- Ingestion** : Do NOT induce vomiting. Rinse mouth. Specific treatment (see on this label). Immediately call a POISON CENTER or doctor.

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

MATERIAL SAFETY DATA SHEET (MSDS)
OSMIC ACID
4. First aid measures (continued)

Symptoms relating to use : Fatal if swallowed.
 Fatal in contact with skin.
 Fatal if inhaled.
 Causes severe skin burns and eye damage.

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

General information : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

5. Fire-fighting measures
5.1. Extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.
 Unsuitable extinguishing media : Do not use a heavy water stream.
 Surrounding fires : Use water spray or fog for cooling exposed containers.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products : Under fire conditions, hazardous fumes will be present.
 Thermal decomposition generates : Corrosive vapours.

5.3. Advice for fire-fighters

Protection against fire : Do not enter fire area without proper protective equipment, including respiratory protection.
 Special procedures : Exercise caution when fighting any chemical fire. Avoid (reject) fire-fighting water to enter environment.

6. Accidental release measures
6.1. Personal precautions, protective equipment and emergency procedures

For emergency responders : Equip cleanup crew with proper protection.
 Ventilate area.
 For non-emergency personnel : Evacuate unnecessary personnel.

6.2. Environmental precautions

Environmental precautions : Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

MATERIAL SAFETY DATA SHEET (MSDS)
OSMIC ACID
6. Accidental release measures (continued)

Clean up methods : On land, sweep or shovel into suitable containers. Minimize generation of dust. Store away from other materials.

6.4. Reference to other sections

See section 8. Exposure controls/personal protection

7. Handling and storage
7.1. Precautions for safe handling

Handling : Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Do not breathe dust, fume, gas, mist, vapours, spray. Wash contaminated clothing before reuse.

Technical protective measures : Provide good ventilation in process area to prevent formation of vapour.

7.2. Conditions for safe storage, including any incompatibilities

Storage : Keep only in the original container in a cool, well ventilated place. Keep container tightly closed.

Storage regulation : Comply with applicable regulations.

Storage - away from : Strong bases. Strong acids. Sources of ignition. Direct sunlight.

7.3. Specific end use(s)

Specific end use(s) : None.

8. Exposure controls/personal protection
8.1. Exposure controls

Personal protection : Avoid all unnecessary exposure.

- **Respiratory protection** : Wear respiratory protection.
- **Hand protection** : Wear protective gloves.
- **Skin protection** : Wear suitable protective clothing.
- **Eye protection** : Chemical goggles or face shield.
- **Others** : When using, do not eat, drink or smoke.

8.2. Control parameters

Occupational Exposure Limits : No data available.

MATERIAL SAFETY DATA SHEET (MSDS)
OSMIC ACID
9. Physical and chemical properties
9.1. Information on basic physical and chemical properties

Physical state at 20 °C	: Solid.
Colour	: Colorless to pale yellow
Odour	: unpleasent
Odour threshold	: No data available.
pH value	: Not applicable.
Melting point [°C]	: 39.5 - 41 °C
Decomposition point [°C]	: N/A
Critical temperature [°C]	: N/A
Auto-ignition temperature [°C]	: N/A
Flammability (solid, gas)	: N/A
Flash point [°C]	: N/A
Boiling point [°C]	: 130 °C
Initial boiling point [°C]	: N/A
Final boiling point [°C]	: N/A
Evaporation rate	: N/A
Vapour pressure [20°C]	: 9 hPa at 20 °C
Vapour pressure mm/Hg	: N/A
Vapour density	: 8,8
Density [g/cm3]	: 4,9
Relative density, gas (air=1)	: N/A
Relative density, liquid (water=1)	: N/A
Solubility in water [% weight]	: 5.7 g/100 g water @
Solubility in water	: N/A
Log Pow octanol / water at 20°C	: No data available.
Solubility	: N/A
Viscosity at 40°C [mm2/s]	: N/A

9.2. Other information

Explosive properties	: N/A
Explosion limits - upper [%]	: N/A
Explosion limits - lower [%]	: N/A
Oxidising properties	: No data available.

10. Stability and reactivity
10.1. Reactivity

MATERIAL SAFETY DATA SHEET (MSDS)
OSMIC ACID
10. Stability and reactivity (continued)

Reactivity : Not established.

10.2. Chemical stability

Chemical stability : Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions : Not established.

10.4. Conditions to avoid

Conditions to avoid : Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Materials to avoid : Strong acids. Strong bases.

10.6. Hazardous decomposition products

Hazardous decomposition products : Fumes. Carbon monoxide. Carbon dioxide.
Thermal decomposition generates : Corrosive vapours.

11. Toxicological information
11.1. Information on toxicological effects
Acute toxicity

- Inhalation : Fatal if inhaled.
- Dermal : Fatal in contact with skin.
- Ingestion : Fatal if swallowed.

Corrosion

: Causes severe skin burns and eye damage.
Causes serious eye damage.

Irritation

: Based on available data, the classification criteria are not met.

Sensitization

: Based on available data, the classification criteria are not met.

Mutagenicity

: Based on available data, the classification criteria are not met.

Carcinogenicity

: Based on available data, the classification criteria are not met.

Toxic for reproduction

: Based on available data, the classification criteria are not met.

STOT-single exposure

: Based on available data, the classification criteria are not met.

STOT-repeated exposure

: Based on available data, the classification criteria are not met.

Aspiration hazard

: Based on available data, the classification criteria are not met.

MATERIAL SAFETY DATA SHEET (MSDS)
OSMIC ACID
12. Ecological information
12.1. Toxicity

Toxicity information : Not established.

12.2. Persistence - degradability

Persistence - degradability : Biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential : Not established.

12.4. Mobility in soil

Mobility in soil : Not established.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment : The substance does not fulfil the criteria to be identified as PBT substance or vPvB substance according to Annex XIII of Regulation REACH.

12.6. Other adverse effects

Environmental precautions : Avoid release to the environment.

13. Disposal considerations
13.1. Waste treatment methods

General : Avoid release to the environment. Dispose in a safe manner in accordance with local/national regulations.
 Dispose of this material and its container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

Special precautions : Hazardous waste due to toxicity.

14. Transport information
14.1. Land transport (ADR-RID)

Proper shipping name : OSMIUM TETROXIDE

UN N° : 2471

H.I. nr : 66

MATERIAL SAFETY DATA SHEET (MSDS)
OSMIC ACID
14. Transport information (continued)

ADR - Class : 6.1
 Labelling - Transport : 6.1 : Toxic substances.



ADR - Classification code : T5
 ADR - Group : I
 ADR - Packing instructions : P002
 ADR - Limited Quantity : 0
 ADR - Tunnel code



: C/E : Tank carriage: Passage forbidden through tunnels of category C, D and E.
 Other carriage: Passage forbidden through tunnels of category E.

14.2. Sea transport (IMDG). [English only]

Proper shipping name : OSMIUM TETROXIDE
 UN N° : 2471
 IMO-IMDG - Class or division : 6.1 : Toxic substances.
 IMO-IMDG - Packing group : I
 IMO-IMDG - Packing instructions : P002
 IMO-IMDG - Limited quantities : None
 IMO-IMDG - Marine pollution : No
 EMS-Nr : F-A S-A

14.3. Air transport (ICAO-IATA). [English only]

Proper shipping name : OSMIUM TETROXIDE
 UN N° : 2471
 IATA - Class or division : 6.1 : Toxic substances.
 IATA - Packing group : I
 IATA - Passenger and Cargo Aircraft : ALLOWED
 - Passenger and Cargo - Packing instruction : 666
 - Passenger and Cargo - Maximum Quantity/Packing : 5 kg
 IATA - Cargo only : ALLOWED
 - Cargo only - Packing instruction : 673

MATERIAL SAFETY DATA SHEET (MSDS)

OSMIC ACID

In accordance with REACH Regulation (CE) N° 1907/2006 and with CLP Regulation (CE) N° 1272/2008

DISCLAIMER:

- **SUVCHEM** Products are to be used as Lab Chemicals for R&D only. Not for drug, medicinal, household or other uses.
- **SUVCHEM** shall not be responsible for any damage resulting from handling or from contact with the above product.
- **SUVCHEM** provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product.

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