

MATERIAL SAFETY DATA SHEET (MSDS)

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

1.1. Product identifier

Product form	: Substance
	:
EC index no	: 076-001-00-5
EC no	: 244-058-7
CAS No	: 20816-12-0
Product code	: 05065
Synonyms	: Osmium tetroxide / Osmium(VIII)-oxide

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

1.2.1. Relevant identified uses

Use of the substance/mixture : Laboratory chemicals, Manufacture of substances

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

SPAN LAB
UNIT NO. 14, SKY INDUSTRIAL ESTATE, WALIV, VASAI (E)
401208 Mumbai - INDIA
PH: +91 9820509929
info@spanlab.in www.spanlab.in

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute toxicity (oral), Category 1	H300
Acute toxicity (dermal), Category 1	H310
Acute toxicity (inhal.), Category 2	H330
Skin corrosion/irritation, Category 1B	H314
Sensitisation — Respiratory, category 1	H334

Full text of classification categories and H statements : see section 16

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Classification according to Directive 67/548/EEC or 1999/45/EC

T+; R26/27/28

C; R34

Full text of R-phrases: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS05

GHS06

GHS08

Signal word (CLP) : Danger

Hazard statements (CLP) : H300+H310+H330 - Fatal if swallowed, in contact with skin or if inhaled
H314 - Causes severe skin burns and eye damage
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

Precautionary statements (CLP) : P260 - Do not breathe dust/fume/gas/mist/vapours/spray
P264 - Wash ... thoroughly after handling
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P284 - [In case of inadequate ventilation] wear respiratory protection
P301+P310 - IF SWALLOWED: immediately call a POISON CENTER or doctor/physician
P302+P352 - IF ON SKIN: Wash with plenty of soap and water

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substance

Name : OSMIC ACID Extra Pure
CAS No : 20816-12-0
EC no : 244-058-7
EC index no : 076-001-00-5

Full text of R- and H-phrases: see section 16

3.2. Mixture

Not applicable

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SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation	: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
First-aid measures after skin contact	: Immediately call a POISON CENTER or doctor/physician. Specific measures (see ... on this label). Gently wash with plenty of soap and water. Remove/Take off immediately all contaminated clothing. Wash contaminated clothing before reuse. Rinse skin with water/shower.
First-aid measures after eye contact	: 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.
First-aid measures after ingestion	: Rinse mouth. Immediately call a POISON CENTER or doctor/physician. Specific treatment (see ... on this label). Do NOT induce vomiting.

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

Symptoms/injuries	: Causes severe skin burns and eye damage.
Symptoms/injuries after inhalation	: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Symptoms/injuries after skin contact	: Fatal in contact with skin.
Symptoms/injuries after eye contact	: Causes serious eye damage.
Symptoms/injuries after ingestion	: Fatal if swallowed.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: dry chemical powder, alcohol-resistant foam, carbon dioxide (CO ₂).
Unsuitable extinguishing media	: Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

Protection during firefighting	: Do not attempt to take action without suitable protective equipment.
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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures	: Evacuate unnecessary personnel.
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6.1.2. For emergency responders

Protective equipment	: Use personal protective equipment as required.
Emergency procedures	: Stop release.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up	: Clear up rapidly by scoop or vacuum.
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6.4. Reference to other sections

No additional information available

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	: Do not get in eyes, on skin, or on clothing. Do not breathe dust/fume/gas/mist/vapours/spray.
Hygiene measures	: Wash ... thoroughly after handling. Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	: Comply with applicable regulations.
Storage conditions	: Store in original container. Keep container tightly closed. Store in a dry place.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

Hand protection	: protective gloves
Eye protection	: Chemical goggles or face shield
Skin and body protection	: Wear suitable protective clothing
Respiratory protection	: Wear respiratory protection

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Molecular mass	: 254.2 g/mol
Colour	: Colorless to pale yellow.
Odour	: unpleasant.
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: 395 - 41
Freezing point	: No data available
Boiling point	: 130 °C
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available

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Vapour pressure	: 9 hPa at 20 °C
Relative vapour density at 20 °C	: 8.8
Relative density	: No data available
Density	: 4.9 g/cm ³
Solubility	: Water: 5.7 g/100ml @ 100C
Log Pow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Thermal decomposition generates : Corrosive vapours.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Direct sunlight. Air contact. Moisture.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Thermal decomposition generates : Corrosive vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	: Oral: Fatal if swallowed. Dermal: Fatal in contact with skin. Inhalation: Fatal if inhaled.
Skin corrosion/irritation	: Causes severe skin burns and eye damage.
Serious eye damage/irritation	: Serious eye damage, category 1, implicit
Respiratory or skin sensitisation	: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified

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Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Potential adverse human health effects and symptoms : Fatal if swallowed. Fatal in contact with skin.

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product/Packaging disposal recommendations : Dispose of contents/container to ...

Ecology - waste materials : Hazardous waste due to toxicity.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR) : 2471

UN-No. (IMDG) : 2471

UN-No.(IATA) : 2471

UN-No.(ADN) : 2471

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UN-No. (RID) : 2471

14.2. UN proper shipping name

Proper Shipping Name (ADR) : OSMIUM TETROXIDE
Proper Shipping Name (IMDG) : OSMIUM TETROXIDE
Proper Shipping Name (IATA) : OSMIUM TETROXIDE
Proper Shipping Name (ADN) : OSMIUM TETROXIDE
Proper Shipping Name (RID) : OSMIUM TETROXIDE
Transport document description (ADR) : UN 2471 OSMIUM TETROXIDE, 6.1, I, (C/E)
Transport document description (IMDG) : UN 2471 OSMIUM TETROXIDE, 6.1, I, MARINE POLLUTANT
Transport document description (IATA) : UN 2471 OSMIUM TETROXIDE, 6.1, I
Transport document description (ADN) : UN 2471 OSMIUM TETROXIDE, 6.1, I
Transport document description (RID) : UN 2471 OSMIUM TETROXIDE, 6.1, I

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR) : 6.1
Danger labels (ADR) : 6.1



IMDG

Transport hazard class(es) (IMDG) : 6.1
Danger labels (IMDG) : 6.1



IATA

Transport hazard class(es) (IATA) : 6.1
Hazard labels (IATA) : 6.1



ADN

Transport hazard class(es) (ADN) : 6.1
Danger labels (ADN) : 6.1



RID

Transport hazard class(es) (RID) : 6.1

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Danger labels (RID) : 6.1



14.4. Packing group

Packing group (ADR) : I

Packing group (IMDG) : I

Packing group (IATA) : I

Packing group (ADN) : I

Packing group (RID) : I

14.5. Environmental hazards

Dangerous for the environment : No

Marine pollutant : Yes (IMDG only)

Other information : No supplementary information available

14.6. Special precautions for user

- Overland transport

Classification code (ADR) : T5

Limited quantities (ADR) : 0

Excepted quantities (ADR) : E5

Packing instructions (ADR) : P002, IBC07

Special packing provisions (ADR) : PP30

Mixed packing provisions (ADR) : MP18

Portable tank and bulk container instructions (ADR) : T6

Portable tank and bulk container special provisions (ADR) : TP33

Tank code (ADR) : S10AH

Tank special provisions (ADR) : TU15, TE19

Vehicle for tank carriage : AT

Transport category (ADR) : 1

Special provisions for carriage - Packages (ADR) : V10

Special provisions for carriage - Loading, unloading and handling (ADR) : CV1, CV13, CV28

Special provisions for carriage - Operation (ADR) : S9, S14

Hazard identification number (Kemler No.) : 66

Orange plates :



Tunnel restriction code (ADR) : C/E

EAC code : 2X

- Transport by sea

Limited quantities (IMDG) : 0

Excepted quantities (IMDG) : E5

Packing instructions (IMDG) : P002

Packing provisions (IMDG) : PP30, PP31

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IBC packing instructions (IMDG)	: IBC07
IBC special provisions (IMDG)	: B1
Tank instructions (IMDG)	: T6
Tank special provisions (IMDG)	: TP33
EmS-No. (Fire)	: F-A
EmS-No. (Spillage)	: S-A
Stowage category (IMDG)	: B
Stowage and handling (IMDG)	: SW2
MFAG-No	: 154

- Air transport

PCA Excepted quantities (IATA)	: E5
PCA Limited quantities (IATA)	: Forbidden
PCA limited quantity max net quantity (IATA)	: Forbidden
PCA packing instructions (IATA)	: 666
PCA max net quantity (IATA)	: 5kg
CAO packing instructions (IATA)	: 673
CAO max net quantity (IATA)	: 50kg
ERG code (IATA)	: 6L

- Inland waterway transport

Classification code (ADN)	: T5
Special provisions (ADN)	: 802
Limited quantities (ADN)	: 0
Excepted quantities (ADN)	: E5
Equipment required (ADN)	: PP, EP
Number of blue cones/lights (ADN)	: 2

- Rail transport

Classification code (RID)	: T5
Limited quantities (RID)	: 0
Excepted quantities (RID)	: E5
Packing instructions (RID)	: P002, IBC07
Special packing provisions (RID)	: PP30
Mixed packing provisions (RID)	: MP18
Portable tank and bulk container instructions (RID)	: T6
Portable tank and bulk container special provisions (RID)	: TP33
Tank codes for RID tanks (RID)	: S10AH
Special provisions for RID tanks (RID)	: TU15
Transport category (RID)	: 1
Special provisions for carriage – Packages (RID)	: W10
Special provisions for carriage – Loading and unloading (RID)	: CW13, CW28, CW31
Hazard identification number (RID)	: 66

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

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No REACH Annex XVII restrictions

OSMIC ACID Extra Pure is not on the REACH Candidate List

OSMIC ACID Extra Pure is not on the REACH Annex XIV List

15.1.2. National regulations

Germany

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Denmark

Recommendations Danish Regulation : Young people below the age of 18 years are not allowed to use the product
Pregnant/breastfeeding women working with the product must not be in direct contact with the product

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Full text of R-, H- and EUH-phrases:

Acute Tox. 1 (Dermal)	Acute toxicity (dermal), Category 1
Acute Tox. 1 (Oral)	Acute toxicity (oral), Category 1
Acute Tox. 2 (Inhalation)	Acute toxicity (inhal.), Category 2
Resp. Sens. 1	Sensitisation — Respiratory, category 1
Skin Corr. 1B	Skin corrosion/irritation, Category 1B
H300	Fatal if swallowed
H310	Fatal in contact with skin
H314	Causes severe skin burns and eye damage
H330	Fatal if inhaled
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
R26/27/28	Very toxic by inhalation, in contact with skin and if swallowed
R34	Causes burns
C	Corrosive
T+	Very toxic

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

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