

Safety Data Sheet

acc. to OSHA HCS

Printing date 11/01/2016

Reviewed on 11/01/2016

1 Identification

- **Product identifier**
- **Trade name:** OSMIUM TETROXIDE 4% AQUEOUS SOLUTION
- **Article number:** 19140, 19150-SP, 19151, 19160, 19180, 19171, 19150, 19170, 19191, 19190
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
 Electron Microscopy Sciences
 1560 Industry Road
 USA-Hatfield, PA 19440
 Tel: 215-412-8400 Fax: 215-412-8450
 email: sgkcck@aol.com
 www.emsdiasum.com
- **Information department:** Product safety department
- **Emergency telephone number:**
 ChemTrec 1-800-424-9300 Contract CCN7661
 1-703-527-3887

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS06 Skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.

Acute Tox. 2 H310 Fatal in contact with skin.



GHS05 Corrosion

Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Acute Tox. 4 H332 Harmful if inhaled.

Skin Irrit. 2 H315 Causes skin irritation.

- **Label elements**

- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



GHS05



GHS06

- **Signal word** Danger

- **Hazard-determining components of labeling:**

Osmium Tetroxide

- **Hazard statements**

Toxic if swallowed.

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Fatal in contact with skin.

Harmful if inhaled.

Causes skin irritation.

Causes serious eye damage.

· Precautionary statements

Avoid breathing dust/fume/gas/mist/vapors/spray

Wear protective gloves / protective clothing.

Wear eye protection / face protection.

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

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Specific treatment (see on this label).

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

Call a POISON CENTER/doctor if you feel unwell.

If skin irritation occurs: Get medical advice/attention.

Rinse mouth.

IF ON SKIN: Wash with plenty of water.

Take off immediately all contaminated clothing and wash it before reuse.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· Classification system:

· NFPA ratings (scale 0 - 4)



Health = 4

Fire = 0

Reactivity = 1

· HMIS-ratings (scale 0 - 4)

HEALTH	4
FIRE	0
REACTIVITY	1

Health = 4

Fire = 0

Reactivity = 1

· Other hazards

· Results of PBT and vPvB assessment

· PBT: Not applicable.

· vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

20816-12-0	Osmium Tetroxide	2.5-10%
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4 First-aid measures

- **Description of first aid measures**
- **General information:**
Immediately remove any clothing soiled by the product.
In case of irregular breathing or respiratory arrest provide artificial respiration.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** Do not induce vomiting; immediately call for medical help.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** None.

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· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

20816-12-0 Osmium Tetroxide

PEL	Long-term value: 0.002* mg/m ³ *as Os
REL	Short-term value: 0.006 mg/m ³ , 0.0006 ppm Long-term value: 0.002 mg/m ³ , 0.0002 ppm
TLV	Short-term value: 0.0047 mg/m ³ , 0.0006 ppm Long-term value: 0.0016 mg/m ³ , 0.0002 ppm

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the skin.

Avoid contact with the eyes and skin.

· **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

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Trade name: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

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· **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form:	Liquid
Color:	Light yellow
Odor:	Chlorine-like
Odor threshold:	Not determined.

· **pH-value at 20 °C (68 °F):** 7

· **Change in condition**

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Not flammable.

· **Ignition temperature:**

Decomposition temperature: Not determined.

· **Auto igniting:** Product is not selfigniting.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Explosion limits:**

Lower:	Not determined.
Upper:	Not determined.

· **Vapor pressure at 20 °C (68 °F):** 23 hPa (17 mm Hg)

· **Density at 20 °C (68 °F):** 1.15624 g/cm³ (9.649 lbs/gal)

· **Relative density** Not determined.

· **Vapor density** Not determined.

· **Evaporation rate** Not determined.

· **Solubility in / Miscibility with**

Water: Not miscible or difficult to mix.

· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity:**

Dynamic:	Not determined.
Kinematic:	Not determined.

· **Solvent content:**

Organic solvents:	0.0 %
Water:	96.0 %
VOC content:	0.0 g/l / 0.00 lb/gl

Solids content: 4.0 %

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· **Other information** No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Strong irritant with the danger of severe eye injury.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Toxic
Irritant
Very toxic
Danger through skin absorption.
- **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety Health Administration)**

None of the ingredients is listed.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.

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- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- | | |
|---|---|
| · UN-Number | UN3287 |
| · DOT, ADR, IMDG, IATA | |
| · UN proper shipping name | Toxic liquid, inorganic, n.o.s. |
| · DOT | 3287 Toxic liquid, inorganic, n.o.s. |
| · ADR | TOXIC LIQUID, INORGANIC, N.O.S., MARINE POLLUTANT |
| · IMDG | TOXIC LIQUID, INORGANIC, N.O.S. |
| · IATA | |
| · Transport hazard class(es) | |
| · DOT | |
|  | |
| · Class | 6.1 Toxic substances |
| · ADR, IATA | |
|  | |
| · Class | 6.1 Toxic substances |
| · IMDG | |
|  | |
| · Class | 6.1 Toxic substances |
| · Packing group | III |
| · DOT, ADR, IMDG, IATA | |
| · Environmental hazards: | |
| · Marine pollutant: | Yes (DOT)
Symbol (fish and tree) |
| · Special precautions for user | Warning: Toxic substances |

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· Stowage Category	A
· Stowage Code	SW2 Clear of living quarters.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT	
· Quantity limitations	On passenger aircraft/rail: 60 L On cargo aircraft only: 220 L
· Remarks:	Special marking with the symbol (fish and tree).
· ADR	
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· IMDG	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3287 TOXIC LIQUID, INORGANIC, N.O.S., 6.1, III

15 Regulatory information

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

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

20816-12-0 | Osmium Tetroxide

· **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

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· **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS05 GHS06

· **Signal word** *Danger*

· **Hazard-determining components of labeling:**

Osmium Tetroxide

· **Hazard statements**

Toxic if swallowed.

Fatal in contact with skin.

Harmful if inhaled.

Causes skin irritation.

Causes serious eye damage.

· **Precautionary statements**

Avoid breathing dust/fume/gas/mist/vapors/spray

Wear protective gloves / protective clothing.

Wear eye protection / face protection.

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

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Specific treatment (see on this label).

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

Call a POISON CENTER/doctor if you feel unwell.

If skin irritation occurs: Get medical advice/attention.

Rinse mouth.

IF ON SKIN: Wash with plenty of water.

Take off immediately all contaminated clothing and wash it before reuse.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Date of preparation / last revision** 11/01/2016 / -

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

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DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
*OSHA: Occupational Safety **Health***
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Acute Tox. 3: Acute toxicity – Category 3
Acute Tox. 2: Acute toxicity – Category 2
Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1

US

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 01.11.2016

Revision: 01.11.2016

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

- **Product identifier**
- **Trade name:** OSMIUM TETROXIDE 4% AQUEOUS SOLUTION
- **Article number:** 19140, 19150-SP, 19151, 19160, 19180, 19171, 19150, 19170, 19191, 19190
- **Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com
- ProSciTech Pty Ltd
11 Carlton Street, Kirwan QLD 4817 Australia
Telephone Number: (07) 4773 9444 - 8:30am - 5:00pm, Monday to Friday (excluding Public Holidays)
Emergency Contact: (07) 4773 9444 - 8:30am - 5:00pm, Monday to Friday (excluding Public Holidays)
- Emgrid Australia Pty. Ltd.
P.O. Box 118
The Patch VIC 3792
Australia
Tel: 03 9752 1785
Fax: 03 9752 1784
Website: www.emgrid.com.au
- **Further information obtainable from:** Product safety department
- **Emergency telephone number:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2 Hazards identification

- **Classification of the substance or mixture**



GHS06 skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.

Acute Tox. 2 H310 Fatal in contact with skin.



GHS05 corrosion

Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Acute Tox. 4 H332 Harmful if inhaled.

Skin Irrit. 2 H315 Causes skin irritation.

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AU

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 01.11.2016

Revision: 01.11.2016

Trade name: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(Contd. of page 1)

- **Label elements**
- **GHS label elements** The product is classified and labelled according to the Globally Harmonised System (GHS).
- **Hazard pictograms**



GHS05 GHS06

- **Signal word** *Danger*
- **Hazard-determining components of labelling:**
Osmium Tetroxide
- **Hazard statements**
Toxic if swallowed.
Fatal in contact with skin.
Harmful if inhaled.
Causes skin irritation.
Causes serious eye damage.
- **Precautionary statements**
Avoid breathing dust/fume/gas/mist/vapours/spray.
Wear protective gloves / protective clothing.
Wear eye protection / face protection.
Do not get in eyes, on skin, or on clothing.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Specific treatment (see on this label).
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER/doctor if you feel unwell.
If skin irritation occurs: Get medical advice/attention.
Rinse mouth.
IF ON SKIN: Wash with plenty of water.
Take off immediately all contaminated clothing and wash it before reuse.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.
- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** *Not applicable.*
- **vPvB:** *Not applicable.*

3 Composition/information on ingredients

- **Chemical characterisation:** *Mixtures*
- **Description:** *Mixture of substances listed below with nonhazardous additions.*

· **Dangerous components:**

20816-12-0	Osmium Tetroxide	2.5-10%
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· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

4 First aid measures

- **Description of first aid measures**
- **General information:**
Immediately remove any clothing soiled by the product.
In case of irregular breathing or respiratory arrest provide artificial respiration.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** Do not induce vomiting; call for medical help immediately.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
- **Information about fire - and explosion protection:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.

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- **Further information about storage conditions:** None.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.
- **Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**

20816-12-0 Osmium Tetroxide

WES	Short-term value: 0.0047 mg/m ³ , 0.0006 ppm Long-term value: 0.0016 mg/m ³ , 0.0002 ppm
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- **Additional information:** The lists valid during the making were used as basis.

- **Exposure controls**

- **Personal protective equipment:**

- **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the skin.
Avoid contact with the eyes and skin.

- **Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:**



Tightly sealed goggles

AU

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according to 1907/2006/EC, Article 31

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Revision: 01.11.2016

Trade name: **OSMIUM TETROXIDE 4% AQUEOUS SOLUTION**

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9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

· Form:	Liquid
· Colour:	Light yellow
· Odour:	Chlorine-like
· Odour threshold:	Not determined.

· **pH-value at 20 °C:** 7

· **Change in condition**

· Melting point/Melting range:	Undetermined.
· Boiling point/Boiling range:	100 °C

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Not applicable.

· **Ignition temperature:**

· **Decomposition temperature:** Not determined.

· **Self-igniting:** Product is not selfigniting.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Explosion limits:**

· Lower:	Not determined.
· Upper:	Not determined.

· **Vapour pressure at 20 °C:** 23 hPa

· Density at 20 °C:	1.15624 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.

· **Solubility in / Miscibility with water:** Not miscible or difficult to mix.

· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity:**

· Dynamic:	Not determined.
· Kinematic:	Not determined.

· **Solvent content:**

· Organic solvents:	0.0 %
· Water:	96.0 %
· VOC (EC)	0.00 %

· **Solids content:** 4.0 %

· **Other information** No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.

· **Chemical stability**

· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

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- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity**
- **Primary irritant effect:**
- **Skin corrosion/irritation** Irritant to skin and mucous membranes.
- **Serious eye damage/irritation** Strong irritant with the danger of severe eye injury.
- **Respiratory or skin sensitisation** No sensitising effects known.
- **Additional toxicological information:**
The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
Toxic
Irritant
Very toxic
Danger through skin adsorption.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behaviour in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

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14 Transport information

· UN-Number · ADG, IMDG, IATA	UN3287
· UN proper shipping name · ADG · IMDG · IATA	3287 TOXIC LIQUID, INORGANIC, N.O.S. TOXIC LIQUID, INORGANIC, N.O.S., MARINE POLLUTANT TOXIC LIQUID, INORGANIC, N.O.S.
· Transport hazard class(es) · ADG, IATA	
	
· Class	6.1 Toxic substances.
· IMDG	
	
· Class	6.1 Toxic substances.
· Packing group · ADG, IMDG, IATA	III
· Environmental hazards: · Marine pollutant:	Yes (DOT) Symbol (fish and tree)
· Special precautions for user · Stowage Category · Stowage Code	Warning: Toxic substances. A SW2 Clear of living quarters.
· Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.
· Transport/Additional information:	
· ADG · Limited quantities (LQ) · Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3287 TOXIC LIQUID, INORGANIC, N.O.S., 6.1, III

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15 Regulatory information

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

· **Australian Inventory of Chemical Substances**

All ingredients are listed.

· **Standard for the Uniform Scheduling of Medicines and Poisons**

None of the ingredients is listed.

· **GHS label elements** The product is classified and labelled according to the Globally Harmonised System (GHS).

· **Hazard pictograms**



GHS05 GHS06

· **Signal word** *Danger*

· **Hazard-determining components of labelling:**

Osmium Tetroxide

· **Hazard statements**

Toxic if swallowed.

Fatal in contact with skin.

Harmful if inhaled.

Causes skin irritation.

Causes serious eye damage.

· **Precautionary statements**

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wear protective gloves / protective clothing.

Wear eye protection / face protection.

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

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

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

Continue rinsing.

Specific treatment (see on this label).

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

Call a POISON CENTER/doctor if you feel unwell.

If skin irritation occurs: Get medical advice/attention.

Rinse mouth.

IF ON SKIN: Wash with plenty of water.

Take off immediately all contaminated clothing and wash it before reuse.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Directive 2012/18/EU**

· **Named dangerous substances - ANNEX I** None of the ingredients is listed.

· **Seveso category** H2 ACUTE TOXIC

· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 50 t

· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 200 t

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· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.**16 Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Acute Tox. 3: Acute toxicity – Category 3

Acute Tox. 2: Acute toxicity – Category 2

Acute Tox. 4: Acute toxicity – Category 4

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

AU

Safety Data Sheet

acc. to OSHA HCS

Printing date 11/01/2016

Reviewed on 11/01/2016

1 Identification

- **Product identifier**
- **Trade name:** OSMIUM TETROXIDE 4% AQUEOUS SOLUTION
- **Article number:** 19140, 19150-SP, 19151, 19160, 19180, 19171, 19150, 19170, 19191, 19190
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com
- **Information department:** Product safety department
- **Emergency telephone number:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS06 Skull and crossbones

Acute Toxicity (Oral) - Category 3 H301 Toxic if swallowed.

Acute Toxicity (Dermal) – Category 2 H310 Fatal in contact with skin.



GHS05 Corrosion

Serious Eye Damage - Category 1 H318 Causes serious eye damage.



GHS07

Acute Toxicity (Inhalation) - Category 4 H332 Harmful if inhaled.

Skin Irritation - Category 2 H315 Causes skin irritation.

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS05



GHS06

- **Signal word** Danger
- **Hazard-determining components of labeling:**
Osmium Tetroxide
- **Hazard statements**
Toxic if swallowed.

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Trade name: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(Contd. of page 1)

Fatal in contact with skin.

Harmful if inhaled.

Causes skin irritation.

Causes serious eye damage.

· **Precautionary statements**

Avoid breathing dust/fume/gas/mist/vapours/spray.

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

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

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

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

Continue rinsing.

Take off immediately all contaminated clothing.

Specific measures (see on this label).

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

Call a POISON CENTER/doctor if you feel unwell.

Wash contaminated clothing before reuse.

IF ON SKIN: Gently wash with plenty of soap and water.

Rinse mouth.

IF ON SKIN: Wash with plenty of water.

Take off contaminated clothing and wash it before reuse.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Hazard description:**

· **WHMIS-symbols:**

D1A - Very toxic material causing immediate and serious toxic effects

D2B - Toxic material causing other toxic effects



· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 4

Fire = 0

Reactivity = 1

· **HMIS-ratings (scale 0 - 4)**



Health = 4

Fire = 0

Reactivity = 1

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Description:** Mixture of the substances listed below with nonhazardous additions.

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Trade name: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(Contd. of page 2)

· Dangerous components:

20816-12-0	Osmium Tetroxide	1-5% w/w
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4 First-aid measures

- **Description of first aid measures**
- **General information:**
Immediately remove any clothing soiled by the product.
In case of irregular breathing or respiratory arrest provide artificial respiration.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** Do not induce vomiting; immediately call for medical help.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:** No special measures required.

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Trade name: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

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- *Conditions for safe storage, including any incompatibilities*
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** None.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

20816-12-0 Osmium Tetroxide

EL	Short-term value: 0.0006 ppm Long-term value: 0.0002 ppm
EV	Short-term value: 0.006 mg/m ³ , 0.0006 ppm Long-term value: 0.002 mg/m ³ , 0.0002 ppm as osmium

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
 Keep away from foodstuffs, beverages and feed.
 Immediately remove all soiled and contaminated clothing.
 Wash hands before breaks and at the end of work.
 Store protective clothing separately.
 Avoid contact with the skin.
 Avoid contact with the eyes and skin.
- **Breathing equipment:**
 In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Protection of hands:**



Protective gloves

- The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
 Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
 Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves**
 The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- **Penetration time of glove material**
 The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

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· **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

· Form:	Liquid
· Color:	Light yellow
· Odor:	Chlorine-like
· Odor threshold:	Not determined.

· **pH-value at 20 °C:** 7

· **Change in condition**

· Melting point/Melting range:	Undetermined.
· Boiling point/Boiling range:	100 °C

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Not flammable.

· **Ignition temperature:**

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Product is not selfigniting.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Explosion limits:**

· Lower:	Not determined.
· Upper:	Not determined.

· **Vapor pressure at 20 °C:** 23 hPa

· **Density at 20 °C:** 1.15624 g/cm³

· **Relative density** Not determined.

· **Vapor density** Not determined.

· **Evaporation rate** Not determined.

· **Solubility in / Miscibility with**

· **Water:** Not miscible or difficult to mix.

· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity:**

· Dynamic:	Not determined.
· Kinematic:	Not determined.

· **Solvent content:**

· Organic solvents:	0.0 %
· Water:	96.0 %

· **Solids content:** 4.0 %

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· **Other information** No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Strong irritant with the danger of severe eye injury.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Toxic
Irritant
Very toxic
Danger through skin absorption.
- **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

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Reviewed on 11/01/2016

Trade name: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION






(Contd. of page 6)

· **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- | | |
|---|---|
| · UN-Number | |
| · DOT, TDG, IMDG, IATA | UN3287 |
| · UN proper shipping name | |
| · DOT | Toxic liquid, inorganic, n.o.s. |
| · TDG | 3287 Toxic liquid, inorganic, n.o.s. |
| · IMDG | TOXIC LIQUID, INORGANIC, N.O.S., MARINE POLLUTANT |
| · IATA | TOXIC LIQUID, INORGANIC, N.O.S. |
| · Transport hazard class(es) | |
| · DOT | |
|   | |
| · Class | 6.1 Toxic substances |
| · TDG, IATA | |
|  | |
| · Class | 6.1 Toxic substances |
| · IMDG | |
|   | |
| · Class | 6.1 Toxic substances |
| · Packing group | |
| · DOT, TDG, IMDG, IATA | III |
| · Environmental hazards: | |
| · Marine pollutant: | Yes (DOT)
Symbol (fish and tree) |
| · Special precautions for user | Warning: Toxic substances |
| · Stowage Category | A |

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Trade name: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

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· Stowage Code	SW2 Clear of living quarters.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT	
· Quantity limitations	On passenger aircraft/rail: 60 L On cargo aircraft only: 220 L
· Remarks:	Special marking with the symbol (fish and tree).
· TDG	
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· IMDG	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3287 TOXIC LIQUID, INORGANIC, N.O.S., 6.1, III

15 Regulatory information

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

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

20816-12-0 | Osmium Tetroxide

· **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

· **Canadian substance listings:**

· **Canadian Domestic Substances List (DSL)**

All ingredients are listed.

· **Canadian Ingredient Disclosure list (limit 0.1%)**

20816-12-0 | Osmium Tetroxide

· **Canadian Ingredient Disclosure list (limit 1%)**

None of the ingredients is listed.

- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS05 GHS06

- **Signal word** Danger

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Printing date 11/01/2016

Reviewed on 11/01/2016

Trade name: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

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· **Hazard-determining components of labeling:**

Osmium Tetroxide

· **Hazard statements**

Toxic if swallowed.

Fatal in contact with skin.

Harmful if inhaled.

Causes skin irritation.

Causes serious eye damage.

· **Precautionary statements**

Avoid breathing dust/fume/gas/mist/vapours/spray.

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

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

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

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

Continue rinsing.

Take off immediately all contaminated clothing.

Specific measures (see on this label).

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

Call a POISON CENTER/doctor if you feel unwell.

Wash contaminated clothing before reuse.

IF ON SKIN: Gently wash with plenty of soap and water.

Rinse mouth.

IF ON SKIN: Wash with plenty of water.

Take off contaminated clothing and wash it before reuse.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Date of preparation / last revision** 11/01/2016 / -

· **Abbreviations and acronyms:**

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 01.11.2016

Revision: 01.11.2016

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

- **Product identifier**
- **Trade name:** OSMIUM TETROXIDE 4% AQUEOUS SOLUTION
- **Article number:** 19140, 19150-SP, 19151, 19160, 19180, 19171, 19150, 19170, 19191, 19190
- **Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com
- **Further information obtainable from:** Product safety department
- **Emergency telephone number:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2 Hazards identification

- **Classification of the substance or mixture**



skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.

Acute Tox. 2 H310 Fatal in contact with skin.



corrosion

Eye Dam. 1 H318 Causes serious eye damage.



Acute Tox. 4 H332 Harmful if inhaled.

Skin Irrit. 2 H315 Causes skin irritation.

- **Label elements**
- **GHS label elements** The product is classified and labelled according to the Globally Harmonised System (GHS).
- **Hazard pictograms**



GHS05



GHS06

- **Signal word** Danger
- **Hazard-determining components of labelling:**
Osmium Tetroxide

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Trade name: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(Contd. of page 1)

- **Hazard statements**

Toxic if swallowed.
 Fatal in contact with skin.
 Harmful if inhaled.
 Causes skin irritation.
 Causes serious eye damage.

- **Precautionary statements**

Avoid breathing dust/fume/gas/mist/vapours/spray.
 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
 Continue rinsing.
 Specific treatment (see on this label).
 Store locked up.
 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Other hazards**

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterisation: Mixtures**

- **Description:** Mixture of substances listed below with nonhazardous additions.

- **Dangerous components:**

20816-12-0	Osmium Tetroxide	2,5-10%
	⚠ Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; ⚠ Skin Corr. 1B, H314	

- **Additional information:** For the wording of the listed hazard phrases refer to section 16.

4 First aid measures

- **Description of first aid measures**

- **General information:**

Immediately remove any clothing soiled by the product.

In case of irregular breathing or respiratory arrest provide artificial respiration.

- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.

- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.

- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.

- **After swallowing:** Do not induce vomiting; call for medical help immediately.

- **Information for doctor:**

- **Most important symptoms and effects, both acute and delayed** No further relevant information available.

- **Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

5 Firefighting measures

- **Extinguishing media**

- **Suitable extinguishing agents:**

CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

- **Special hazards arising from the substance or mixture** No further relevant information available.

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- **Advice for firefighters**
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
- **Information about fire - and explosion protection:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** None.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.
- **Control parameters**
- **Ingredients with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists valid during the making were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the skin.
Avoid contact with the eyes and skin.
- **Respiratory protection:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

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· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**

Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**· **General Information**· **Appearance:**

Form:	Liquid
Colour:	Light yellow
Odour:	Chlorine-like
Odour threshold:	Not determined.

· **pH-value at 20 °C:** 7· **Change in condition**

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C

· **Flash point:** Not applicable.· **Flammability (solid, gaseous):** Not applicable.· **Ignition temperature:**

Decomposition temperature: Not determined.

· **Self-igniting:** Product is not selfigniting.· **Danger of explosion:** Product does not present an explosion hazard.· **Explosion limits:**

Lower:	Not determined.
Upper:	Not determined.

· **Vapour pressure at 20 °C:** 23 hPa· **Density at 20 °C:** 1,15624 g/cm³

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· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with water:	Not miscible or difficult to mix.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	0,0 %
Water:	96,0 %
VOC (EC)	0,00 %
· Solids content:	4,0 %
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity**
- **Primary irritant effect:**
- **Skin corrosion/irritation** Irritant to skin and mucous membranes.
- **Serious eye damage/irritation** Strong irritant with the danger of severe eye injury.
- **Respiratory or skin sensitisation** No sensitising effects known.
- **Additional toxicological information:**
The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
Toxic
Irritant
Very toxic
Danger through skin adsorption.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.

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- **Behaviour in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· UN-Number	UN3287
· ADR, IMDG, IATA	
· UN proper shipping name	3287 TOXIC LIQUID, INORGANIC, N.O.S.
· ADR	TOXIC LIQUID, INORGANIC, N.O.S., MARINE
· IMDG	POLLUTANT
· IATA	TOXIC LIQUID, INORGANIC, N.O.S.
· Transport hazard class(es)	
· ADR, IATA	
	
· Class	6.1 Toxic substances.
· IMDG	
 	
· Class	6.1 Toxic substances.
· Packing group	III
· ADR, IMDG, IATA	
· Environmental hazards:	
· Marine pollutant:	Symbol (fish and tree)

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· Special precautions for user	Warning: Toxic substances.
· Stowage Category	A
· Stowage Code	SW2 Clear of living quarters.
· Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.
· Transport/Additional information:	
· ADR	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· IMDG	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3287 TOXIC LIQUID, INORGANIC, N.O.S., 6.1, III

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **GHS label elements** The product is classified and labelled according to the Globally Harmonised System (GHS).
- **Hazard pictograms**



GHS05 GHS06

- **Signal word** Danger
- **Hazard-determining components of labelling:**
Osmium Tetroxide
- **Hazard statements**
Toxic if swallowed.
Fatal in contact with skin.
Harmful if inhaled.
Causes skin irritation.
Causes serious eye damage.
- **Precautionary statements**
Avoid breathing dust/fume/gas/mist/vapours/spray.
IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Specific treatment (see on this label).
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** None of the ingredients is listed.

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- **Seveso category H2 ACUTE TOXIC**
- **Qualifying quantity (tonnes) for the application of lower-tier requirements 50 t**
- **Qualifying quantity (tonnes) for the application of upper-tier requirements 200 t**
- **Chemical safety assessment: A Chemical Safety Assessment has not been carried out.**

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Relevant phrases**

H300 Fatal if swallowed.

H310 Fatal in contact with skin.

H314 Causes severe skin burns and eye damage.

H330 Fatal if inhaled.

- **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Acute Tox. 2: Acute toxicity – Category 2

Acute Tox. 3: Acute toxicity – Category 3

Acute Tox. 1: Acute toxicity – Category 1

Acute Tox. 4: Acute toxicity – Category 4

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

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

- **1.1 Product identifier**
- **Trade name:** OSMIUM TETROXIDE 4% AQUEOUS SOLUTION
- **Article number:** 19140, 19150-SP, 19151, 19160, 19180, 19171, 19150, 19170, 19191, 19190
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture** Laboratory chemicals
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com
- **Further information obtainable from:** Product safety department
- **1.4 Emergency telephone number:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS06 skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.

Acute Tox. 2 H310 Fatal in contact with skin.



GHS05 corrosion

Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Acute Tox. 4 H332 Harmful if inhaled.

Skin Irrit. 2 H315 Causes skin irritation.

- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.
- **Hazard pictograms**



GHS05



GHS06

- **Signal word** *Danger*

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Trade name: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

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· **Hazard-determining components of labelling:**

Osmium Tetroxide

· **Hazard statements**

H301 Toxic if swallowed.

H310 Fatal in contact with skin.

H332 Harmful if inhaled.

H315 Causes skin irritation.

H318 Causes serious eye damage.

· **Precautionary statements**

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P321 Specific treatment (see on this label).

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **2.3 Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

· **3.2 Chemical characterisation: Mixtures**

· **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous components:**

CAS: 20816-12-0	Osmium Tetroxide	2.5-10%
EINECS: 244-058-7	☠ Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; ☠ Skin Corr. 1B, H314	

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

· **4.1 Description of first aid measures**

· **General information:**

Immediately remove any clothing soiled by the product.

In case of irregular breathing or respiratory arrest provide artificial respiration.

· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.

· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.

· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.

· **After swallowing:** Do not induce vomiting; call for medical help immediately.

· **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.

· **4.3 Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

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SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **5.2 Special hazards arising from the substance or mixture** No further relevant information available.
- **5.3 Advice for firefighters**
- **Protective equipment:** No special measures required.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures** Not required.
- **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
- **Information about fire - and explosion protection:** No special measures required.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** None.
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.
- **8.1 Control parameters**

- **Ingredients with limit values that require monitoring at the workplace:**

20816-12-0 Osmium Tetroxide

WEL	Short-term value: 0.006 mg/m ³ , 0.0006 ppm Long-term value: 0.002 mg/m ³ , 0.0002 ppm (as Os)
-----	--

- **Additional information:** The lists valid during the making were used as basis.
- **8.2 Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.

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Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the skin.

Avoid contact with the eyes and skin.

· **Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form:	Liquid
Colour:	Light yellow
Odour:	Chlorine-like
Odour threshold:	Not determined.

· **pH-value at 20 °C:** 7

· **Change in condition**

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Not applicable.

· **Ignition temperature:**

Decomposition temperature: Not determined.

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· Self-igniting:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
· Vapour pressure at 20 °C:	23 hPa
· Density at 20 °C:	1.15624 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with water:	Not miscible or difficult to mix.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	0.0 %
Water:	96.0 %
VOC (EC)	0.00 %
Solids content:	4.0 %
· 9.2 Other information	No further relevant information available.

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions** No dangerous reactions known.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity**
- Toxic if swallowed.
- Fatal in contact with skin.
- Harmful if inhaled.
- **Primary irritant effect:**
- **Skin corrosion/irritation**
- Causes skin irritation.
- **Serious eye damage/irritation**
- Causes serious eye damage.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.

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- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** 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.

SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

- | | |
|---------------------------------------|---|
| · 14.1 UN-Number | |
| · ADR, IMDG, IATA | UN3287 |
| · 14.2 UN proper shipping name | |
| · ADR | 3287 TOXIC LIQUID, INORGANIC, N.O.S. |
| · IMDG | TOXIC LIQUID, INORGANIC, N.O.S., MARINE POLLUTANT |
| · IATA | TOXIC LIQUID, INORGANIC, N.O.S. |

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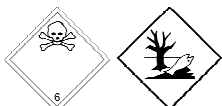
Revision: 01.11.2016

Trade name: **OSMIUM TETROXIDE 4% AQUEOUS SOLUTION**

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· **14.3 Transport hazard class(es)**· **ADR, IATA**· **Class**

6.1 Toxic substances.

· **IMDG**· **Class**

6.1 Toxic substances.

· **14.4 Packing group**· **ADR, IMDG, IATA**

III

· **14.5 Environmental hazards:**· **Marine pollutant:**

Symbol (fish and tree)

· **14.6 Special precautions for user**

Warning: Toxic substances.

· **Stowage Category**

A

· **Stowage Code**

SW2 Clear of living quarters.

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

Not applicable.

· **Transport/Additional information:**· **ADR**· **Limited quantities (LQ)**

5L

· **Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· **IMDG**· **Limited quantities (LQ)**

5L

· **Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· **UN "Model Regulation":**

UN 3287 TOXIC LIQUID, INORGANIC, N.O.S., 6.1, III

SECTION 15: Regulatory information

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**· **Directive 2012/18/EU**· **Named dangerous substances - ANNEX I** None of the ingredients is listed.· **Seveso category H2 ACUTE TOXIC**· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 50 t· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 200 t· **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3

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· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**

H300 Fatal if swallowed.

H310 Fatal in contact with skin.

H314 Causes severe skin burns and eye damage.

H330 Fatal if inhaled.

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Acute Tox. 2: Acute toxicity – Category 2

Acute Tox. 3: Acute toxicity – Category 3

Acute Tox. 1: Acute toxicity – Category 1

Acute Tox. 4: Acute toxicity – Category 4

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

化学品安全技术说明书

根据 GB/T 16483-2008, GB/T 17519-2013

打印日期 2016.11.01

在 2016.11.01 审核

1 化学品及企业标识

- **产品识别者**
- **化学品中文(英文)名称, 化学品俗名或商品名:** OSMIUM TETROXIDE 4% AQUEOUS SOLUTION
- **商品编号:** 19140, 19150-SP, 19151, 19160, 19180, 19171, 19150, 19170, 19191, 19190
- **相应纯物质或者混合物的相关下位用途及禁止用途** 无相关详细资料。
- **原材料的应用/准备工作进行** 实验室化学物
- **安全技术说明书内供应商详细信息**
- **企业名称:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com
- **可获取更多资料的部门:** Product safety department
- **紧急联系电话号码:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2 危险性概述

- **紧急情况概述:**
浅黄色, 液体, 吞咽会中毒。皮肤接触致死。吸入有害。引起皮肤刺激。引起严重的眼睛损伤。

- **GHS危险性类别**



骷髅和交叉骨

急性毒性(经口) 第3类 H301 吞咽会中毒
急性毒性(经皮肤) 第2类 H310 皮肤接触致死



腐蚀

严重眼睛损伤/眼睛刺激性 第1类 H318 引起严重的眼睛损伤



急性毒性(吸入) 第4类 H332 吸入有害
皮肤腐蚀/刺激 第2类 H315 引起皮肤刺激

- **标签因素**
- **GHS卷标元素** 本产品根据化学物质分类及标记全球协调制度(GHS)进行了分类及标记。
- **图示**



GHS05 GHS06

- **名称** 危险

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· **标签上辨别危险的成份:**

· 钷酸酐

· **危险字句**

· 吞咽会中毒

· 皮肤接触致死

· 吸入有害

· 引起皮肤刺激

· 引起严重的眼睛损伤

· **警戒字句**

· **预防措施**

· 避免吸入粉尘/烟/气体/烟雾/蒸气/喷雾

· **事故响应**

· 如误吞咽: 立即呼叫解毒中心/医生

· 如进入眼睛: 用水小心冲洗几分钟。如戴隐型眼镜并可方便地取出, 取出隐型眼镜。继续冲洗。

· 具体治疗(见本标签上的)

· **安全储存**

· 存放处须加锁。

· **废弃处置**

· 按照本地 / 地区 / 国家 / 国际规例处理内含物 / 容器。

· **其他有害性**

· PBT(残留性、生物浓缩性、毒性物质) 及 vPvB(高残留性、高生物浓缩性物质)评价结果

· PBT(残留性、生物浓缩性、毒性物质) 不适用的

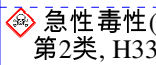

· vPvB(高残留性、高生物浓缩性物质): 不适用的

3 成分/组成信息

· **混合物**

· **描述:** 由以下含有无害添加剂的成分组成的混合物

· **危险的成分:**

20816-12-0	钷酸酐	2.5-10%
	 急性毒性(经口) 第2类, H300; 急性毒性(经皮肤) 第1类, H310; 急性毒性(吸入) 第2类, H330;  皮肤腐蚀/刺激 第1B类, H314	

4 急救措施

· **应急措施要领**

· **总说明:**

· 马上脱下染有该产品的衣服。

· 万一出现了不规则的呼吸或呼吸的阻碍, 请为病人提供人工呼吸。

· **吸入:** 万一病人不清醒时, 请让病人侧躺以便移动。

· **皮肤接触:** 马上用水和肥皂进行彻底的冲洗。

· **眼睛接触:** 张开眼睛在流水下冲洗数分钟。然后咨询医生。

· **食入:** 切勿引发呕吐; 请马上寻求医疗的协助。

· **给医生的资料:**

· **最重要的急慢性症状及其影响** 无相关详细资料。

· **需要及时的医疗处理及特别处理的症状** 无相关详细资料。

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5 消防措施

- **灭火方法**
- **灭火的方法和灭火剂:** 二氧化碳 (CO₂)、灭火粉末或洒水. 使用洒水或抗酒精泡沫灭火剂扑灭较大的火种.
- **特别危险性** 无相关详细资料。
- **特殊灭火方法**
- **消防人员特殊的防护装备:** 没有要求特别的措施。

6 泄漏应急处理

- **保护措施** 没有要求。
- **环境保护措施:** 切勿让其进入下水道/水面或地下水。
- **密封及净化方法和材料:**
吸收液体粘合原料 (沙粒、硅藻土、酸性粘合剂、通用粘合剂、锯屑).
根据第 13 条条款弃置受污染物。
确保有足够的通风装置。
- **参照其他部分**
有关安全处理的资料请参阅第 7 节。
有关个人防护装备的资料请参阅第 8 节。
有关弃置的资料请参阅第 13 节。

7 操作处置与储存

- **操作处置**
- **储存**
确保工作间有良好的通风/排气装置。
防止气溶胶的形成。
- **有关火灾及防止爆炸的资料:** 不需特别的措施。
- **混合危险性等安全储存条件**
- **储存:**
· **储存库和容器须要达到的要求:** 没有特别的要求。
· **有关使用一个普通的储存设施来储存的资料:** 不需要。
· **有关储存条件的更多资料:** 没有。
· **具体的最终用户** 无相关详细资料。

8 接触控制和个体防护

- **工程控制方法:** 没有进一步数据;见第 7 项。
- **控制变数**

· 在工作场需要监控的限值成分

20816-12-0 锇酸酐

PEL (TW)	PC-TWA: 0.0016 mg/m ³ , 0.0002 ppm (as Os)
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- **额外的资料:** 制作期间有效的清单将作为基础来使用。

- **泄漏控制**
- **个人防护设备:**
- **一般保护和卫生措施:**
远离食品、饮料和饲料。

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(在 3 页继续)

立即除去所有的不洁的和被污染的衣服.

在休息之前和工作完毕后请清洗双手.

分开储存保护性衣服.

避免和皮肤接触.

避免和眼睛及皮肤接触.

· 呼吸系统防护:

如果曾短暂接触或在低污染的情况下, 请使用呼吸过滤装置. 如果曾深入或较长时间接触, 请使用独立的呼吸保护装置.

· 手防护:



保护手套

手套的物料必须是不渗透性的, 且能抵抗该产品/物质/添加剂.

基于缺乏测试, 对于产品/制剂/化学混合物, 并不会提供手套材料的建议

选择手套材料时, 请注意材料的渗透时间, 渗透率和降解参数

· 手套材料

选择合适的手套不单取决于材料, 亦取决于质量特征, 以及来自哪一间生产厂家, 因为该产品是由很多材料配制而成, 手套材料的抵抗力并不可预计, 所以, 必须在使用之前进行检查

· 渗入手套材料的时间 请向劳保手套生产厂家获取准确的破裂时间并观察实际的破裂时间

· 眼睛防护:



密封的护目镜

9 理化特性

· 有关基本物理及化学特性的信息

· 一般说明

· 外观:

· 形状: 液体

· 颜色: 浅黄色

· 气味: 类似氯

· 嗅觉阈限: 未决定.

· pH值 在 20 °C: 7

· 条件的更改

· 熔点: 未确定的

· 沸点/初沸点和沸程: 100 °C

· 闪点: 不适用的

· 可燃性 (固体、气体): 不适用的

· 点火温度:

· 分解温度: 未决定.

· 自燃温度: 该产品是不自燃的

· 爆炸的危险性: 该产品并没有爆炸的危险

· 爆炸极限:

· 较低: 未决定.

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(在 4 页继续)

· 较高:	未决定.
· 蒸气压 在 20 °C:	23 hPa
· 密度 在 20 °C:	1.15624 g/cm ³
· 相对密度	未决定.
· 蒸气密度	未决定.
· 蒸发速率	未决定.
· 溶解性	
水:	不能拌和的或难以拌和
· n-辛醇/水分配系数:	未决定.
· 黏性:	
动态:	未决定.
运动学的:	未决定.
· 溶剂成份:	
有机溶剂:	0.0 %
水:	96.0 %
· 固体成份:	4.0 %
· 其他信息	无相关详细资料。

10 稳定性和反应性

- **反应性** 无相关详细资料。
- **稳定性**
- **热分解/要避免的情况:** 如果遵照规格使用则不会分解。
- **有害反应可能性** 未有已知的危险反应。
- **应避免的条件** 无相关详细资料。
- **不相容的物质:** 无相关详细资料。
- **危险的分解产物:** 未知有危险的分解产品。

11 毒理学信息

- **对毒性学影响的信息**
- **急性毒性:**
- **主要的刺激性影响:**
- **皮肤:** 刺激皮肤和粘膜。
- **在眼睛上面:** 强烈的刺激性和造成严重伤害眼睛的危险。
- **致敏作用:** 没有已知的敏化影响。
- **更多毒物的资料:**
根据有关配制的一般欧盟分类指南的计算方法(刊印在最新版本),该产品显示以下的危险:
毒性的
刺激性的
非常毒性的
通过皮肤吸收造成危险。

12 生态学信息

- **生态毒性**
- **水生毒性:** 无相关详细资料。

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(在 5 页继续)

- **持久性和降解性** 无相关详细资料。
- **环境系统习性:**
- **潜在的生物累积性** 无相关详细资料。
- **土壤内移动性** 无相关详细资料。
- **额外的生态学资料:**
- **总括注解:**
水危害级别 1(德国规例) (通过名单进行自我评估): 对水是稍微危害的
不要让未稀释或大量的产品接触地下水、水道或者污水系统。
- **PBT(残留性、生物浓缩性、毒性物质) 及 vPvB(高残留性、高生物浓缩性物质)评价结果**
- **PBT(残留性、生物浓缩性、毒性物质)** 不适用的
- **vPvB(高残留性、高生物浓缩性物质):** 不适用的
- **其他副作用** 无相关详细资料。

13 废弃处置

- **废弃处置方法**
- **建议:** 不能将该产品和家居垃圾一起丢弃. 不要让该产品接触污水系统.
- **受污染的容器和包装:**
- **建议:** 必须根据官方的规章来丢弃.

14 运输信息

- **联合国危险货物编号(UN号)**
- **ADR, IMDG, IATA** UN3287
- **UN适当装船名**
- **ADR** 3287 TOXIC LIQUID, INORGANIC, N.O.S.
- **IMDG** TOXIC LIQUID, INORGANIC, N.O.S., MARINE POLLUTANT
- **IATA** TOXIC LIQUID, INORGANIC, N.O.S.
- **运输危险等级**
- **ADR, IATA**
- 
- **级别** 6.1 有毒物质
- **IMDG**
- 
- **Class** 6.1 有毒物质
- **包装组别**
- **ADR, IMDG, IATA** III
- **危害环境:**
- **海运污染物质:** 象征符号 (鱼和树)

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· 用户特别预防措施	警告: 有毒物质
· Stowage Category	A
· Stowage Code	SW2 Clear of living quarters.
· MARPOL73/78(针对船舶引起的海洋污染预防协议)附件书2及根据IBC Code(国际装船货物编码)的大量运送	不适用的
· 运输/额外的资料:	
· ADR	
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· IMDG	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "标准规定":	UN 3287 TOXIC LIQUID, INORGANIC, N.O.S., 6.1, III

15 法规信息

- 对相应纯物质或者混合物的安全、保健及环境法规/法律
- 新化学物质环境管理办法

- 中国现有化学物质名录

列出所有成分

- GHS卷标元素 本产品根据化学物质分类及标记全球协调制度(GHS)进行了分类及标记。

- 图示



GHS05 GHS06

- 名称 危险

- 标签上辨别危险的成份:

锇酸酐

- 危险字句

吞咽会中毒
皮肤接触致死
吸入有害
引起皮肤刺激
引起严重的眼睛损伤

- 警戒字句

- 预防措施

避免吸入粉尘/烟/气体/烟雾/蒸气/喷雾

- 事故响应

如误吞咽: 立即呼叫解毒中心/医生

如进入眼睛: 用水小心冲洗几分钟。如戴隐型眼镜并可方便地取出, 取出隐型眼镜。继续冲洗。

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· 具体治疗(见本标签上的)

· **安全储存**

· 存放处须加锁。

· **废弃处置**

· 按照本地 / 地区 / 国家 / 国际规例处理内含物 / 容器。

· **化学物质安全性评价:** 尚未进行化学物质安全性评价

16 其他信息

该资料是基于我们目前的知识。然而,这并不构成对任何特定产品特性的担保并且不建立一个法律上有效的合同关系。

· **缩写:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

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CAS: Chemical Abstracts Service (division of the American Chemical Society)

PBT: 持久性生物累积性有毒物质

vPvB: very Persistent and very Bioaccumulative

急性毒性(径口) 第2类: Acute toxicity – Category 2

急性毒性(径口) 第3类: Acute toxicity – Category 3

急性毒性(径皮肤) 第1类: Acute toxicity – Category 1

急性毒性(吸入) 第4类: Acute toxicity – Category 4

皮肤腐蚀/刺激 第1B类: Skin corrosion/irritation – Category 1B

皮肤腐蚀/刺激 第2类: Skin corrosion/irritation – Category 2

严重眼睛损伤/眼睛刺激性 第1类: Serious eye damage/eye irritation – Category 1

- CN -

Bezpečnostní list podle 1907/2006/ES, Článek 31

Datum vydání: 01.11.2016

Revize: 01.11.2016

ODDÍL 1: Identifikace látky/směsi a společnosti/podniku

- **1.1 Identifikátor výrobku**
- **Obchodní označení:** *OSMIUM TETROXIDE 4% AQUEOUS SOLUTION*
- **Číslo výrobku:** 19140, 19150-SP, 19151, 19160, 19180, 19171, 19150, 19170, 19191, 19190
- **1.2 Příslušná určená použití látky nebo směsi a nedoporučená použití**
Další relevantní informace nejsou k dispozici.
- **Použití látky / přípravku** Laboratorní chemikálie
- **1.3 Podrobné údaje o dodavateli bezpečnostního listu**
- **Identifikace výrobce/dovozce:**
*Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com*
- **Obor poskytující informace:** *Product safety department*
- **1.4 Telefonní číslo pro naléhavé situace:**
*ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887*

ODDÍL 2: Identifikace nebezpečnosti

- **2.1 Klasifikace látky nebo směsi**
- **Klasifikace v souladu s nařízením (ES) č. 1272/2008**



GHS06 lebka se zkříženými hnáty

Acute Tox. 3 H301 Toxický při požití.

Acute Tox. 2 H310 Při styku s kůží může způsobit smrt.



GHS05 korozivita

Eye Dam. 1 H318 Způsobuje vážné poškození očí.



GHS07

Acute Tox. 4 H332 Zdraví škodlivý při vdechování.

Skin Irrit. 2 H315 Dráždí kůži.

- **2.2 Prvky označení**
- **Označování v souladu s nařízením (ES) č. 1272/2008** Produkt je klasifikován a označen podle nařízení CLP.
- **Výstražné symboly nebezpečnosti**



GHS05



GHS06

- **Signální slovo** Nebezpečí

(pokračování na straně 2)

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(pokračování strany 1)

- **Nebezpečné komponenty k etiketování:**
oxid osmičelý
- **Standardní věty o nebezpečnosti**
H301 Toxický při požití.
H310 Při styku s kůží může způsobit smrt.
H332 Zdraví škodlivý při vdechování.
H315 Dráždí kůži.
H318 Způsobuje vážné poškození očí.
- **Pokyny pro bezpečné zacházení**
P261 Zamezte vdechování prachu/dýmu/plynu/mlhy/par/aerosolů.
P301+P310 **PŘI POŽITÍ:** Okamžitě volejte TOXIKOLOGICKÉ INFORMAČNÍ STŘEDISKO/lékaře.
P305+P351+P338 **PŘI ZASAŽENÍ OČÍ:** Několik minut opatrně vyplachujte vodou. Vyjměte kontaktní čočky, jsou-li nasazeny a pokud je lze vyjmout snadno. Pokračujte ve vyplachování.
P321 Odborné ošetření (viz na tomto štítku).
P405 Skladujte uzamčené.
P501 Obsah/nádobu likvidujte v souladu s místními/regionálními/národními/mezinárodními předpisy.
- **2.3 Další nebezpečnost**
- **Výsledky posouzení PBT a vPvB**
- **PBT:** Nedá se použít.
- **vPvB:** Nedá se použít.

ODDÍL 3: Složení/informace o složkách

- **3.2 Chemická charakteristika: Směsi**
- **Popis:** Směs obsahuje následné látky bez nebezpečných příměsí.

- **Výrobek obsahuje tyto nebezpečné látky:**

CAS: 20816-12-0	oxid osmičelý	2,5-10%
EINECS: 244-058-7	Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; Skin Corr. 1B, H314	

- **Dodatečná upozornění:** Znění uvedených údajů o nebezpečnosti látky je uvedeno v kapitole 16.

ODDÍL 4: Pokyny pro první pomoc

- **4.1 Popis první pomoci**
- **Všeobecné pokyny:**
Neproddeně odstranit části oděvu znečištěné produktem.
Při nepravidelném dechu nebo zástavě dechu provést umělé dýchání.
- **Při nadýchání:** Při bezvědomí uložit a přepravit ve stabilní poloze na boku.
- **Při styku s kůží:** Ihned omýt vodou a mýdlem a dobře opláchnout.
- **Při zasažení očí:** Otevřené oči po více minut oplachovat pod tekoucí vodou a poradit se s lékařem.
- **Při požití:** Nepřivodit zvracení, ihned zavolat lékařskou pomoc.
- **4.2 Nejdůležitější akutní a opožděné symptomy a účinky** Další relevantní informace nejsou k dispozici.
- **4.3 Pokyn týkající se okamžité lékařské pomoci a zvláštního ošetření**
Další relevantní informace nejsou k dispozici.

CZ

(pokračování na straně 3)

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(pokračování strany 2)

ODDÍL 5: Opatření pro hašení požáru

- **5.1 Hasiva**
- **Vhodná hasiva:**
CO₂, hasící prášek nebo rozestříkované vodní paprsky. Větší ohně zdolat rozestříkovanými vodními paprsky nebo pěnou odolnou vůči alkoholu.
- **5.2 Zvláštní nebezpečnost vyplývající z látky nebo směsi** Další relevantní informace nejsou k dispozici.
- **5.3 Pokyny pro hasiče**
- **Zvláštní ochranné prostředky pro hasiče:** Nejsou nutná žádná zvláštní opatření.

ODDÍL 6: Opatření v případě náhodného úniku

- **6.1 Opatření na ochranu osob, ochranné prostředky a nouzové postupy** Není nutné.
- **6.2 Opatření na ochranu životního prostředí:**
Nenechat proniknout do kanalizace/povrchových vod/podzemních vod.
- **6.3 Metody a materiál pro omezení úniku a pro čištění:**
Sebrat s materiály, vážícími kapaliny (písek, šterkový písek, pojidla kyselin, universální pojidla, piliny).
Kontaminovaný materiál odstranit jako odpad podle bodu 13.
Zajistit dostatečné větrání.
- **6.4 Odkaz na jiné oddíly**
Informace o bezpečnému zacházení viz kapitola 7.
Informace o osobní ochranné výstroji viz kapitola 8.
Informace k odstranění viz kapitola 13.

ODDÍL 7: Zacházení a skladování

- **7.1 Opatření pro bezpečné zacházení**
Na pracovišti zabezpečit dobré větrání a odsávání.
Zamezit vytváření aerosolů.
- **Upozornění k ochraně před ohněm a explozí:** Nejsou nutná žádná zvláštní opatření.
- **7.2 Podmínky pro bezpečné skladování látek a směsí včetně neslučitelných látek a směsí**
- **Pokyny pro skladování:**
- **Požadavky na skladovací prostory a nádoby:** Žádné zvláštní požadavky.
- **Upozornění k hromadnému skladování:** Není nutné.
- **Další údaje k podmínkám skladování:** Žádné
- **7.3 Specifické konečné / specifická konečná použití** Další relevantní informace nejsou k dispozici.

ODDÍL 8: Omezování expozice / osobní ochranné prostředky

- **Technická opatření:** Žádné další údaje, viz bod 7.
- **8.1 Kontrolní parametry**

· **Kontrolní parametry:**

20816-12-0 oxid osmičelý

NPK	Krátkodobá hodnota: 0,004 mg/m ³ Dlouhodobá hodnota: 0,002 mg/m ³
I	

- **Další upozornění:** Jako podklad sloužily při zhotovení platné listiny.

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(pokračování strany 3)

- **8.2 Omezování expozice**
- **Osobní ochranné prostředky:**
- **Všeobecná ochranná a hygienická opatření:**
*Zdržovat od potravin, nápojů a krmiv.
 Zašpiněné, nasáknuté šaty ihned vysvléci.
 Před přestávkami a po práci umýt ruce.
 Ochranný oděv odděleně přechovávat.
 Zabránit styku s pokožkou.
 Zamezit styku s pokožkou a zrakem.*
- **Ochrana dýchacích orgánů:**
Při krátkodobém nebo nízkém zatížení použít dýchací přístroj s filtrem, při intenzivním nebo delším zatížení se musí použít dýchací přístroj nezávislý na okolním vzduchu.
- **Ochrana rukou:**



Ochranné rukavice

*Materiál rukavic musí být nepropustný a odolný proti produktu / látce / směsi.
 Vzhledem k tomu, že chybí testy, není možné doporučit materiál rukavic pro produkt / přípravek / chemickou směs.
 Výběr materiálu rukavic proveďte podle času průniku, permeability a degradace.*

- **Materiál rukavic**
Správný výběr rukavic nezávisí jen na materiálu, ale také na dalších kritériích, která se liší podle výrobce. Protože je výrobek směs více látek, nelze materiál rukavic předem vypočítat a je nutno udělat před použitím zkoušku.
- **Doba průniku materiálem rukavic**
Je nutno u výrobce rukavic zjistit a dodržovat přesné časy průniku materiálem ochranných rukavic.
- **Ochrana očí:**



Uzavřené ochranné brýle

ODDÍL 9: Fyzikální a chemické vlastnosti

· 9.1 Informace o základních fyzikálních a chemických vlastnostech

· Všeobecné údaje

· Vzhled:

Skupenství:	Tekutina
Barva:	Světležlutá
Zápach (vůně):	Chlorový
Prahová hodnota zápachu:	Není určeno.

· Hodnota pH při 20 °C:	7
-------------------------	---

· Změna stavu

Teplota (rozmezí teplot) tání:	Není určeno.
Teplota (rozmezí teplot) varu:	100 °C

· Bod vzplanutí:	Nedá se použít.
------------------	-----------------

· Zápalnost (tuhé, plynné skupenství):	Nedá se použít.
--	-----------------

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· Zápalná teplota:	
Teplota rozkladu:	Není určeno.
· Samozápalnost: Produkt není samozápalný.	
· Nebezpečí exploze: U produktu nehrozí nebezpečí exploze.	
· Meze výbušnosti:	
Dolní mez:	Není určeno.
Horní mez:	Není určeno.
· Tenze par při 20 °C: 23 hPa	
· Hustota při 20 °C: 1,15624 g/cm ³	
· Relativní hustota Není určeno.	
· Hustota par Není určeno.	
· Rychlost odpařování Není určeno.	
· Rozpuštěnost ve / směřitelnost s vodě: Vůbec nemísitelná nebo jen málo mísitelná.	
· Rozdělovací koeficient n-oktanol/voda: Není určeno.	
· Viskozita:	
Dynamicky:	Není určeno.
Kinematicky:	Není určeno.
· Obsah ředidel:	
Organická ředidla:	0,0 %
Voda:	96,0 %
VOC (EC)	0,00 %
· Obsah netěkavých složek: 4,0 %	
· 9.2 Další informace Další relevantní informace nejsou k dispozici.	

ODDÍL 10: Stálost a reaktivita

- **10.1 Reaktivita** Další relevantní informace nejsou k dispozici.
- **10.2 Chemická stabilita**
- **Termický rozklad / Podmínky, kterých je nutno se vyvarovat:**
Nedochází k rozkladu při doporučeném způsobu použití.
- **10.3 Možnost nebezpečných reakcí** Žádné nebezpečné reakce nejsou známy.
- **10.4 Podmínky, kterým je třeba zabránit** Další relevantní informace nejsou k dispozici.
- **10.5 Neslučitelné materiály:** Další relevantní informace nejsou k dispozici.
- **10.6 Nebezpečné produkty rozkladu:** Nejsou známy žádné nebezpečné produkty při rozkladu.

ODDÍL 11: Toxikologické informace

- **11.1 Informace o toxikologických účincích**
- **Akutní toxicita**
Toxický při požití.
Při styku s kůží může způsobit smrt.
Zdraví škodlivý při vdechování.

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(pokračování strany 5)

- **Primární dráždivé účinky:**
- **Žíravost/dráždivost pro kůži**
Dráždí kůži.
- **Vážné poškození očí / podráždění očí**
Způsobuje vážné poškození očí.
- **Senzibilizace dýchacích cest / senzibilizace kůže**
Na základě dostupných údajů nejsou kritéria pro klasifikaci splněna.
- **Účinky CMR (karcinogenita, mutagenita a toxicita pro reprodukci)**
- **Mutagenita v zárodečných buňkách** Na základě dostupných údajů nejsou kritéria pro klasifikaci splněna.
- **Karcinogenita** Na základě dostupných údajů nejsou kritéria pro klasifikaci splněna.
- **Toxicita pro reprodukci** Na základě dostupných údajů nejsou kritéria pro klasifikaci splněna.
- **Toxicita pro specifické cílové orgány – jednorázová expozice**
Na základě dostupných údajů nejsou kritéria pro klasifikaci splněna.
- **Toxicita pro specifické cílové orgány – opakovaná expozice**
Na základě dostupných údajů nejsou kritéria pro klasifikaci splněna.
- **Nebezpečnost při vdechnutí** Na základě dostupných údajů nejsou kritéria pro klasifikaci splněna.

ODDÍL 12: Ekologické informace

- **12.1 Toxicita**
- **Aquatická toxicita:** Další relevantní informace nejsou k dispozici.
- **12.2 Perzistence a rozložitelnost** Další relevantní informace nejsou k dispozici.
- **12.3 Bioakumulační potenciál** Další relevantní informace nejsou k dispozici.
- **12.4 Mobilita v půdě** Další relevantní informace nejsou k dispozici.
- **Další ekologické údaje:**
- **Všeobecná upozornění:**
Třída ohrožení vody 1 (Samozařazení): slabé ohrožení vody
Nesmí se dostat nezředitý nebo ve větším množství do spodní vody, povodí nebo kanalizace.
- **12.5 Výsledky posouzení PBT a vPvB**
- **PBT:** Nedá se použít.
- **vPvB:** Nedá se použít.
- **12.6 Jiné nepříznivé účinky** Další relevantní informace nejsou k dispozici.

ODDÍL 13: Pokyny pro odstraňování

- **13.1 Metody nakládání s odpady**
- **Doporučení:** Nesmí se odstraňovat společně s odpady z domácnosti. Nepřipustit únik do kanalizace.
- **Kontaminované obaly:**
- **Doporučení:** Odstranění podle příslušných předpisů.

ODDÍL 14: Informace pro přepravu

- | | |
|--|---|
| <ul style="list-style-type: none"> · 14.1 UN číslo · ADR, IMDG, IATA | <p>UN3287</p> |
| <ul style="list-style-type: none"> · 14.2 Oficiální (OSN) pojmenování pro přepravu · ADR · IMDG · IATA | <p>3287 LÁTKA TOXICKÁ, KAPALNÁ, ANORGANICKÁ, J.N.
TOXIC LIQUID, INORGANIC, N.O.S., MARINE
POLLUTANT
TOXIC LIQUID, INORGANIC, N.O.S.</p> |

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· **14.3 Třída/třídy nebezpečnosti pro přepravu**

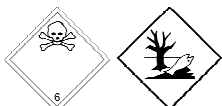
· **ADR, IATA**



· **třída**

6.1 Jedovaté látky

· **IMDG**



· **Class**

6.1 Jedovaté látky

· **14.4 Obalová skupina**

· **ADR, IMDG, IATA**

III

· **14.5 Nebezpečnost pro životní prostředí:**

· **Látka znečišťující moře:**

Symbol (ryba a strom)

· **14.6 Zvláštní bezpečnostní opatření pro uživatele**

Varování: Jedovaté látky

· **Stowage Category**

A

· **Stowage Code**

SW2 Clear of living quarters.

· **14.7 Hromadná přeprava podle přílohy II úmluvy MARPOL a předpisu IBC**

Nedá se použít.

· **Přeprava/další údaje:**

· **ADR**

· **Omezené množství (LQ)**

5L

· **Vyňatá množství (EQ)**

Kód: E1

Nejvyšší čisté množství na vnitřní obal: 30 ml

Nejvyšší čisté množství na vnější obal: 1000 ml

· **IMDG**

· **Limited quantities (LQ)**

5L

· **Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· **UN "Model Regulation":**

UN 3287 LÁTKA TOXICKÁ, KAPALNÁ, ANORGANICKÁ, J.N., 6.1, III

ODDÍL 15: Informace o předpisech

· **15.1 Předpisy týkající se bezpečnosti, zdraví a životního prostředí/specifické právní předpisy týkající se látky nebo směsi**

· **Rady 2012/18/EU**

· **Nebezpečné látky jmenovitě uvedené - PŘÍLOHA I** Žádná z obsažených látek není na seznamu.

· **Kategorie Seveso H2 AKUTNÍ TOXICITA**

· **Kvalifikační množství (v tunách) při uplatnění požadavků pro podlimitní množství 50 t**

· **Kvalifikační množství (v tunách) při uplatnění požadavků pro nadlimitní množství 200 t**

(pokračování na straně 8)

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- **Rady (ES) č. 1907/2006 PŘÍLOHA XVII** Omezující podmínky: 3
- **15.2 Posouzení chemické bezpečnosti:** Posouzení chemické bezpečnosti nebylo provedeno.

ODDÍL 16: Další informace

Údaje se opírají o dnešní stav našich vědomostí, nepředstavují však záruku vlastností produktu a nevznikají tak žádné smluvní právní vztahy.

- **Relevantní věty**

H300 Při požití může způsobit smrt.

H310 Při styku s kůží může způsobit smrt.

H314 Způsobuje těžké poleptání kůže a poškození očí.

H330 Při vdechování může způsobit smrt.

- **Zkratky a akronymy:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Acute Tox. 2: Akutní toxicita – Kategorie 2

Acute Tox. 3: Akutní toxicita – Kategorie 3

Acute Tox. 1: Akutní toxicita – Kategorie 1

Acute Tox. 4: Akutní toxicita – Kategorie 4

Skin Corr. 1B: Žíravost/dráždivost pro kůži – Kategorie 1B

Skin Irrit. 2: Žíravost/dráždivost pro kůži – Kategorie 2

Eye Dam. 1: Vážné poškození očí / podráždění očí – Kategorie 1

Sikkerhedsdatablad

ifølge 1907/2006/EF, Artikel 31

Trykdato: 01.11.2016

Revision: 01.11.2016

PUNKT 1: Identifikation af stoffet/blandingen og af selskabet/virksomheden

- **1.1 Produktidentifikator**
- **Handelsnavn: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION**
- **Artikelnummer: 19140, 19150-SP, 19151, 19160, 19180, 19171, 19150, 19170, 19191, 19190**
- **1.2 Relevante identificerede anvendelser for stoffet eller blandingen samt anvendelser, der frarådes**
Der står ingen yderligere, relevante informationer til rådighed.
- **Stoffets/præparatets anvendelse** Laboratoriekemikalier
- **1.3 Nærmere oplysninger om leverandøren af sikkerhedsdatabladet**
- **Producent/leverandør**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com
- **For yderligere information: Product safety department**
- **1.4 Nødtelefon:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

PUNKT 2: Fareidentifikation

- **2.1 Klassificering af stoffet eller blandingen**
- **Klassificering i henhold til forordning (EF) nr. 1272/2008**



GHS06 dødningshoved og korslagte knogler

Acute Tox. 3 H301 Giftig ved indtagelse.

Acute Tox. 2 H310 Livsfarlig ved hudkontakt.



GHS05 ætsning

Eye Dam. 1 H318 Forårsager alvorlig øjenskade.



GHS07

Acute Tox. 4 H332 Farlig ved indånding.

Skin Irrit. 2 H315 Forårsager hudirritation.

- **2.2 Mærkningselementer**
- **Mærkning i henhold til forordning (EF) nr. 1272/2008**
Dette produkt er klassificeret og mærket iht. CLP-forordningen.
- **Farepiktogrammer**



GHS05



GHS06

- **Signalord Fare**

(Fortsættes på side 2)

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(Fortsat fra side 1)

· Farebestemmende komponent(er) til etikettering:

osmiumtetraoxid

· Faresætninger

H301 Giftig ved indtagelse.

H310 Livsfarlig ved hudkontakt.

H332 Farlig ved indånding.

H315 Forårsager hudirritation.

H318 Forårsager alvorlig øjenskade.

· Sikkerhedssætninger

P261 Undgå indånding af pulver/røg/gas/tåge/damp/spray.

P301+P310 I TILFÆLDE AF INDTAGELSE: Ring omgående til en GIFTINFORMATION/læge.

P305+P351+P338 VED KONTAKT MED ØJNENE: Skyl forsigtigt med vand i flere minutter. Fjern eventuelle kontaktlinser, hvis dette kan gøres let. Fortsæt skylning.

P321 Særlig behandling (se på denne etiket).

P405 Opbevares under lås.

P501 Bortskaffelse af indholdet/holderen i henhold til de lokale/regionale/nationale/internationale forskrifter.

· 2.3 Andre farer
· Resultater af PBT- og vPvB-vurdering
· PBT: Ikke relevant.

· vPvB: Ikke relevant.

PUNKT 3: Sammensætning af/oplysning om indholdsstoffer

· 3.2 Kemisk betegnelse: Blandinger
· Beskrivelse: Blanding med nedenstående stoffer med ufarlige tilsætningsstoffer.

· Farlige indholdsstoffer:

CAS: 20816-12-0	osmiumtetraoxid	2,5-10%
EINECS: 244-058-7	Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; Skin Corr. 1B, H314	

· Yderligere anvisninger: Teksten til de anførte farehenvisninger fremgår af kapitel 16.

PUNKT 4: Førstehjælpsforanstaltninger

· 4.1 Beskrivelse af førstehjælpsforanstaltninger
· Generelle anvisninger:

Tøj, der er forurennet med produktet, skal tages af med det samme.

I tilfælde af uregelmæssigt åndedræt eller hvis åndedrættet ophører, skal der gives kunstigt åndedræt.

· Efter indånding: I tilfælde af bevidstløshed skal den tilskadekomne lægges ned og transporteres i stabilt sideleje.

· Efter hudkontakt: Skal omgående vaskes af med vand og sæbe, skyl godt efter.

· Efter øjenkontakt: Skyl øjnene med åbent øjenlåg i flere minutter under rindende vand og søg læge.

· Efter indtagelse: Fremkald ikke opkastning, tilkald straks lægehjælp.

· 4.2 Vigtigste symptomer og virkninger, både akutte og forsinkede

Der står ingen yderligere, relevante informationer til rådighed.

· 4.3 Angivelse af om øjeblikkelig lægehjælp og særlig behandling er nødvendig

Der står ingen yderligere, relevante informationer til rådighed.

DK

(Fortsættes på side 3)

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PUNKT 5: Brandbekæmpelse

- **5.1 Slukningsmidler**
- **Egnede slukningsmidler:**
CO₂, slukningspulver eller vandspraystråle. Større brande bekæmpes med vandspraystråle eller alkoholbestandigt skum.
- **5.2 Særlige farer i forbindelse med stoffet eller blandingen**
Der står ingen yderligere, relevante informationer til rådighed.
- **5.3 Anvisninger for brandmandskab**
- **Særlige værnemidler:** Der kræves ingen særlige forholdsregler.

PUNKT 6: Forholdsregler over for udslip ved uheld

- **6.1 Personlige sikkerhedsforanstaltninger, personlige værnemidler og nødprocedurer** Ikke påkrævet.
- **6.2 Miljøbeskyttelsesforanstaltninger:** Må ikke udledes i kloaksystemet/overfladevand/grundvand.
- **6.3 Metoder og udstyr til inddæmning og oprensning:**
Opsamles med væskebindende materiale (sand, kiselgur, syrebindemiddel, universalbindemiddel, savsmuld). Kontamineret materiale skal bortskaffes som affald ifølge punkt 13.
Sørg for tilstrækkelig udluftning.
- **6.4 Henvielse til andre punkter**
Information om sikker håndtering se kapitel 7.
Informationer vedrørende personlige værnemidler se kapitel 8.
Informationer om bortskaffelse se kapitel 13.

PUNKT 7: Håndtering og opbevaring

- **7.1 Forholdsregler for sikker håndtering**
Sørg for god udluftning/udsugning på arbejdspladsen.
Undgå aerosoldannelse.
- **Anvisninger vedrørende brand- og eksplosionsbeskyttelse:** Der kræves ingen særlige forholdsregler.
- **7.2 Betingelser for sikker opbevaring, herunder eventuel uforenelighed**
- **Opbevaring:**
- **Krav til opbevaringsrum og beholdere:** Ingen særlige krav.
- **Henvielse til opbevaring med andre stoffer:** Ikke påkrævet.
- **Yderligere oplysninger vedrørende opbevaringsbetingelserne:** Ingen.
- **7.3 Særlige anvendelser** Der står ingen yderligere, relevante informationer til rådighed.

PUNKT 8: Eksponeringskontrol/personlige værnemidler

- **Yderligere anvisninger vedrørende udformning af tekniske anlæg:** Ingen yderligere oplysninger, se punkt 7.

· 8.1 Kontrolparametre

- **Indholdsstoffer med arbejdspladsrelaterede grænseværdier, der skal overvåges:**

20816-12-0 osmiumtetraoxid

GV	Langtidsværdi: 0,002 mg/m ³ , 0,0002 ppm
----	---

- **Yderligere anvisninger:** Baseret på de lister, der var gældende på tidspunktet for udarbejdelsen.

· 8.2 Eksponeringskontrol

- **Personlige værnemidler:**
- **Generelle forholdsregler vedrørende beskyttelse og hygiejne:**
Skal holdes borte fra føde- og drikkevarer og foderstoffer.

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Forurennet, gennemvædet tøj skal det tages af med det samme.

Vask hænder inden der holdes pause og ved arbejdsophør.

Adskilt opbevaring af beskyttelsesklædning.

Undgå kontakt med huden.

Undgå kontakt med øjne og hud.

· **Åndedrætsværn:**

Ved kortvarig eller ringe belastning skal der benyttes åndedrætsværn med filter, ved intensiv eller længere eksponering skal der benyttes luftforsynet åndedrætsværn.

· **Håndbeskyttelse:**



Beskyttelseshandsker

Handskematerialet skal være uigennemtrængeligt og kunne tåle produktet/stoffet/præparatet.

På grund af manglende tests kan der ikke anbefales noget handskemateriale til produktet/præparatet/kemikalieblandingen.

Ved valg af handskematerialet skal der tages højde for gennemtrængningstider, permeabilitetstal og nedbrydning.

· **Handskemateriale:**

Valg af en egnet handske afhænger ikke blot af materialet, men også af yderligere kvalitetskriterier og er forskelligt fra den ene fabrikant til den anden. Da produktet er et præparat af flere forskellige stoffer, kan handskematerialernes bestandighed ikke beregnes på forhånd og skal derfor efterprøves inden brugen.

· **Handskematerialets gennemtrængningstid**

Hos handskefabrikanten skal man forespørge om den nøjagtige gennemtrængningstid og overholde denne.

· **Øjenbeskyttelse:**



Tætsluttende beskyttelsesbriller

PUNKT 9: Fysiske og kemiske egenskaber

· **9.1 Oplysninger om grundlæggende fysiske og kemiske egenskaber**

· **Generelle oplysninger**

· **Udseende:**

· Form:	Væske
· Farve:	Lysegul
· Lugt:	Chloragtig
· Lugttærskel:	Ikke bestemt.

· **pH-værdi ved 20 °C:** 7

· **Tilstandsændring**

· Smeltepunkt/smelteområde	Ikke bestemt.
· Kogepunkt/kogeområde	100 °C

· **Flammepunkt:** Ikke relevant.

· **Antændelighed (fast, i luftform):** Ikke relevant.

· **Antændelsespunkt:**

· **Nedbrydningstemperatur:** Ikke bestemt.

· **Selvantændelighed:** Produktet er ikke selvantændeligt.

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· Eksplodingsfare:	Produktet er ikke eksplosivt.
· Eksplodingsgrænser:	
Nedre:	Ikke bestemt.
Øvre:	Ikke bestemt.
· Damptryk ved 20 °C:	23 hPa
· Densitet ved 20 °C:	1,15624 g/cm ³
· Relativ densitet	Ikke bestemt.
· Dampthæthed	Ikke bestemt.
· Fordampningshastighed	Ikke bestemt.
· Opløselighed i/blandbarhed med vand:	Ikke eller kun lidt blandbar.
· Fordelingskoefficient (n-octanol/vand):	Ikke bestemt.
· Viskositet:	
dynamisk:	Ikke bestemt.
kinematisk:	Ikke bestemt.
· Opløsningsmiddelindhold:	
Organiske opløsningsmidler:	0,0 %
Vand	96,0 %
VOC (EU)	0,00 %
· Tørstofindhold:	4,0 %
· 9.2 Andre oplysninger	Der står ingen yderligere, relevante informationer til rådighed.

PUNKT 10: Stabilitet og reaktivitet

- **10.1 Reaktivitet** Der står ingen yderligere, relevante informationer til rådighed.
- **10.2 Kemisk stabilitet**
- **Termisk nedbrydning/forhold, der bør undgås** Ingen nedbrydning ved formålsbestemt brug.
- **10.3 Risiko for farlige reaktioner** Der er ikke kendskab til nogen farlige reaktioner.
- **10.4 Forhold, der skal undgås** Der står ingen yderligere, relevante informationer til rådighed.
- **10.5 Materialer, der skal undgås:** Der står ingen yderligere, relevante informationer til rådighed.
- **10.6 Farlige nedbrydningsprodukter:** Der er ikke kendskab til nogen farlige nedbrydningsprodukter.

PUNKT 11: Toksikologiske oplysninger

- **11.1 Oplysninger om toksikologiske virkninger**
- **Akut toksicitet**
- Giftig ved indtagelse.
- Livsfarlig ved hudkontakt.
- Farlig ved indånding.
- **Primær irritationsvirkning:**
- **Hudætsning/-irritation**
- Forårsager hudirritation.
- **Alvorlig øjenskade/øjenirritation**
- Forårsager alvorlig øjenskade.
- **Respiratorisk sensibilisering eller hudsensibilisering**
- Kriterierne for klassificering kan på grundlag af de foreliggende data ikke anses for at være opfyldt.

(Fortsættes på side 6)

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- **CMR-virkninger (kræftfremkaldende egenskaber, mutagenitet og reproduktionstoksicitet)**
- **Kimcellemutagenitet**
Kriterierne for klassificering kan på grundlag af de foreliggende data ikke anses for at være opfyldt.
- **Kræftfremkaldende egenskaber**
Kriterierne for klassificering kan på grundlag af de foreliggende data ikke anses for at være opfyldt.
- **Reproduktionstoksicitet**
Kriterierne for klassificering kan på grundlag af de foreliggende data ikke anses for at være opfyldt.
- **Enkel STOT-eksponering**
Kriterierne for klassificering kan på grundlag af de foreliggende data ikke anses for at være opfyldt.
- **Gentagne STOT-eksponeringer**
Kriterierne for klassificering kan på grundlag af de foreliggende data ikke anses for at være opfyldt.
- **Aspirationsfare**
Kriterierne for klassificering kan på grundlag af de foreliggende data ikke anses for at være opfyldt.

PUNKT 12: Miljøoplysninger

- **12.1 Toksicitet**
- **Toksicitet i vand:** Der står ingen yderligere, relevante informationer til rådighed.
- **12.2 Persistens og nedbrydelighed** Der står ingen yderligere, relevante informationer til rådighed.
- **12.3 Bioakkumuleringspotentiale** Der står ingen yderligere, relevante informationer til rådighed.
- **12.4 Mobilitet i jord** Der står ingen yderligere, relevante informationer til rådighed.
- **Yderligere økologiske oplysninger:**
- **Generelle anvisninger:**
Fareklasse for vand 1 (Selvklassificering): svagt vandforurenende
Må ikke udledes i grundvandet, vandløb eller kloaksystemet ufortyndet eller i større mængder.
- **12.5 Resultater af PBT- og vPvB-vurdering**
- **PBT:** Ikke relevant.
- **vPvB:** Ikke relevant.
- **12.6 Andre negative virkninger** Der står ingen yderligere, relevante informationer til rådighed.

PUNKT 13: Bortskaffelse

- **13.1 Metoder til affaldsbehandling**
- **Anbefaling:** Må ikke bortskaffes sammen med husholdningsaffald. Må ikke udledes i kloaksystemet.
- **Urensede emballager:**
- **Anbefaling:** Bortskaffes i overensstemmelse med myndighedernes forskrifter.

PUNKT 14: Transportoplysninger

- | | |
|---|---|
| · 14.1 FN-nummer | |
| · ADR, IMDG, IATA | UN3287 |
| · 14.2 UN-forsendelsesbetegnelse (UN proper shipping name) | |
| · ADR | 3287 GIFTIG UORGANISK VÆSKE, N.O.S. |
| · IMDG | TOXIC LIQUID, INORGANIC, N.O.S., MARINE POLLUTANT |
| · IATA | TOXIC LIQUID, INORGANIC, N.O.S. |

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· **14.3 Transportfareklasse(r)**

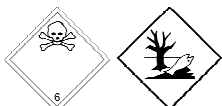
· **ADR, IATA**



· **klasse**

6.1 Giftige stoffer

· **IMDG**



· **Class**

6.1 Giftige stoffer

· **14.4 Emballagegruppe**

· **ADR, IMDG, IATA**

III

· **14.5 Miljøfarer:**

· **Marine pollutant:**

Symbol (fisk og træ)

· **14.6 Særlige forsigtighedsregler for brugeren**

· **Stowage Category**

· **Stowage Code**

Advarsel: Giftige stoffer

A

SW2 Clear of living quarters.

· **14.7 Bulktransport i henhold til bilag II til MARPOL og IBC-koden**

Ikke relevant.

· **Transport/yderligere oplysninger:**

· **ADR**

· **Begrænsede mængder (LQ)**

· **Undtagne mængder (EQ)**

5L

Kode: E1

Største tilladte nettomængde pr. indvendig emballage: 30 ml

Største tilladte nettomængde pr. ydre emballage: 1000 ml

· **IMDG**

· **Limited quantities (LQ)**

· **Excepted quantities (EQ)**

5L

Kode: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· **UN "Model Regulation":**

UN 3287 GIFTIG UORGANISK VÆSKE, N.O.S., 6.1, III

PUNKT 15: Oplysninger om regulering

· **15.1 Særlige bestemmelser/særlig lovgivning for stoffet eller blandingen med hensyn til sikkerhed, sundhed og miljø**

· **Direktiv 2012/18/EU**

· **Navngivne farlige stoffer - BILAG I** Ingen af indholdsstofferne er optaget i listen.

· **Seveso-bestemmelser H2 AKUT TOKSISK**

· **Tærskelmængde (tons) for anvendelse af Kolonne 2-krav** 50 t

· **Tærskelmængde (tons) for anvendelse af Kolonne 3-krav** 200 t

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- **Forordning (EF) nr. 1907/2006 BILAG XVII Begrænsninger:** 3
- **Nationale forskrifter:**
- **MAL-Code:** 5-6
- **15.2 Kemikaliesikkerhedsvurdering:** Der er ikke udført kemikaliesikkerhedsvurdering.

PUNKT 16: Andre oplysninger

Alle ovenstående angivelser er baseret på vores aktuelle viden, udgør dog ikke nogen tilsikring af produktgenskaber og stifter heller ikke noget kontraktligt retsforhold.

- **Risikoangivelser**

H300 Livsfarlig ved indtagelse.

H310 Livsfarlig ved hudkontakt.

H314 Forårsager svære forbrændinger af huden og øjenskader.

H330 Livsfarlig ved indånding.

- **Forkortelser og akronymer:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

Måleteknisk Arbejdshygiejnisk Luftbehov

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Acute Tox. 2: Akut toksicitet – Kategori 2

Acute Tox. 3: Akut toksicitet – Kategori 3

Acute Tox. 1: Akut toksicitet – Kategori 1

Acute Tox. 4: Akut toksicitet – Kategori 4

Skin Corr. 1B: Hudætsning/hudirritation – Kategori 1B

Skin Irrit. 2: Hudætsning/hudirritation – Kategori 2

Eye Dam. 1: Alvorlige øjenskader/øjenirritation – Kategori 1

Veiligheidsinformatieblad volgens 1907/2006/EG, Artikel 31

datum van de druk: 01.11.2016

Herziening van: 01.11.2016

RUBRIEK 1: Identificatie van de stof of het mengsel en van de vennootschap/onderneming

· 1.1 Productidentificatie

· **Handelsnaam:** OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

· **Artikelnummer:** 19140, 19150-SP, 19151, 19160, 19180, 19171, 19150, 19170, 19191, 19190

· 1.2 Relevant geïdentificeerd gebruik van de stof of het mengsel en ontraden gebruik

Geen verdere relevante informatie verkrijgbaar.

· **Toepassing van de stof / van de bereiding** Laboratoriumchemicaliën

· 1.3 Details betreffende de verstrekker van het veiligheidsinformatieblad

· **Fabrikant/leverancier:**

Electron Microscopy Sciences

1560 Industry Road

USA-Hatfield, PA 19440

Tel: 215-412-8400 Fax: 215-412-8450

email: sgkcck@aol.com

www.emsdiasum.com

Aurion

Binnenhaven 5

6709 PD Wageningen

The Netherlands

Tel: 31 317 415094

Fax: 31 317 415955

email: info@aurion.nl

· **Inlichtingengevende sector:** Product safety department

· 1.4 Telefoonnummer voor noodgevallen:

ChemTrec 1-800-424-9300 Contract CCN7661

1-703-527-3887

RUBRIEK 2: Identificatie van de gevaren

· 2.1 Indeling van de stof of het mengsel

· **Indeling overeenkomstig Verordening (EG) nr. 1272/2008**



GHS06 doodshoofd met gekruiste beenderen

Acute Tox. 3 H301 Giftig bij inslikken.

Acute Tox. 2 H310 Dodelijk bij contact met de huid.



GHS05 corrosie

Eye Dam. 1 H318 Veroorzaakt ernstig oogletsel.



GHS07

Acute Tox. 4 H332 Schadelijk bij inademing.

Skin Irrit. 2 H315 Veroorzaakt huidirritatie.

· 2.2 Etiketteringselementen

· **Etikettering overeenkomstig Verordening (EG) nr. 1272/2008**

Het product is geclassificeerd en geëtiketteerd volgens de CLP-verordening.

(Vervolg op blz. 2)

Veiligheidsinformatieblad

volgens 1907/2006/EG, Artikel 31

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Herziening van: 01.11.2016

Handelsnaam: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(Vervolg van blz. 1)

· Gevarenpictogrammen


GHS05 GHS06

· Signaalwoord Gevaar

· Gevaaraanduidende componenten voor de etikettering:

osmiumtetraoxide

· Gevarenaanduidingen

H301 Giftig bij inslikken.

H310 Dodelijk bij contact met de huid.

H332 Schadelijk bij inademing.

H315 Veroorzaakt huidirritatie.

H318 Veroorzaakt ernstig oogletsel.

· Veiligheidsaanbevelingen

P261 Inademing van stof/rook/gas/nevel/damp/spuitnevel vermijden.

P301+P310 NA INSLIKKEN: onmiddellijk een ANTIGIFCENTRUM/arts raadplegen.

P305+P351+P338 BIJ CONTACT MET DE OGEN: voorzichtig afspoelen met water gedurende een aantal minuten; contactlenzen verwijderen, indien mogelijk; blijven spoelen.

P321 Specifieke behandeling vereist (zie op dit etiket).

P405 Achter slot bewaren.

P501 De inhoud en de verpakking verwerken volgens de plaatselijke/regionale/nationale/internationale voorschriften.

· 2.3 Andere gevaren
· Resultaten van PBT- en zPzB-beoordeling
· PBT: Niet bruikbaar.

· zPzB: Niet bruikbaar.

RUBRIEK 3: Samenstelling en informatie over de bestanddelen

· 3.2 Chemische karakterisering: Mengsels
· Beschrijving: Mengsel van na elkaar aangevoerde stoffen met ongevaarlijke bijmengingen.

· Gevaarlijke inhoudstoffen:

CAS: 20816-12-0	osmiumtetraoxide	2,5-10%
EINECS: 244-058-7	☠ Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; ☠ Skin Corr. 1B, H314	

· Aanvullende gegevens:

De woordelijke inhoud van de opgegeven aanwijzingen inzake de mogelijke gevaren is te vinden in hoofdstuk 16.

RUBRIEK 4: Eerstehulpmaatregelen

· 4.1 Beschrijving van de eerstehulpmaatregelen
· Algemene informatie:

Verontreinigde kleding onmiddellijk uittrekken.

Bij onregelmatige ademhaling of ademstilstand kunstmatige ademhaling toepassen.

· Na het inademen: Bij bewusteloosheid ligging en vervoer in stabiele zijligging.

· Na huidcontact: Onmiddellijk met water en zeep afwassen en goed naspoelen.

· Na oogcontact: Ogen met open ooglid een aantal minuten onder stromend water afspoelen en dokter raadplegen.

· Na inslikken: Geen braken teweegbrengen en onmiddellijk medische hulp raadplegen.

(Vervolg op blz. 3)

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- **4.2 Belangrijkste acute en uitgestelde symptomen en effecten** Geen verdere relevante informatie verkrijgbaar.
- **4.3 Vermelding van de vereiste onmiddellijke medische verzorging en speciale behandeling**
Geen verdere relevante informatie verkrijgbaar.

RUBRIEK 5: Brandbestrijdingsmaatregelen

- **5.1 Blusmiddelen**
- **Geschikte blusmiddelen:**
CO₂, bluspoeder of waterstraal. Grotere brand met waterstraal bestrijden of met schuim, dat tegen alcohol bestand is.
- **5.2 Speciale gevaren die door de stof of het mengsel worden veroorzaakt**
Geen verdere relevante informatie verkrijgbaar.
- **5.3 Advies voor brandweertieners**
- **Speciale beschermende kleding:** Geen bijzondere maatregelen nodig.

RUBRIEK 6: Maatregelen bij het accidenteel vrijkomen van de stof of het mengsel

- **6.1 Persoonlijke voorzorgsmaatregelen, beschermde uitrusting en noodprocedures** Niet nodig.
- **6.2 Milieuvoorzorgsmaatregelen:** Niet in de riolering/het oppervlaktewater/het grondwater laten terechtkomen.
- **6.3 Insluifings- en reinigingsmethoden en -materiaal:**
Met vloeistofbindend materiaal (zand, bergmeel, zuurbinder, universele binder, zaagmeel) opnemen.
Besmet materiaal zoals afval volgens punt 13 verwijderen.
Voor voldoende ventilatie zorgen.
- **6.4 Verwijzing naar andere rubrieken**
Informatie inzake veilig gebruik - zie hoofdstuk 7.
Informatie inzake persoonlijke beschermingsuitrusting - zie hoofdstuk 8.
Informatie inzake berging - zie hoofdstuk 13.

RUBRIEK 7: Hantering en opslag

- **7.1 Voorzorgsmaatregelen voor het veilig hanteren van de stof of het mengsel**
Voor goede ventilatie/afzuiging op de werkplaatsen zorgen.
Aërosolvorming vermijden.
- **Informatie m.b.t. brand- en ontploffingsgevaar:** Geen bijzondere maatregelen noodzakelijk.
- **7.2 Voorwaarden voor een veilige opslag, met inbegrip van incompatibele producten**
- **Opslag:**
- **Eisen ten opzichte van opslagruimte en tanks:** Geen bijzondere eisen.
- **Informatie m.b.t. gezamenlijke opslag:** Niet noodzakelijk.
- **Verdere inlichtingen over eisen m.b.t. de opslag:** Geen.
- **7.3 Specifiek eindgebruik** Geen verdere relevante informatie verkrijgbaar.

RUBRIEK 8: Maatregelen ter beheersing van blootstelling/persoonlijke bescherming

- **Aanvullende gegevens m.b.t. de inrichting van technische installaties:** Geen aanvullende gegevens. Zie 7.
- **8.1 Controleparameters**
- **Bestanddelen met grenswaarden die m.b.t. de werkruimte in acht genomen moeten worden:**
Het produkt bevat geen relevante hoeveelheden van stoffen, die met betrekking tot de werkplaatsen, qua grenswaarden gecontroleerd moeten worden.
- **Aanvullende gegevens:** Als basis dienden lijsten die bij opstelling geldig waren.

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- **8.2 Maatregelen ter beheersing van blootstelling**
- **Persoonlijke beschermingsvoorzieningen:**
- **Algemene beschermings- en gezondheidsmaatregelen:**
 - Verwijderd houden van eet- en drinkwaren.
 - Verontreinigde kleding onmiddellijk uittrekken.
 - Vóór de pauze en aan het einde van werktijd handen wassen.
 - Beschermende kleding afzonderlijk bewaren.
 - Aanraking met de huid vermijden.
 - Aanraking met de ogen en de huid vermijden.
- **Ademhalingsbescherming:**
 - Bij korte of geringe belasting ademfiltertoestel; bij intensieve resp. langdurige expositie een van de omringende lucht onafhankelijk ademhalingsstoestel gebruiken.
- **Handbescherming:**



Veiligheidshandschoenen

Het handschoenmateriaal moet ondoorlatend en bestand zijn tegen het product / de stof / de bereiding.
Op grond van falende testen kan geen aanbeveling voor handschoenmateriaal voor het product / de bereiding / het chemicaliënmengsel afgegeven worden.
Kies handschoenmateriaal rekening houdend met de penetratietijden, de permeatiegraden en de degradatie.

- **Handschoenmateriaal**
 - De keuze van een geschikte handschoen is niet alleen afhankelijk van het materiaal, maar ook van andere kwaliteitskenmerken en verschilt van fabrikant tot fabrikant. Aangezien het product uit meerdere stoffen is samengesteld, is de duurzaamheid van de handschoenmaterialen niet vooraf berekenbaar en moet derhalve vóór het gebruik worden getest.
- **Doordringingstijd van het handschoenmateriaal**
 - De precieze penetratietijd kunt u te weten komen bij de handschoenfabrikant; houd er rekening mee.
- **Oogbescherming:**



Nauw aansluitende veiligheidsbril

RUBRIEK 9: Fysische en chemische eigenschappen

- **9.1 Informatie over fysische en chemische basiseigenschappen**
- **Algemene gegevens**
- **Voorkomen:**

Vorm:	Vloeistof
Kleur:	Lichtgeel
- **Reuk:** Chloorachtig
- **Geurdrempelwaarde:** Niet bepaald.
- **pH-waarde bij 20 °C:** 7
- **Toestandsverandering**

Smeltpunt/smeltbereik:	Niet bepaald.
Kookpunt/kookpuntbereik:	100 °C
- **Vlampunt:** Niet bruikbaar.

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· Ontvlambaarheid (vast, gasvormig):	Niet bruikbaar.
· Ontstekingstemperatuur:	
Ontbindingstemperatuur:	Niet bepaald.
· Zelfontsteking:	Het produkt ontbrandt niet uit zichzelf.
· Ontploffingsgevaar:	Het produkt is niet ontploffingsgevaarlijk.
· Ontploffingsgrenzen:	
Onderste:	Niet bepaald.
Bovenste:	Niet bepaald.
· Dampspanning bij 20 °C:	23 hPa
· Dichtheid bij 20 °C:	1,15624 g/cm ³
· Relatieve dichtheid	Niet bepaald.
· Dampdichtheid	Niet bepaald.
· Verdampingssnelheid	Niet bepaald.
· Oplosbaarheid in/mengbaarheid met Water:	Niet resp. gering mengbaar.
· Verdelingscoëfficiënt (n-octanol/water):	Niet bepaald.
· Viscositeit	
Dynamisch:	Niet bepaald.
Kinematisch:	Niet bepaald.
· Oplosmiddelgehalte:	
Organisch oplosmiddel:	0,0 %
Water:	96,0 %
VOC (EG)	0,00 %
Gehalte aan vaste bestanddelen:	4,0 %
· 9.2 Overige informatie	Geen verdere relevante informatie verkrijgbaar.

RUBRIEK 10: Stabiliteit en reactiviteit

- **10.1 Reactiviteit** Geen verdere relevante informatie verkrijgbaar.
- **10.2 Chemische stabiliteit**
- **Thermische afbraak / te vermijden omstandigheden:** Geen afbraak bij gebruik volgens voorschrift.
- **10.3 Mogelijke gevaarlijke reacties** Geen gevaarlijke reacties bekend.
- **10.4 Te vermijden omstandigheden** Geen verdere relevante informatie verkrijgbaar.
- **10.5 Chemisch op elkaar inwerkende materialen:** Geen verdere relevante informatie verkrijgbaar.
- **10.6 Gevaarlijke ontledingsproducten:** Geen gevaarlijke ontbindingsproducten bekend.

RUBRIEK 11: Toxicologische informatie

- **11.1 Informatie over toxicologische effecten**
- **Acute toxiciteit**
- Giftig bij inslikken.
- Dodelijk bij contact met de huid.
- Schadelijk bij inademing.

(Vervolg op blz. 6)

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(Vervolg van blz. 5)

- **Primaire aandoening:**
- **Huidcorrosie/-irritatie**
Veroorzaakt huidirritatie.
- **Ernstig oogletsel/oogirritatie**
Veroorzaakt ernstig oogletsel.
- **Sensibilisatie van de luchtwegen/de huid**
Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **CMR-effecten (kankerverwekkendheid, mutageniteit en giftigheid voor de voortplanting)**
- **Mutageniteit in geslachtscellen** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **Kankerverwekkendheid** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **Giftigheid voor de voortplanting** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **STOT bij eenmalige blootstelling** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **STOT bij herhaalde blootstelling** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **Gevaar bij inademing** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.

RUBRIEK 12: Ecologische informatie

- **12.1 Toxiciteit**
- **Aquatische toxiciteit:** Geen verdere relevante informatie verkrijgbaar.
- **12.2 Persistentie en afbreekbaarheid** Geen verdere relevante informatie verkrijgbaar.
- **12.3 Bioaccumulatie** Geen verdere relevante informatie verkrijgbaar.
- **12.4 Mobiliteit in de bodem** Geen verdere relevante informatie verkrijgbaar.
- **Verdere ecologische informatie:**
- **Algemene informatie:**
Waterbezwaarlijkheid (NL) 11: Weinig schadelijk voor water levende organismen.
Gevaar voor water klasse 1 (D) (Zelfclassificatie): gevaar voor water klein
Niet onverdund of in grote hoeveelheden lozen in grondwater, in oppervlaktewater of in de riolering.
- **12.5 Resultaten van PBT- en zPzB-beoordeling**
- **PBT:** Niet bruikbaar.
- **zPzB:** Niet bruikbaar.
- **12.6 Andere schadelijke effecten** Geen verdere relevante informatie verkrijgbaar.

RUBRIEK 13: Instructies voor verwijdering

- **13.1 Afvalverwerkingsmethoden**
- **Aanbeveling:** Mag niet tesamen met huisvuil gestort worden of in de riolering terechtkomen.
- **Niet gereinigde verpakkingen:**
- **Aanbeveling:** Afvalverwijdering volgens overheidsbepalingen.

RUBRIEK 14: Informatie met betrekking tot het vervoer

- **14.1 VN-nummer**
- **ADR, IMDG, IATA** UN3287
- **14.2 Juiste ladingnaam overeenkomstig de modelreglementen van de VN**
- **ADR** 3287 GIFTIGE ANORGANISCHE VLOEISTOF, N.E.G.
- **IMDG** TOXIC LIQUID, INORGANIC, N.O.S., MARINE POLLUTANT
- **IATA** TOXIC LIQUID, INORGANIC, N.O.S.

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· **14.3 Transportgevaarenklasse(n)**

· **ADR, IATA**



· **klasse**

6.1 Giftige stoffen

· **IMDG**



· **Class**

6.1 Giftige stoffen

· **14.4 Verpakkingsgroep:**

· **ADR, IMDG, IATA**

III

· **14.5 Milieugevaren:**

· **Marine pollutant:**

Symbool (vis en boom)

· **14.6 Bijzondere voorzorgen voor de gebruiker**

Waarschuwing: Giftige stoffen

· **Stowage Category**

A

· **Stowage Code**

SW2 Clear of living quarters.

· **14.7 Vervoer in bulk overeenkomstig bijlage II bij Marpol en de IBC-code**

Niet bruikbaar.

· **Transport/verdere gegevens:**

· **ADR**

· **Beperkte hoeveelheden (LQ)**

5L

· **Uitgezonderde hoeveelheden (EQ)**

Code: E1

Grootste netto hoeveelheid per binnenverpakking: 30 ml

Grootste netto hoeveelheid per buitenverpakking: 1000 ml

· **IMDG**

· **Limited quantities (LQ)**

5L

· **Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· **VN "Model Regulation":**

UN 3287 GIFTIGE ANORGANISCHE VLOEISTOF, N.E.G.,
6.1, III

RUBRIEK 15: Regelgeving

· **15.1 Specifieke veiligheids-, gezondheids- en milieureglementen en -wetgeving voor de stof of het mengsel**

· **SZW-lijst van kankerverwekkende stoffen**

geen der bestanddelen staat op de lijst.

· **SZW-lijst van mutagene stoffen**

geen der bestanddelen staat op de lijst.

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· **NIET-limitatieve lijst van voor de voortplanting giftige stoffen - Vruchtbaarheid**

geen der bestanddelen staat op de lijst.

· **NIET-limitatieve lijst van voor de voortplanting giftige stoffen - Ontwikkeling**

geen der bestanddelen staat op de lijst.

· **NIET-limitatieve lijst van voor de voortplanting giftige stoffen - Borstvoeding**

geen der bestanddelen staat op de lijst.

· **Richtlijn 2012/18/EU**

· **Gevaarlijke stoffen die met naam genoemd worden - BIJLAGE I** geen der bestanddelen staat op de lijst.

· **Seveso-categorie H2 ACUUT TOXISCH**

· **Drempelwaarde (ton) voor toepassing van voorschriften voor lagedrempelinrichtingen 50 t**

· **Drempelwaarde (ton) voor toepassing van voorschriften voor hogedrempelinrichtingen 200 t**

· **Verordening (EG) nr. 1907/2006 BIJLAGE XVII** Beperkingsvoorwaarden: 3

· **Nationale voorschriften:**

· **Gevaarklasse v. water:** Waterbezwaarlijkheid (NL) 11: Saneringsinspanning B

· **15.2 Chemischeveiligheidsbeoordeling:** Een chemische veiligheidsbeoordeling is niet uitgevoerd.

RUBRIEK 16: Overige informatie

Deze gegevens zijn gebaseerd op de huidige stand van onze kennis. Zij beschrijven echter geen garantie van produkteigenschappen en vestigen geen contractuele rechtsbetrekking.

· **Relevante zinnen**

H300 Dodelijk bij inslikken.

H310 Dodelijk bij contact met de huid.

H314 Veroorzaakt ernstige brandwonden en oogletsel.

H330 Dodelijk bij inademing.

· **Afkortingen en acroniemen:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Acute Tox. 2: Acute toxiciteit – Categorie 2

Acute Tox. 3: Acute toxiciteit – Categorie 3

Acute Tox. 1: Acute toxiciteit – Categorie 1

Acute Tox. 4: Acute toxiciteit – Categorie 4

Skin Corr. 1B: Huidcorrosie/-irritatie – Categorie 1B

Skin Irrit. 2: Huidcorrosie/-irritatie – Categorie 2

Eye Dam. 1: Ernstig oogletsel/oogirritatie – Categorie 1

Käyttöturvallisuustiedote

1907/2006/EY, 31 artikla mukainen

Painatuspäivämäärä 01.11.2016

Tarkistus: 01.11.2016

KOHTA 1: Aineen tai seoksen ja yhtiön tai yrityksen tunnistetiedot

- **1.1 Tuotetunniste**
- **Kauppanimike:** OSMIUM TETROXIDE 4% AQUEOUS SOLUTION
- **Artikkelinumero:** 19140, 19150-SP, 19151, 19160, 19180, 19171, 19150, 19170, 19191, 19190
- **1.2 Aineen tai seoksen merkitykselliset tunnistetut käytöt ja käytöt, joita ei suositella**
Merkittäviä lisätietoja ei ole saatavilla.
- **Aineen / valmisteen käyttö** Laboratoriokemikaalit
- **1.3 Käyttöturvallisuustiedotteen toimittajan tiedot**
- **Valmistaja/toimittaja:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com
- **Tietoja antaa:** Product safety department
- **1.4 Häätöpuhelinnumero:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

KOHTA 2: Vaaran yksilöinti

- **2.1 Aineen tai seoksen luokitus**
- **Luokitus asetuksen (EY) N:o 1272/2008 mukaisesti**



GHS06 pääkallo ja ristikkäiset luut

Acute Tox. 3 H301 Myrkyllistä nieltynä.

Acute Tox. 2 H310 Tappavaa joutuessaan iholle.



GHS05 syöpyminen

Eye Dam. 1 H318 Vaurioittaa vakavasti silmiä.



GHS07

Acute Tox. 4 H332 Haitallista hengitettynä.

Skin Irrit. 2 H315 Ärsyttää ihoa.

- **2.2 Merkinnät**
- **Merkinnät asetuksen (EY) N:o 1272/2008 mukaisesti** Tuote on luokiteltu ja merkitty CLP-asetuksen mukaan.
- **Varoitusmerkit**



GHS05



GHS06

- **Huomiosana** Vaara

(jatkuu sivulla 2)

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Kauppanimike: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(jatkuu sivulla 1)

· **Vaaran määrävät komponentit etiketeissä:**

Osmiumtetraoksidi

· **Vaaralausekkeet**

H301 Myrkyllistä nieltynä.

H310 Tappavaa joutuessaan iholle.

H332 Haitallista hengitettynä.

H315 Ärsyttää ihoa.

H318 Vaurioittaa vakavasti silmiä.

· **Turvalausekkeet**

P261 Vältä pölyn/savun/kaasun/sumun/höyryn/suihkeen hengittämistä.

P301+P310 JOS KEMIKAALIA ON NIELTY: Ota välittömästi yhteys MYRKYTYSTIETOKESKUKSEEN/lääkäriin.

P305+P351+P338 JOS KEMIKAALIA JOUTUU SILMIIN: Huuhto huolellisesti vedellä usean minuutin ajan. Poista piilolinssit, jos sen voi tehdä helposti. Jatka huuhtomista.

P321 Erityishoitoa tarvitaan (katso pakkauksen merkinnöissä).

P405 Varastoi lukiussa tilassa.

P501 Säilytä säiliö(t) noudattaen paikallisia/alueellisia/kansallisia/kansainvälisiä määräyksiä.

· **2.3 Muut vaarat**

· **PBT- ja vPvB-arvioinnin tulokset**

· **PBT:** Ei voida käyttää.

· **vPvB:** Ei voida käyttää.

KOHTA 3: Koostumus ja tiedot aineosista

· **3.2 Kemialliset ominaisuudet: Seokset**

· **Selostus:** Seuraavista aineista koostuva seos, jossa vaarattomia lisäaineita.

· **Sisältää vaarallisia aineita:**

CAS: 20816-12-0	Osmiumtetraoksidi	2,5-10%
EINECS: 244-058-7	Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; Skin Corr. 1B, H314	

· **Lisätietoja:** Annettujen turvaohjeiden sanamuoto kappaleesta 16.

KOHTA 4: Ensiaputoimenpiteet

· **4.1 Ensiaputoimenpiteiden kuvaus**

· **Yleisohjeet:**

Aineen saastuttamat vaatekappaleet on riisuttava välittömästi.

Annettava tekohengitystä hengityksen ollessa epätasainen tai pysähtynyt.

· **Hengitettynä:** Tajuton pidettävä ja kuljetettava kyljellään.

· **Ihokosketuksessa:** Pestävä heti vedellä ja saippualla ja huuhdottava hyvin.

· **Aineen päästyä silmiin:**

Silmiä huuhdotaan luomet auki juoksevan veden alla useita minuutteja ja käännytään lääkärin puoleen.

· **Nieltyä:** Ei pakoteta oksentamaan, saatettava heti lääkärin hoitoon.

· **4.2 Tärkeimmät oireet ja vaikutukset, sekä välittömät että viivästyneet Merkittäviä lisätietoja ei ole saatavilla.**

· **4.3 Mahdollisesti tarvittavaa välitöntä lääketieteellistä apua ja erityishoitoa koskevat ohjeet**

Merkittäviä lisätietoja ei ole saatavilla.

FI

(jatkuu sivulla 3)

Käyttöturvallisuustiedote
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(jatkuu sivulla 2)

KOHTA 5: Palontorjuntatoimenpiteet

- **5.1 Sammutusaineet**
- **Sopivat sammutusaineet:**
CO₂, kuivakemikaalisammutin tai vesisuihku. Suuremmat palot torjutaan vesisuihulla tai alkoholeja kestäväällä vaahdolla.
- **5.2 Aineesta tai seoksesta johtuvat erityiset vaarat** Merkittäviä lisätietoja ei ole saatavilla.
- **5.3 Palontorjuntaa koskevat ohjeet**
- **Erityinen suojavarustus:** Erikoistoimenpiteitä ei tarvita.

KOHTA 6: Toimenpiteet onnettomuuspäästöissä

- **6.1 Varotoimenpiteet, henkilösuojaimet ja menettely hätätilanteessa** Ei tarvita.
- **6.2 Ympäristöön kohdistuvat varotoimet:** Estettävä pääsy viemäreihin/pintavesiin/pohjaveteen.
- **6.3 Suojarakenteita ja puhdistusta koskevat menetelmät ja -välineet:**
Imettävä nestettä sitovalla aineella (hiekkä, piimaa, hapon sidosaaine, yleisidosaine, sahajauho).
Saastunut aine on jätteenä hävitettävä kohdan 13 mukaisesti.
Huolehdittava riittävästä tuuletuksesta.
- **6.4 Viittaukset muihin kohtiin**
Turvallista käsittelyä koskevia ohjeita kappaleessa 7.
Henkilökohtaista suojavarustusta koskevia ohjeita kappaleessa 8.
Aineen hävitystä koskevia ohjeita kappaleessa 13.

KOHTA 7: Käsittely ja varastointi

- **7.1 Turvallisen käsittelyn edellyttämät toimenpiteet**
Huolehdittava hyvästä tuuletuksesta/imusta työpaikalla.
Vältettävä aerosolin muodostusta.
- **Palo- ja räjähdysuojaohjeet:** Erikoistoimenpiteitä ei tarvita.
- **7.2 Turvallisen varastoinnin edellyttämät olosuhteet, mukaan luettuina yhteensopimattomuudet**
- **Varastointi:**
- **Varastotiloille ja säiliöille asetettavat vaatimukset:** Ei erikoisvaatimuksia.
- **Yhteisvarastointiohjeet:** Ei tarvita.
- **Lisätietoja varastointiehtoihin:** Ei mitään.
- **7.3 Erityinen loppukäyttö** Merkittäviä lisätietoja ei ole saatavilla.

KOHTA 8: Altistumisen ehkäiseminen ja henkilösuojaimet

- **Lisäohjeita teknisten laitteiden varustukseen:** Ei muita tietoja, ks. kohta 7.

· 8.1 Valvontaa koskevat muuttajat

- **Aineosat työpaikkakohtaisin valvottavin raja-arvoin:**

20816-12-0 Osmiumtetraoksidi

HTP	Lyhytaikaisarvo: 0,0002 ppm iho, Os
-----	--

- **Lisäohjeet:** Tiedot perustuvat valmistushetkellä voimassaoleviin luetteloihin.

· 8.2 Altistumisen ehkäiseminen

- **Henkilökohtainen suojavarustus:**
- **Yleiset suoja- ja hygieniatoimenpiteet:**
Pidettävä loitolla elintarvikkeista, juomista ja rehuista.

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(jatkuu sivulla 3)

Likaantuneet, aineen saastuttamat vaatekappaleet on riisuttava välittömästi.

Kädet on pestävä ennen taukoja ja työn päätyttyä.

Suojavaatetus on säilytettävä erikseen.

Vältettävä ihokosketusta.

Vältettävä ihokosketusta ja kosketusta silmiin.

· **Hengityssuoja:**

Lyhytaikaisessa tai vähäisessä altistuksessa hengityssuojasuodin; intensiivisessä tai pitempiaikaisessa rasituksessa ulkoilmasta riippumaton hengityssuojain.

· **Käsisuojus:**



Suojakäsineet

Käsinemateriaalin tulee olla tuotetta/ainetta/valmistetta kestävä ja läpäisemätöntä.

Puuttuvien testien vuoksi suositusta soveltuvasta suojakäsinemateriaalista tuotteelle/ valmisteelle / kemikaalisekoitteelle ei voida antaa.

Suojakäsinemateriaalin valinnassa on otettava huomioon läpäisyajat, läpäisevyyskerroin ja kuluminen.

· **Käsinemateriaali**

Soveltuvan käsinetyypin valikoima ei riipu yksinomaan materiaalista vaan myös muista laatuominaisuuksista ja vaihtelee eri valmistajilla. Koska tuote on valmiste, joka koostuu eri aineista, ei suojakäsinemateriaalin kestävyys ole ennalta arvioitavissa vaan pitää tarkistaa ennen käyttöä.

· **Käsinemateriaalin läpäisy aika**

Tarkka läpäisy aika on selvitettävä suojakäsinevalmistajalta ja sitä on noudatettava.

· **Silmäsuojus:**



Tiiviit suojalasit

KOHTA 9: Fysikaaliset ja kemialliset ominaisuudet

· **9.1 Fysikaalisia ja kemiallisia perusominaisuuksia koskevat tiedot**

· **Yleiset ohjeet**

· **Olomuoto:**

Muoto: Neste

Väri: Vaalean keltainen

· **Haju:** Kloorimainen

· **Hajukynnys:** Ei määrätty.

· **pH-arvo 20 °C lämpötilassa:** 7

· **Tilanmuutos**

Sulamispiste/sulamislue: Ei määrätty.

Kiehumispiste/kiehumislue: 100 °C

· **Leimahduspiste:** Ei voida käyttää.

· **Syttyvyys (kiinteä, kaasumainen):** Ei voida käyttää.

· **Syttymislämpötila:**

Hajoamislämpötila: Ei määrätty.

· **Itsesyttyvyys:** Tuote ei ole itsestään syttyvä.

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· Räjähdyksvaara:	Tuote ei ole räjähdysvaarallinen.
· Räjähdyksrajat:	
Alempi:	Ei määrätty.
Ylempi:	Ei määrätty.
· Höyrypaine 20 °C lämpötilassa:	23 hPa
· Tiheys 20 °C lämpötilassa:	1,15624 g/cm ³
· Suhteellinen tiheys	Ei määrätty.
· Höyryn tiheys	Ei määrätty.
· Höyrystymisnopeus	Ei määrätty.
· Liukenevuus/sekoittuvuus veteen:	Ei sekoittuva tai vain osittain sekoittuva.
· Jakaantumiskerroin (-oktanoliväsi):	Ei määrätty.
· Viskositeetti:	
Dynaaminen:	Ei määrätty.
Kinemaattinen:	Ei määrätty.
· Liuteainepitoisuus:	
Orgaaniset liuteaineet:	0,0 %
Vesi:	96,0 %
VOC (EY)	0,00 %
· Kiinteainepitoisuus:	4,0 %
· 9.2 Muut tiedot	Merkittäviä lisätietoja ei ole saatavilla.

KOHTA 10: Stabiilisuus ja reaktiivisuus

- **10.1 Reaktiivisuus** Merkittäviä lisätietoja ei ole saatavilla.
- **10.2 Kemiallinen stabiilisuus**
- **Terminen hajoavuus / vältettävät olosuhteet:** Ei hajoantumista määräystenmukaisessa käytössä.
- **10.3 Vaarallisten reaktioiden mahdollisuus** Ei tiedossa vaarallisia reaktioita.
- **10.4 Vältettävät olosuhteet** Merkittäviä lisätietoja ei ole saatavilla.
- **10.5 Yhteensopimattomat materiaalit:** Merkittäviä lisätietoja ei ole saatavilla.
- **10.6 Vaaralliset hajoamistuotteet:** Tiedossa ei ole vaarallisia hajoamistuotteita.

KOHTA 11: Myrkyllisyyteen liittyvät tiedot

- **11.1 Tiedot myrkyllisistä vaikutuksista**
- **Välitön myrkyllisyys**
Myrkyllistä nieltynä.
Tappavaa joutuessaan iholle.
Haitallista hengitettynä.
- **Ensisijainen ärsyttävä vaikutus:**
- **Ihosyövyttävyyksihoärsytys**
Ärsyttää ihoa.
- **Vakava silmävaurio/silmä-ärsytys**
Vaurioittaa vakavasti silmiä.
- **Hengitysteiden tai ihon herkistyminen** Saatavilla olevien tietojen perusteella luokitus- kriteerit eivät täyty.

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(jatkuu sivulla 5)

- **CMR-vaikutukset eli syöpää aiheuttavat, perimää vaurioittavat ja lisääntymiselle vaaralliset vaikutukset**
- **Sukusolujen perimää vaurioittavat vaikutukset**
Saatavilla olevien tietojen perusteella luokitus- kriteerit eivät täyty.
- **Syöpää aiheuttavat vaikutukset** Saatavilla olevien tietojen perusteella luokitus- kriteerit eivät täyty.
- **Lisääntymiselle vaaralliset vaikutukset** Saatavilla olevien tietojen perusteella luokitus- kriteerit eivät täyty.
- **Elinlääntymisen myrkyllisyys – kerta-altistuminen**
Saatavilla olevien tietojen perusteella luokitus- kriteerit eivät täyty.
- **Elinlääntymisen myrkyllisyys – toistuva altistuminen**
Saatavilla olevien tietojen perusteella luokitus- kriteerit eivät täyty.
- **Aspiraatiovaara** Saatavilla olevien tietojen perusteella luokitus- kriteerit eivät täyty.

KOHTA 12: Tiedot vaarallisuudesta ympäristölle

- **12.1 Myrkyllisyys**
- **Vesimyrkyllisyys:** Merkittäviä lisätietoja ei ole saatavilla.
- **12.2 Pysyvyys ja hajoavuus** Merkittäviä lisätietoja ei ole saatavilla.
- **12.3 Biokertyvyys** Merkittäviä lisätietoja ei ole saatavilla.
- **12.4 Liikkuvuus maaperässä** Merkittäviä lisätietoja ei ole saatavilla.
- **Ekologisia lisätietoja:**
- **Yleisohjeita:**
Vesistövaarallisuusluokka 1 (Oma luokitus): lievästi vesistöä vaarantava
Estetään aineen pääsy ohentamattomana tai suurina määrinä pohjaveteen, vesistöihin, viemäristöön.
- **12.5 PBT- ja vPvB-arvioinnin tulokset**
- **PBT:** Ei voida käyttää.
- **vPvB:** Ei voida käyttää.
- **12.6 Muut haitalliset vaikutukset** Merkittäviä lisätietoja ei ole saatavilla.

KOHTA 13: Jätteiden käsittelyyn liittyvät näkökohdat

- **13.1 Jätteiden käsittelymenetelmät**
- **Suositus:** Ei voida hävittää yhdessä talousjätteiden kanssa. Ei saa päästää viemäristöön.
- **Puhdistamattomat pakkaukset:**
- **Suositus:** Hävitettävä virallisten määräysten mukaisesti.

KOHTA 14: Kuljetustiedot

- | | |
|--|---|
| · 14.1 YK-numero | |
| · ADR, IMDG, IATA | UN3287 |
| · 14.2 Kuljetuksessa käytettävä virallinen nimi | |
| · ADR | 3287 EPÄORGAANINEN MYRKYLLINEN NESTE, N.O.S. |
| · IMDG | TOXIC LIQUID, INORGANIC, N.O.S., MARINE POLLUTANT |
| · IATA | TOXIC LIQUID, INORGANIC, N.O.S. |

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· **14.3 Kuljetuksen vaaraluokka**

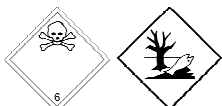
· **ADR, IATA**



· **luokka**

6.1 Myrkylliset aineet

· **IMDG**



· **Class**

6.1 Myrkylliset aineet

· **14.4 Pakkausryhmä**

· **ADR, IMDG, IATA**

III

· **14.5 Ympäristövaarat:**

· **Marine pollutant:**

Symboli (kala ja puu)

· **14.6 Erityiset varotoimet käyttäjälle**

· **Stowage Category**

· **Stowage Code**

Varoitus: Myrkylliset aineet

A

SW2 Clear of living quarters.

· **14.7 Kuljetus irtolastina Marpol-sopimuksen II liitteen ja IBC-säännösten mukaisesti**

Ei voida käyttää.

· **Kuljetus/lisätietoja:**

· **ADR**

· **Rajoitetut määrät (LQ)**

· **Poikkeusmäärät (EQ)**

5L

Koodi: E1

Enimmäisnettomäärä sisäpakkausta kohti: 30 ml

Enimmäisnettomäärä ulkopakkausta kohti: 1000 ml

· **IMDG**

· **Limited quantities (LQ)**

· **Excepted quantities (EQ)**

5L

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· **UN "Model Regulation":**

UN 3287 EPÄORGAANINEN MYRKYLLINEN NESTE,
N.O.S., 6.1, III

KOHTA 15: Lainsäädäntöä koskevat tiedot

· **15.1 Nimenomaisesti ainetta tai seosta koskevat turvallisuus-, terveys- ja ympäristösäännökset tai -lainsäädäntö**

· **Direktiivi 2012/18/EU**

· **Nimetyt vaaralliset aineet - LIITE I sisältäviä aineita ei ole lueteltu**

· **Seveso-luokka H2 VÄLITÖN MYRKYLLISYYS**

· **Soveltamisen vähimmäismäärät (tonneina) alemman tason vaatimukset 50 t**

· **Soveltamisen vähimmäismäärät (tonneina) ylemmän tason vaatimukset 200 t**

· **NEUVOSTON ASETUS (EY) N:o 1907/2006 LIITE XVII Rajoitusehdot: 3**

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· **15.2 Kemikaaliturvallisuusarviointi:** Kemikaaliturvallisuusarviointia ei ole tehty.

KOHTA 16: Muut tiedot

Annetut tiedot perustuvat tämänhetkisiin tietoihimme. Ne eivät kuitenkaan anna takuuta tuotteen ominaisuuksista eivätkä aikaansaa sopimuksellista oikeussuhdetta.

· **Asiaankuuluvat lausekkeet**

H300 Tappavaa nieltynä.

H310 Tappavaa joutuessaan iholle.

H314 Voimakkaasti ihoa syövyttävää ja silmiä vaurioittavaa.

H330 Tappavaa hengitettynä.

· **Lyhenteet ja lyhytnimet:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Acute Tox. 2: Välitön myrkyllisyys – Katgoria 2

Acute Tox. 3: Välitön myrkyllisyys – Katgoria 3

Acute Tox. 1: Välitön myrkyllisyys – Katgoria 1

Acute Tox. 4: Välitön myrkyllisyys – Katgoria 4

Skin Corr. 1B: Ihosyövyttävyys/ihoärsytys – Katgoria 1B

Skin Irrit. 2: Ihosyövyttävyys/ihoärsytys – Katgoria 2

Eye Dam. 1: Vakava silmävaurio/silmä-ärsytys – Katgoria 1

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RUBRIQUE 1: Identification de la substance/du mélange et de la société/l'entreprise

- **1.1 Identificateur de produit**
- **Nom du produit:** OSMIUM TETROXIDE 4% AQUEOUS SOLUTION
- **Code du produit:** 19140, 19150-SP, 19151, 19160, 19180, 19171, 19150, 19170, 19191, 19190
- **1.2 Utilisations identifiées pertinentes de la substance ou du mélange et utilisations déconseillées**
Pas d'autres informations importantes disponibles.
- **Emploi de la substance / de la préparation** Produits chimiques pour laboratoires
- **1.3 Renseignements concernant le fournisseur de la fiche de données de sécurité**
- **Producteur/fournisseur:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com
- **Service chargé des renseignements:** Product safety department
- **1.4 Numéro d'appel d'urgence:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

RUBRIQUE 2: Identification des dangers

- **2.1 Classification de la substance ou du mélange**
- **Classification selon le règlement (CE) n° 1272/2008**



GHS06 tête de mort sur deux tibias

Acute Tox. 3 H301 Toxique en cas d'ingestion.

Acute Tox. 2 H310 Mortel par contact cutané.



GHS05 corrosion

Eye Dam. 1 H318 Provoque des lésions oculaires graves.



GHS07

Acute Tox. 4 H332 Nocif par inhalation.

Skin Irrit. 2 H315 Provoque une irritation cutanée.

- **2.2 Éléments d'étiquetage**
- **Étiquetage selon le règlement (CE) n° 1272/2008** Le produit est classifié et étiqueté selon le règlement CLP.
- **Pictogrammes de danger**



GHS05



GHS06

- **Mention d'avertissement** Danger

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· **Composants dangereux déterminants pour l'étiquetage:**

tétraoxyde d'osmium

· **Mentions de danger**

H301 Toxique en cas d'ingestion.

H310 Mortel par contact cutané.

H332 Nocif par inhalation.

H315 Provoque une irritation cutanée.

H318 Provoque des lésions oculaires graves.

· **Conseils de prudence**

P261 Éviter de respirer les poussières/fumées/gaz/brouillards/vapeurs/aérosols.

P301+P310 EN CAS D'INGESTION: Appeler immédiatement un CENTRE ANTIPOISON/un médecin.

P305+P351+P338 EN CAS DE CONTACT AVEC LES YEUX: rincer avec précaution à l'eau pendant plusieurs minutes. Enlever les lentilles de contact si la victime en porte et si elles peuvent être facilement enlevées. Continuer à rincer.

P321 Traitement spécifique (voir sur cette étiquette).

P405 Garder sous clef.

P501 Éliminer le contenu/réceptacle conformément à la réglementation locale/régionale/nationale/internationale.

· **2.3 Autres dangers**

· **Résultats des évaluations PBT et vPvB**

· **PBT:** Non applicable.

· **vPvB:** Non applicable.

RUBRIQUE 3: Composition/informations sur les composants

· **3.2 Caractérisation chimique: Mélanges**

· **Description:** Mélange des substances mentionnées à la suite avec des additifs non dangereux.

· **Composants dangereux:**

CAS: 20816-12-0	tétraoxyde d'osmium	2,5-10%
EINECS: 244-058-7	☠ Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; ☠ Skin Corr. 1B, H314	

· **Indications complémentaires:** Pour le libellé des phrases de risque citées, se référer au chapitre 16.

RUBRIQUE 4: Premiers secours

· **4.1 Description des premiers secours**

· **Remarques générales:**

Enlever immédiatement les vêtements contaminés par le produit.

Respiration artificielle dans le cas d'une respiration irrégulière ou d'un arrêt respiratoire.

· **Après inhalation:** En cas d'inconscience, coucher et transporter la personne en position latérale stable.

· **Après contact avec la peau:** Laver immédiatement à l'eau et au savon et bien rincer.

· **Après contact avec les yeux:**

Rincer les yeux, pendant plusieurs minutes, sous l'eau courante en écartant bien les paupières et consulter un médecin.

· **Après ingestion:** Ne pas faire vomir, demander d'urgence une assistance médicale.

· **4.2 Principaux symptômes et effets, aigus et différés** Pas d'autres informations importantes disponibles.

· **4.3 Indication des éventuels soins médicaux immédiats et traitements particuliers nécessaires**

Pas d'autres informations importantes disponibles.

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RUBRIQUE 5: Mesures de lutte contre l'incendie

- **5.1 Moyens d'extinction**
- **Moyens d'extinction:**
CO₂, poudre d'extinction ou eau pulvérisée. Combattre les foyers importants avec de l'eau pulvérisée ou de la mousse résistant à l'alcool.
- **5.2 Dangers particuliers résultant de la substance ou du mélange**
Pas d'autres informations importantes disponibles.
- **5.3 Conseils aux pompiers**
- **Équipement spécial de sécurité:** Aucune mesure particulière n'est requise.

RUBRIQUE 6: Mesures à prendre en cas de dispersion accidentelle

- **6.1 Précautions individuelles, équipement de protection et procédures d'urgence** Pas nécessaire.
- **6.2 Précautions pour la protection de l'environnement:**
Ne pas rejeter dans les canalisations, dans les eaux de surface et dans les nappes d'eau souterraines.
- **6.3 Méthodes et matériel de confinement et de nettoyage:**
Recueillir les liquides à l'aide d'un produit absorbant (sable, kieselguhr, neutralisant d'acide, liant universel, sciure).
Évacuer les matériaux contaminés en tant que déchets conformément au point 13.
Assurer une aération suffisante.
- **6.4 Référence à d'autres rubriques**
Afin d'obtenir des informations pour une manipulation sûre, consulter le chapitre 7.
Afin d'obtenir des informations sur les équipements de protection personnels, consulter le chapitre 8.
Afin d'obtenir des informations sur l'élimination, consulter le chapitre 13.

RUBRIQUE 7: Manipulation et stockage

- **7.1 Précautions à prendre pour une manipulation sans danger**
Veiller à une bonne ventilation/aspiration du poste de travail.
Éviter la formation d'aérosols.
- **Préventions des incendies et des explosions:** Aucune mesure particulière n'est requise.
- **7.2 Conditions d'un stockage sûr, y compris d'éventuelles incompatibilités**
- **Stockage:**
- **Exigences concernant les lieux et conteneurs de stockage:** Aucune exigence particulière.
- **Indications concernant le stockage commun:** Pas nécessaire.
- **Autres indications sur les conditions de stockage:** Néant.
- **7.3 Utilisation(s) finale(s) particulière(s)** Pas d'autres informations importantes disponibles.

RUBRIQUE 8: Contrôles de l'exposition/protection individuelle

- **Indications complémentaires pour l'agencement des installations techniques:**
Sans autre indication, voir point 7.

- **8.1 Paramètres de contrôle**

- **Composants présentant des valeurs-seuil à surveiller par poste de travail:**

20816-12-0 tétraoxyde d'osmium

VME Valeur à long terme: 0,002 mg/m ³ , 0,0002 ppm

- **Remarques supplémentaires:**

Le présent document s'appuie sur les listes en vigueur au moment de son élaboration.

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· **8.2 Contrôles de l'exposition**

· **Equipement de protection individuel:**

· **Mesures générales de protection et d'hygiène:**

Tenir à l'écart des produits alimentaires, des boissons et de la nourriture pour animaux.

Retirer immédiatement les vêtements souillés ou humectés.

Se laver les mains avant les pauses et en fin de travail.

Conserver à part les vêtements de protection.

Eviter tout contact avec la peau.

Eviter tout contact avec les yeux et avec la peau.

· **Protection respiratoire:**

En cas d'exposition faible ou de courte durée, utiliser un filtre respiratoire; en cas d'exposition intense ou durable, utiliser un appareil de respiration indépendant de l'air ambiant.

· **Protection des mains:**



Gants de protection

Le matériau des gants doit être imperméable et résistant au produit / à la substance / à la préparation.

À cause du manque de tests, aucune recommandation pour un matériau de gants pour le produit / la préparation / le mélange de produits chimiques ne peut être donnée.

Choix du matériau des gants en fonction des temps de pénétration, du taux de perméabilité et de la dégradation.

· **Matériau des gants**

Le choix de gants appropriés dépend non seulement du matériau, mais aussi d'autres critères de qualité qui peuvent varier d'un fabricant à l'autre. Puisque le produit représente une préparation composée de plusieurs substances, la résistance des matériaux des gants ne peut pas être calculée à l'avance et doit, alors, être contrôlée avant l'utilisation.

· **Temps de pénétration du matériau des gants**

Le temps de pénétration exact est à déterminer par le fabricant des gants de protection et à respecter.

· **Protection des yeux:**



Lunettes de protection hermétiques

RUBRIQUE 9: Propriétés physiques et chimiques

· **9.1 Informations sur les propriétés physiques et chimiques essentielles**

· **Indications générales**

· **Aspect:**

Forme: Liquide

Couleur: Jaune clair

· **Odeur:** Chlorée

· **Seuil olfactif:** Non déterminé.

· **valeur du pH à 20 °C:** 7

· **Changement d'état**

Point de fusion: Non déterminé.

Point d'ébullition: 100 °C

· **Point d'éclair** Non applicable.

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· Inflammabilité (solide, gazeux):	Non applicable.
· Température d'inflammation:	
Température de décomposition:	Non déterminé.
· Auto-inflammation:	Le produit ne s'enflamme pas spontanément.
· Danger d'explosion:	Le produit n'est pas explosif.
· Limites d'explosion:	
Inférieure:	Non déterminé.
Supérieure:	Non déterminé.
· Pression de vapeur à 20 °C:	23 hPa
· Densité à 20 °C:	1,15624 g/cm ³
· Densité relative	Non déterminé.
· Densité de vapeur.	Non déterminé.
· Vitesse d'évaporation	Non déterminé.
· Solubilité dans/miscibilité avec l'eau:	Pas ou peu miscible
· Coefficient de partage (n-octanol/eau):	Non déterminé.
· Viscosité:	
Dynamique:	Non déterminé.
Cinématique:	Non déterminé.
· Teneur en solvants:	
Solvants organiques:	0,0 %
Eau:	96,0 %
VOC (CE)	0,00 %
Teneur en substances solides:	4,0 %
· 9.2 Autres informations	Pas d'autres informations importantes disponibles.

RUBRIQUE 10: Stabilité et réactivité

- **10.1 Réactivité** Pas d'autres informations importantes disponibles.
- **10.2 Stabilité chimique**
- **Décomposition thermique/conditions à éviter:** Pas de décomposition en cas d'usage conforme.
- **10.3 Possibilité de réactions dangereuses** Aucune réaction dangereuse connue.
- **10.4 Conditions à éviter** Pas d'autres informations importantes disponibles.
- **10.5 Matières incompatibles:** Pas d'autres informations importantes disponibles.
- **10.6 Produits de décomposition dangereux:** Pas de produits de décomposition dangereux connus

RUBRIQUE 11: Informations toxicologiques

- **11.1 Informations sur les effets toxicologiques**
- **Toxicité aiguë**
Toxique en cas d'ingestion.
Mortel par contact cutané.
Nocif par inhalation.

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- **Effet primaire d'irritation:**
- **Corrosion cutanée/irritation cutanée**
Provoque une irritation cutanée.
- **Lésions oculaires graves/irritation oculaire**
Provoque des lésions oculaires graves.
- **Sensibilisation respiratoire ou cutanée**
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Effets CMR (cancérogène, mutagène et toxique pour la reproduction)**
- **Mutagénicité sur les cellules germinales**
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Cancérogénicité** Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Toxicité pour la reproduction**
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Toxicité spécifique pour certains organes cibles - exposition unique**
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Toxicité spécifique pour certains organes cibles - exposition répétée**
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Danger par aspiration** Compte tenu des données disponibles, les critères de classification ne sont pas remplis.

RUBRIQUE 12: Informations écologiques

- **12.1 Toxicité**
- **Toxicité aquatique:** Pas d'autres informations importantes disponibles.
- **12.2 Persistance et dégradabilité** Pas d'autres informations importantes disponibles.
- **12.3 Potentiel de bioaccumulation** Pas d'autres informations importantes disponibles.
- **12.4 Mobilité dans le sol** Pas d'autres informations importantes disponibles.
- **Autres indications écologiques:**
- **Indications générales:**
Catégorie de pollution des eaux 1 (D) (Classification propre): peu polluant
Ne pas laisser le produit, non dilué ou en grande quantité, pénétrer la nappe phréatique, les eaux ou les canalisations.
- **12.5 Résultats des évaluations PBT et VPVB**
- **PBT:** Non applicable.
- **vPvB:** Non applicable.
- **12.6 Autres effets néfastes** Pas d'autres informations importantes disponibles.

RUBRIQUE 13: Considérations relatives à l'élimination

- **13.1 Méthodes de traitement des déchets**
- **Recommandation:** Ne doit pas être évacué avec les ordures ménagères. Ne pas laisser pénétrer dans les égouts.
- **Emballages non nettoyés:**
- **Recommandation:** Evacuation conformément aux prescriptions légales.

RUBRIQUE 14: Informations relatives au transport

- | | |
|--|--|
| · 14.1 Numéro ONU | |
| · ADR, IMDG, IATA | UN3287 |
| · 14.2 Désignation officielle de transport de l'ONU | |
| · ADR | 3287 LIQUIDE INORGANIQUE TOXIQUE, N.S.A. |

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· **IMDG** *TOXIC LIQUID, INORGANIC, N.O.S., MARINE POLLUTANT*

· **IATA** *TOXIC LIQUID, INORGANIC, N.O.S.*

· **14.3 Classe(s) de danger pour le transport**

· **ADR, IATA**



· **Classe**

6.1 Matières toxiques.

· **IMDG**



· **Class**

6.1 Matières toxiques.

· **14.4 Groupe d'emballage**

· **ADR, IMDG, IATA**

III

· **14.5 Dangers pour l'environnement:**

· **Marine Pollutant:**

Signe conventionnel (poisson et arbre)

· **14.6 Précautions particulières à prendre par l'utilisateur**

Attention: Matières toxiques.

· **Stowage Category**

A

· **Stowage Code**

SW2 Clear of living quarters.

· **14.7 Transport en vrac conformément à l'annexe II de la convention Marpol et au recueil IBC**

Non applicable.

· **Indications complémentaires de transport:**

· **ADR**

· **Quantités limitées (LQ)**

5L

· **Quantités exceptées (EQ)**

Code: E1

Quantité maximale nette par emballage intérieur: 30 ml

Quantité maximale nette par emballage extérieur: 1000 ml

· **IMDG**

· **Limited quantities (LQ)**

5L

· **Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· **"Règlement type" de l'ONU:**

UN 3287 LIQUIDE INORGANIQUE TOXIQUE, N.S.A., 6.1, III

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RUBRIQUE 15: Informations relatives à la réglementation

- **15.1 Réglementations/législation particulières à la substance ou au mélange en matière de sécurité, de santé et d'environnement**
- **Directive 2012/18/UE**
- **Substances dangereuses désignées - ANNEXE I** Aucun des composants n'est compris.
- **Catégorie SEVESO H2 TOXICITÉ AIGUË**
- **Quantité seuil (tonnes) pour l'application des exigences relatives au seuil bas** 50 t
- **Quantité seuil (tonnes) pour l'application des exigences relatives au seuil haut** 200 t
- **RÈGLEMENT (CE) N° 1907/2006 ANNEXE XVII** Conditions de limitation: 3
- **15.2 Évaluation de la sécurité chimique:** Une évaluation de la sécurité chimique n'a pas été réalisée.

RUBRIQUE 16: Autres informations

Ces indications sont fondées sur l'état actuel de nos connaissances, mais ne constituent pas une garantie quant aux propriétés du produit et ne donnent pas lieu à un rapport juridique contractuel.

· **Phrases importantes**

H300 Mortel en cas d'ingestion.

H310 Mortel par contact cutané.

H314 Provoque des brûlures de la peau et des lésions oculaires graves.

H330 Mortel par inhalation.

· **Acronymes et abréviations:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Acute Tox. 2: Toxicité aiguë – Catégorie 2

Acute Tox. 3: Toxicité aiguë – Catégorie 3

Acute Tox. 1: Toxicité aiguë – Catégorie 1

Acute Tox. 4: Toxicité aiguë – Catégorie 4

Skin Corr. 1B: Corrosion cutanée/irritation cutanée – Catégorie 1B

Skin Irrit. 2: Corrosion cutanée/irritation cutanée – Catégorie 2

Eye Dam. 1: Lésions oculaires graves/irritation oculaire – Catégorie 1

Δελτίο δεδομένων ασφαλείας σύμφωνα με το 1907/2006/ΕΚ, Άρθρο 31

Ημερομηνία εκτύπωσης: 01.11.2016

Αναθεώρηση: 01.11.2016

ΤΜΗΜΑ 1: Αναγνωριστικός κωδικός ουσίας/μείγματος και εταιρείας/επιχείρησης

- 1.1 Αναγνωριστικός κωδικός προϊόντος
- Ονομασία του προϊόντος στο εμπόριο: **OSMIUM TETROXIDE 4% AQUEOUS SOLUTION**
- Αριθμός προϊόντος: 19140, 19150-SP, 19151, 19160, 19180, 19171, 19150, 19170, 19191, 19190
- 1.2 Συναφείς προσδιοριζόμενες χρήσεις της ουσίας ή του μείγματος και αντενδεικνυόμενες χρήσεις
Δεν διατίθενται άλλες σχετικές πληροφορίες.
- Χρήση του υλικού / της σύνθεσης Χημικά εργαστηρίου
- 1.3 Στοιχεία του προμηθευτή του δελτίου δεδομένων ασφαλείας
- Παραγωγός/προμηθευτής:
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcek@aol.com
www.emsdiasum.com
- Παροχή πληροφοριών: Product safety department
- 1.4 Αριθμός τηλεφώνου επείγουσας ανάγκης:
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

ΤΜΗΜΑ 2: Προσδιορισμός επικινδυνότητας

- 2.1 Ταξινόμηση της ουσίας ή του μείγματος
- Ταξινόμηση σύμφωνα με τον κανονισμό (ΕΚ) αριθ. 1272/2008



GHS06 νεκροκεφαλή με διασταυρούμενα οστά

Acute Tox. 3 H301 Τοξικό σε περίπτωση κατάποσης.

Acute Tox. 2 H310 Θανατηφόρο σε επαφή με το δέρμα.



GHS05 διάβρωση

Eye Dam. 1 H318 Προκαλεί σοβαρή οφθαλμική βλάβη.



GHS07

Acute Tox. 4 H332 Επιβλαβές σε περίπτωση εισπνοής.

Skin Irrit. 2 H315 Προκαλεί ερεθισμό του δέρματος.

- 2.2 Στοιχεία επίσημανσης
- Επίσημανση σύμφωνα με τον κανονισμό (ΕΚ) αριθ. 1272/2008
Το προϊόν ταξινομείται και επισημαίνεται σύμφωνα με τον κανονισμό CLP.
- Εικονογράμματα κινδύνου



GHS05 GHS06

- Προειδοποιητική λέξη Κίνδυνος

(συνέχεια στη σελίδα 2)

Δελτίο δεδομένων ασφαλείας

σύμφωνα με το 1907/2006/ΕΚ, Άρθρο 31

Ημερομηνία εκτύπωσης: 01.11.2016

Αναθεώρηση: 01.11.2016

Όνομασία του προϊόντος στο εμπόριο: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(συνέχεια από τη σελίδα 1)

- **Επικίνδυνα συστατικά πρέπει να αναφέρονται στις ετικέτες:**
τετραοξειδίο του όδμιου
- **Δηλώσεις επικινδυνότητας**
H301 Τοξικό σε περίπτωση κατάποσης.
H310 Θανατηφόρο σε επαφή με το δέρμα.
H332 Επιβλαβές σε περίπτωση εισπνοής.
H315 Προκαλεί ερεθισμό του δέρματος.
H318 Προκαλεί σοβαρή οφθαλμική βλάβη.
- **Δηλώσεις προφυλάξεων**
P261 Αποφεύγετε να αναπνέετε σκόνη/αναθυμιάσεις/αέρια/σταγονίδια/ατμούς/εκνεφώματα.
P301+P310 ΣΕ ΠΕΡΙΠΤΩΣΗ ΚΑΤΑΠΟΣΗΣ: καλέστε αμέσως το ΚΕΝΤΡΟ ΔΗΛΗΤΗΡΙΑΣΕΩΝ/γιατρό.
P305+P351+P338 ΣΕ ΠΕΡΙΠΤΩΣΗ ΕΠΑΦΗΣ ΜΕ ΤΑ ΜΑΤΙΑ: Ξεπλύνετε προσεκτικά με νερό για αρκετά λεπτά.
Εάν υπάρχουν φακοί επαφής, αφαιρέστε τους, εφόσον είναι εύκολο. Συνεχίστε να ξεπλένετε.
P321 Χρειάζεται ειδική αγωγή (βλέπε στην ετικέτα).
P405 Φυλάσσεται κλειδωμένο.
P501 Απορρίψτε τα περιεχόμενα/δοχείο σύμφωνα με τους τοπικούς/εθνικούς/διεθνείς κανονισμούς.
- **2.3 Άλλοι κίνδυνοι**
- **Αποτελέσματα της αξιολόγησης ABT και αΑαB**
- **ABT:** Μη χρησιμοποιήσιμο
- **ΑΑαB:** Μη χρησιμοποιήσιμο

ΤΜΗΜΑ 3: Σύνθεση/πληροφορίες για τα συστατικά

- **3.2 Χημικός χαρακτηρισμός: Μείγματα**
- **Περιγραφή:** Μείγμα αποτελούμενο από τα ακόλουθως αναφερόμενα στοιχεία, με ακίνδυνες αναμειξίσεις.

· **Επικίνδυνες ουσίες περιεχομένου:**

CAS: 20816-12-0	τετραοξειδίο του όδμιου	2,5-10%
EINECS: 244-058-7	☠ Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; ☠ Skin Corr. 1B, H314	

· **Συμπληρωματικές υποδείξεις:**

Για την εξήγηση των αναφερόμενων υποδείξεων κινδύνου θα πρέπει να ανατρέξετε στο Κεφάλαιο 16.

ΤΜΗΜΑ 4: Μέτρα πρώτων βοηθειών

- **4.1 Περιγραφή των μέτρων πρώτων βοηθειών**
- **Γενικές οδηγίες:**
Να απομακρύνετε αμέσως τα ενδύματα που λερώθηκαν με το προϊόν.
Σε περίπτωση αρρυθμίας της αναπνοής ή αναστολής επιβάλλεται τεχνητή αναπνοή.
- **μετά από εισπνοή:** Σε περίπτωση λιποθυμίας επιβάλλεται κατάκλιση και μεταφορά σε σταθερή πλάγια θέση.
- **μετά από επαφή με το δέρμα:** Ξεπλυθείτε αμέσως με νερό και σαπούνι και πολύ καλό ζέπλυμα.
- **μετά από επαφή με τα μάτια:**
Να πλύνετε τα μάτια κάτω από τρεχούμενο νερό αρκετή ώρα και ανοιχτά τα βλέφαρα.
- **μετά από κατάποση:** Μην διεγείρετε εμετό, ζητήστε αμέσως τη βοήθεια γιατρού.
- **4.2 Σημαντικότερα συμπτώματα και επιδράσεις, άμεσες ή μεταγενέστερες**
Δεν διατίθενται άλλες σχετικές πληροφορίες.
- **4.3 Ένδειξη οποιασδήποτε απαιτούμενης άμεσης ιατρικής φροντίδας και ειδικής θεραπείας**
Δεν διατίθενται άλλες σχετικές πληροφορίες.

GR

(συνέχεια στη σελίδα 3)

Δελτίο δεδομένων ασφαλείας

σύμφωνα με το 1907/2006/ΕΚ, Άρθρο 31

Ημερομηνία εκτύπωσης: 01.11.2016

Αναθεώρηση: 01.11.2016

Όνομασία του προϊόντος στο εμπόριο: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(συνέχεια από τη σελίδα 2)

ΤΜΗΜΑ 5: Μέτρα για την καταπολέμηση της πυρκαϊγιάς

- **5.1 Πυροσβεστικά μέσα**
- **Κατάλληλα πυροσβεστικά μέσα.**
CO₂, πυροσβεστική σκόνη ή εκτίναξη νερού υψηλής πίεσης. Καταπολέμηση πυρκαϊγιάς μεγάλων διαστάσεων με εκτίναξη νερού υψηλής πίεσης ή με αφρό ανθεκτικό στο οινόπνευμα.
- **5.2 Ειδικοί κίνδυνοι που προκύπτουν από την ουσία ή το μείγμα** Δεν διατίθενται άλλες σχετικές πληροφορίες.
- **5.3 Συστάσεις για τους πυροσβέστες**
- **Ειδικός προστατευτικός εξοπλισμός:** Δεν απαιτούνται ιδιαίτερα μέτρα.

ΤΜΗΜΑ 6: Μέτρα για την αντιμετώπιση τυχαίας έκλυσης

- **6.1 Προσωπικές προφυλάξεις, προστατευτικός εξοπλισμός και διαδικασίες έκτακτης ανάγκης**
Δεν είναι απαραίτητο.
- **6.2 Περιβαλλοντικές προφυλάξεις:**
Μην το αδειάζετε στην αποχέτευση και επιφάνειες υδάτων. Δεν πρέπει να διεισδύσει στα γήινα νερά.
- **6.3 Μέθοδοι και υλικά για περιορισμό και καθαρισμό:**
Συλλέγεται με συνδετικά υλικά υγρών. (άμμο, εναποθέσεις πυρολίθου, συνδετικά οξέων, συνδετικά γενικώς, πριονόσκηνη).
Εναποθέστε μολυσμένα υλικά ως επικίνδυνα απόβλητα κατά το σημείο 13.
Να φοντίζετε για επαρκή αερισμό.
- **6.4 Παραπομπή σε άλλα τμήματα**
Πληροφορίες για τον σίγουρο χειρισμό βλέπε κεφάλαιο 7.
Πληροφορίες για τον ατομικό προστατευτικό εξοπλισμό βλέπε κεφάλαιο 8.
Πληροφορίες για την εναποθέτηση βλέπε κεφάλαιο 13.

ΤΜΗΜΑ 7: Χειρισμός και αποθήκευση

- **7.1 Προφυλάξεις για ασφαλή χειρισμό**
Φροντίστε για τον καλό εξαερισμό/απορρόφηση του αέρα στο τόπο εργασίας.
Αποφεύγετε να σχηματιστούν εκνεφώματα.
- **Οδηγίες για τον τρόπο προστασίας κατά της πυρκαϊγιάς και έκρηξης:** Δεν απαιτείται λήψη ειδικών μέτρων.
- **7.2 Συνθήκες ασφαλούς φύλαξης, συμπεριλαμβανομένων τυχόν ασυμβίβαστων καταστάσεων**
- **Εναποθήκευση:**
- **Αξιώσεις ως προς τα περιβλήματα και τις αποθήκες:** Καμία ειδική αξίωση.
- **Υποδείξεις συναποθήκευσης:** δεν απαιτείται
- **Περαιτέρω δηλώσεις για τους όρους εναποθήκευσης:** καμία
- **7.3 Ειδική τελική χρήση ή χρήσεις** Δεν διατίθενται άλλες σχετικές πληροφορίες.

ΤΜΗΜΑ 8: Έλεγχος της έκθεσης/ατομική προστασία

- **Συμπληρωματικές υποδείξεις για τη διαμόρφωση των τεχνικών εγκαταστάσεων:**
Καμία άλλη σύσταση, βλέπε κεφάλαιο 7.

- **8.1 Παράμετροι ελέγχου**

- **Συστατικά στοιχεία με οροθετικές τιμές αφορούσες τον τόπο εργασίας και που ωφείλουν να επιτηρούνται:**

20816-12-0 τετραοξειδίο του όδμιου

TWA	Μικρότερο χρονικό όριο: 0,006 mg/m ³ , 0,0006 ppm
	Μεγαλύτερο χρονικό όριο: 0,002 mg/m ³ , 0,0002 ppm

- **Συμπληρωματικές υποδείξεις:** Σαν βάση χρησιμοποιήθηκαν οι ισχύοντες κατάλογοι παρασκευάσματος.

(συνέχεια στη σελίδα 4)

Δελτίο δεδομένων ασφαλείας σύμφωνα με το 1907/2006/ΕΚ, Άρθρο 31

Ημερομηνία εκτύπωσης: 01.11.2016

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Όνομασία του προϊόντος στο εμπόριο: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(συνέχεια από τη σελίδα 3)

- 8.2 Έλεγχοι έκθεσης
- **Ατομικός εξοπλισμός προστασίας:**
- **Γενικά μέτρα προστασίας και υγιεινής:**
Μακρινά από τρόφιμα, ποτά και ζωοτροφές.
Να βγάζετε αμέσως τα λερωμένα, βρεγμένα ενδύματα.
Να πλένετε τα χέρια προ του διαλείμματος και στο τέλος της αργασίας.
Να βάζετε τη προστατευτική ενδυμασία ξεχωριστά.
Να αποφεύγετε την επαφή με το δέρμα.
Να αποφεύγετε την επαφή με τα μάτια και δέρμα.
- **Προστασία για την αναπνοή:**
Να χρησιμοποιείτε για σύντομη ή μικρή επιβάρυνση αναπνευστική συσκευή με φίλτρο, για έντονη ή παρατεταμένη έκθεση προστατευτική αναπνευστική συσκευή ανεξάρτητα του γύρω αέρα.
- **Προστασία για τα χέρια:**



Προστατευτικά γάντια.

Το υλικό των γαντιών θα πρέπει να είναι αδιαπερατό και ανθεκτικό έναντι του προϊόντος / του υλικού / του παρασκευάσματος.

Λόγω μη πραγματοποίησης δοκιμών δεν μπορεί να προταθεί κανένα υλικό γαντιών για το προϊόν / το παρασκεύασμα / το χημικό μείγμα.

Επιλέξτε το υλικό του γαντιού λαμβάνοντας υπ' όψη τους χρόνους διέλευσης, το βαθμό διαπερατότητας και την υποβάθμιση.

- **Υλικό γαντιών**

Η επιλογή του κατάλληλου γαντιού δεν εξαρτάται μόνον από το υλικό, αλλά και τα επιπλέον χαρακτηριστικά ποιότητας, τα οποία διαφέρουν ανάλογα με τον κατασκευαστή. Επειδή το προϊόν είναι στην ουσία ένα παρασκεύασμα που αποτελείται από περισσότερα συστατικά δεν μπορεί να εξακριβωθεί η ανθεκτικότητα του υλικού κατασκευής των γαντιών και θα πρέπει να ελεγχθούν πριν από τη χρήση.

- **Χρόνος διείσδυσης του υλικού γαντιών**

Ο ακριβής χρόνος διέλευσης ανακοινώνεται από τον κατασκευαστή των προστατευτικών γαντιών και θα πρέπει να τηρείται πάντοτε.

- **Προστασία για τα μάτια:**



Προστατευτικά γυαλιά απολύτως εφαρμοστά.

ΤΜΗΜΑ 9: Φυσικές και χημικές ιδιότητες

- 9.1 Στοιχεία για τις βασικές φυσικές και χημικές ιδιότητες

- Γενικές πληροφορίες

- Όψη:

Μορφή:

υγρό

Χρώμα:

ανοιχτό κίτρινο

- Οσμή:

αντίστοιχη χλωρίου

- Όριο οσμής:

Μη καθωρισμένο.

- Τιμή pH σε 20 °C:

7

- Μεταβολή της ύλης.

Σημείο τήξεως/όρια ρευστοποίησης:

Δεν είναι προσδιορισμένο

(συνέχεια στη σελίδα 5)

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Αναθεώρηση: 01.11.2016

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(συνέχεια από τη σελίδα 4)

· Σημείο ζέσεως/όρια ζέσεως:	100 °C
· Σημείο αναφλέξεως:	Μη χρησιμοποιήσιμο
· Αναφλέγεται (σε στερεή κατάσταση, σε μορφή αερίου):	Μη χρησιμοποιήσιμο
· Θερμοκρασία αναφλέξεως:	
· Θερμοκρασία αποσυνθέσεως:	Μη καθορισμένο.
· Κίνδυνος αυτοαναφλέξεως:	Το προϊόν δεν αυτοαναφλέγεται.
· Κίνδυνος εκρήξεως:	Δεν υφίσταται κίνδυνος εκρήξεως του προϊόντος.
· Όρια κινδύνου εκρήξεως: κατώτερα:	Μη καθορισμένο.
ανώτερα:	Μη καθορισμένο.
· Πίεση ατμού σε 20 °C:	23 hPa
· Πυκνότητα σε 20 °C:	1,15624 g/cm ³
· Σχετική πυκνότητα	Μη καθορισμένο.
· Πυκνότητα ατμών	Μη καθορισμένο.
· Ταχύτητα ατμοποίησης	Μη καθορισμένο.
· Διαλυτότητα σε / αναμειξιμον με νερό:	δεν αναμειγνύεται ή αναμειγνύεται λίγο
· Συντελεστής διανομής (n-Octanol/H ₂ O)	Μη καθορισμένο.
· Ιξώδης ιδιότητα: δυναμική:	Μη καθορισμένο.
κινηματική:	Μη καθορισμένο.
· Περιεκτικότητα σε διαλυτικό: οργανικές διαλυτικές ουσίες:	0,0 %
νερό:	96,0 %
VOC (ΕΚ)	0,00 %
· Ποσοστά σε στερεό σώμα:	4,0 %
· 9.2 Άλλες πληροφορίες	Δεν διατίθενται άλλες σχετικές πληροφορίες.

ΤΜΗΜΑ 10: Σταθερότητα και αντιδραστικότητα

- 10.1 Δραστηκότητα Δεν διατίθενται άλλες σχετικές πληροφορίες.
- 10.2 Χημική σταθερότητα
- Θερμική αποσύνθεση / Όροι που πρέπει να αποφεύγονται:
Δεν αποσυντίθεται αν η χρησιμοποίησή του γίνεται κανονικά.
- 10.3 Πιθανότητα επικίνδυνων αντιδράσεων Δεν είναι γνωστή καμία επικίνδυνη αντίδραση.
- 10.4 Συνθήκες προς αποφυγή Δεν διατίθενται άλλες σχετικές πληροφορίες.
- 10.5 Μη συμβατά υλικά: Δεν διατίθενται άλλες σχετικές πληροφορίες.
- 10.6 Επικίνδυνα προϊόντα αποσύνθεσης: Δεν είναι γνωστά επικίνδυνα προϊόντα αποσυνθέσεως.

ΤΜΗΜΑ 11: Τοξικολογικές πληροφορίες

- 11.1 Πληροφορίες για τις τοξικολογικές επιπτώσεις
- Οξεία τοξικότητα
Τοξικό σε περίπτωση κατάποσης.

(συνέχεια στη σελίδα 6)

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(συνέχεια από τη σελίδα 5)

- Θανατηφόρο σε επαφή με το δέρμα.
- Επιβλαβές σε περίπτωση εισπνοής.
- **Αρχική ερεθιστική ενέργεια:**
- **Διάβρωση και ερεθισμός του δέρματος**
Προκαλεί ερεθισμό του δέρματος.
- **Σοβαρή βλάβη/ερεθισμός των ματιών**
Προκαλεί σοβαρή οφθαλμική βλάβη.
- **Αναπνευστική ευαισθητοποίηση ή ευαισθητοποίηση του δέρματος**
Βάσει των διαθέσιμων δεδομένων, τα κριτήρια ταξινόμησης δεν πληρούνται.
- **Επιπτώσεις ΚΜΤ (καρκινογένεση, μεταλλαξιογένεση και τοξικότητα για την αναπαραγωγή)**
- **Μεταλλαξιγένεση γεννητικών κυττάρων**
Βάσει των διαθέσιμων δεδομένων, τα κριτήρια ταξινόμησης δεν πληρούνται.
- **Καρκινογένεση** Βάσει των διαθέσιμων δεδομένων, τα κριτήρια ταξινόμησης δεν πληρούνται.
- **Τοξικότητα για την αναπαραγωγή** Βάσει των διαθέσιμων δεδομένων, τα κριτήρια ταξινόμησης δεν πληρούνται.
- **STOT-εφάπαξ έκθεση** Βάσει των διαθέσιμων δεδομένων, τα κριτήρια ταξινόμησης δεν πληρούνται.
- **STOT-επανεπιλημμένη έκθεση** Βάσει των διαθέσιμων δεδομένων, τα κριτήρια ταξινόμησης δεν πληρούνται.
- **Τοξικότητα αναρρόφησης** Βάσει των διαθέσιμων δεδομένων, τα κριτήρια ταξινόμησης δεν πληρούνται.

ΤΜΗΜΑ 12: Οικολογικές πληροφορίες

- **12.1 Τοξικότητα**
- **Υδατική τοξικότητα:** Δεν διατίθενται άλλες σχετικές πληροφορίες.
- **12.2 Ανθεκτικότητα και ικανότητα αποδόμησης** Δεν διατίθενται άλλες σχετικές πληροφορίες.
- **12.3 Δυνατότητα βιοσυσσώρευσης** Δεν διατίθενται άλλες σχετικές πληροφορίες.
- **12.4 Κινητικότητα στο έδαφος** Δεν διατίθενται άλλες σχετικές πληροφορίες.
- **Περαιτέρω οικολογικές ενδείξεις:**
- **Γενικές οδηγίες:**
Επικίνδυνο για το υδάτινο περιβάλλον - Κλάση 1 (Δική μας εκτίμηση): ελαφρώς επικίνδυνο
Δεν επιτρέπεται να διεισδύει στα γήινα νερά, να αδειάζεται στο υδάτινο περιβάλλον ή στην αποχέτευση μη αραιωμένο ή σχετικά σε μεγάλες ποσότητες.
- **12.5 Αποτελέσματα της αξιολόγησης ABT και aAaB**
- **ABT:** Μη χρησιμοποιήσιμο
- **AAaB:** Μη χρησιμοποιήσιμο
- **12.6 Άλλες αρνητικές επιπτώσεις** Δεν διατίθενται άλλες σχετικές πληροφορίες.

ΤΜΗΜΑ 13: Στοιχεία σχετικά με τη διάθεση

- **13.1 Μέθοδοι διαχείρισης αποβλήτων**
- **Σύσταση:** Δεν επιτρέπεται να εναποτεθεί μαζί με τα κοινά απορρίμματα. Μην το αδειάζετε στην αποχέτευση.
- **Ακάθαρτες συσκευασίες:**
- **Σύσταση:** Η εναπόθεση γίνεται σύμφωνα με τις επίσημες οδηγίες.

ΤΜΗΜΑ 14: Πληροφορίες σχετικά με τη μεταφορά

- **14.1 Αριθμός OHE**
- **ADR, IMDG, IATA** UN3287
- **14.2 Οικεία ονομασία αποστολής OHE**
- **ADR** 3287 ΤΟΞΙΚΑ ΥΓΡΑ, ΑΝΟΡΓΑΝΑ, Ε.Α.Ο.

(συνέχεια στη σελίδα 7)

Δελτίο δεδομένων ασφαλείας
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Ημερομηνία εκτύπωσης: 01.11.2016

Αναθεώρηση: 01.11.2016

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(συνέχεια από τη σελίδα 6)

· **IMDG** TOXIC LIQUID, INORGANIC, N.O.S., MARINE POLLUTANT
 · **IATA** TOXIC LIQUID, INORGANIC, N.O.S.

· **14.3 Τάξη/-εις κινδύνου κατά τη μεταφορά**· **ADR, IATA**· **τάξη**

6.1 Τοξικές ουσίες

· **IMDG**· **Class**

6.1 Τοξικές ουσίες

· **14.4 Ομάδα συσκευασίας**· **ADR, IMDG, IATA**

III

· **14.5 Περιβαλλοντικοί κίνδυνοι:**· **Marine pollutant:**

Σύμβολο (ψάρια και δέντρο)

· **14.6 Ειδικές προφυλάξεις για τον χρήστη**· **Stowage Category**· **Stowage Code**

Προσοχή: Τοξικές ουσίες

A

SW2 Clear of living quarters.

· **14.7 Χύδην μεταφορά σύμφωνα με το παράρτημα II της σύμβασης MARPOL και τον κώδικα IBC**

Μη χρησιμοποιήσιμο

· **Μεταφορά/περαιτέρω δηλώσεις:**· **ADR**· **Περιορισμένες ποσότητες (LQ)**· **Εξαιρούμενες ποσότητες (EQ)**

5L

Κωδικός: E1

Μέγιστη καθαρή ποσότητα ανά εσωτερική συσκευασία: 30 ml

Μέγιστη καθαρή ποσότητα ανά εξωτερική συσκευασία: 1000 ml

· **IMDG**· **Limited quantities (LQ)**· **Excepted quantities (EQ)**

5L

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· **UN "Model Regulation":**

UN 3287 ΤΟΞΙΚΑ ΥΓΡΑ, ΑΝΟΡΓΑΝΑ, Ε.Α.Ο., 6.1, III

ΤΜΗΜΑ 15: Στοιχεία νομοθετικού χαρακτήρα

· **15.1 Κανονισμοί/νομοθεσία σχετικά με την ασφάλεια, την υγεία και το περιβάλλον για την ουσία ή το μείγμα**· **Οδηγία 2012/18 / ΕΕ**· **Κατονομαζόμενες επικίνδυνες ουσίες - ΠΑΡΑΡΤΗΜΑ I κανένα από συστατικά στοιχεία δεν περιέχεται στη λίστα**

(συνέχεια στη σελίδα 8)

Δελτίο δεδομένων ασφαλείας
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Αναθεώρηση: 01.11.2016

Όνομασία του προϊόντος στο εμπόριο: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(συνέχεια από τη σελίδα 7)

- **Κατηγορία Seveso H2 ΟΞΕΙΑΣ ΤΟΞΙΚΟΤΗΤΑΣ**
- **Οριακή ποσότητα (τόνοι) για την εφαρμογή των απαιτήσεων κατώτερης βαθμίδας 50 t**
- **Οριακή ποσότητα (τόνοι) για την εφαρμογή των απαιτήσεων ανώτερης βαθμίδας 200 t**
- **ΚΑΝΟΝΙΣΜΟΣ (ΕΚ) αριθ. 1907/2006 ΠΑΡΑΡΤΗΜΑ XVII Όροι περιορισμού: 3**
- **15.2 Αξιολόγηση χημικής ασφάλειας: Η αξιολόγηση χημικής ασφάλειας δεν πραγματοποιήθηκε.**

ΤΜΗΜΑ 16: Άλλες πληροφορίες

Αυτές οι δηλώσεις βασίζονται στο σημερινό επίπεδο των γνώσεών μας, δεν αποτελούν εγγύηση για τις ιδιότητες των προϊόντων ούτε αιτιολογούν νομικές συνέπειες.

· **Σχετικές σειρές**

H300 Θανατηφόρο σε περίπτωση κατάποσης.

H310 Θανατηφόρο σε επαφή με το δέρμα.

H314 Προκαλεί σοβαρά δερματικά εγκαύματα και οφθαλμικές βλάβες.

H330 Θανατηφόρο σε περίπτωση εισπνοής.

· **Συντμήσεις και αρκτικόλεξα:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Acute Tox. 2: Οξεία τοξικότητα μέσω του – Κατηγορία 2

Acute Tox. 3: Οξεία τοξικότητα μέσω του – Κατηγορία 3

Acute Tox. 1: Οξεία τοξικότητα μέσω του – Κατηγορία 1

Acute Tox. 4: Οξεία τοξικότητα μέσω του – Κατηγορία 4

Skin Corr. 1B: Διάβρωση/ερεθισμός του δέρματος – Κατηγορία 1B

Skin Irrit. 2: Διάβρωση/ερεθισμός του δέρματος – Κατηγορία 2

Eye Dam. 1: Σοβαρή οφθαλμική βλάβη/ερεθισμός των οφθαλμών – Κατηγορία 1

Scheda di dati di sicurezza
ai sensi del regolamento 1907/2006/CE, Articolo 31

Stampato il: 01.11.2016

Revisione: 01.11.2016

SEZIONE 1: Identificazione della sostanza o della miscela e della società/impresa

- **1.1 Identificatore del prodotto**
- **Denominazione commerciale:** OSMIUM TETROXIDE 4% AQUEOUS SOLUTION
- **Articolo numero:** 19140, 19150-SP, 19151, 19160, 19180, 19171, 19150, 19170, 19191, 19190
- **1.2 Usi identificati pertinenti della sostanza o della miscela e usi sconsigliati**
Non sono disponibili altre informazioni.
- **Utilizzazione della Sostanza / del Preparato** Prodotti chimici per laboratorio
- **1.3 Informazioni sul fornitore della scheda di dati di sicurezza**
- **Produttore/fornitore:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com

Societa Italiana Chimici
Via Rio Nell Ellba 140
00138 Rome, Italy
Tel: 39 06 8800211
Fax: 39 30 06 8815313
Web: www.sichim.com
- **Informazioni fornite da:** Product safety department
- **1.4 Numero telefonico di emergenza:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

SEZIONE 2: Identificazione dei pericoli

- **2.1 Classificazione della sostanza o della miscela**
- **Classificazione secondo il regolamento (CE) n. 1272/2008**



GHS06 teschio e tibie incrociate

Acute Tox. 3 H301 Tossico se ingerito.

Acute Tox. 2 H310 Letale per contatto con la pelle.



GHS05 corrosione

Eye Dam. 1 H318 Provoca gravi lesioni oculari.



GHS07

Acute Tox. 4 H332 Nocivo se inalato.

Skin Irrit. 2 H315 Provoca irritazione cutanea.

- **2.2 Elementi dell'etichetta**
- **Etichettatura secondo il regolamento (CE) n. 1272/2008**
Il prodotto è classificato ed etichettato conformemente al regolamento CLP.

(continua a pagina 2)

Scheda di dati di sicurezza
ai sensi del regolamento 1907/2006/CE, Articolo 31

Stampato il: 01.11.2016

Revisione: 01.11.2016

Denominazione commerciale: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(Segue da pagina 1)

· **Pittogrammi di pericolo**



GHS05 GHS06

· **Avvertenza Pericolo**

· **Componenti pericolosi che ne determinano l'etichettatura:**

tetrossido di osmio

· **Indicazioni di pericolo**

H301 Tossico se ingerito.

H310 Letale per contatto con la pelle.

H332 Nocivo se inalato.

H315 Provoca irritazione cutanea.

H318 Provoca gravi lesioni oculari.

· **Consigli di prudenza**

P261 Evitare di respirare la polvere/i fumi/i gas/la nebbia/i vapori/gli aerosol.

P301+P310 **IN CASO DI INGESTIONE:** contattare immediatamente un CENTRO ANTIVELENI/un medico.

P305+P351+P338 **IN CASO DI CONTATTO CON GLI OCCHI:** sciacquare accuratamente per parecchi minuti. Togliere le eventuali lenti a contatto se è agevole farlo. Continuare a sciacquare.

P321 Trattamento specifico (vedere su questa etichetta).

P405 Conservare sotto chiave.

P501 Smaltire il prodotto/recipiente in conformità con le disposizioni locali / regionali / nazionali / internazionali.

· **2.3 Altri pericoli**

· **Risultati della valutazione PBT e vPvB**

· **PBT:** Non applicabile.

· **vPvB:** Non applicabile.

SEZIONE 3: Composizione/informazioni sugli ingredienti

· **3.2 Caratteristiche chimiche: Miscela**

· **Descrizione:** Miscela delle seguenti sostanze con additivi non pericolosi.

· **Sostanze pericolose:**

CAS: 20816-12-0	tetrossido di osmio	2,5-10%
EINECS: 244-058-7	Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; Skin Corr. 1B, H314	

· **Ulteriori indicazioni:** Il testo dell'avvertenza dei pericoli citati può essere appreso dal capitolo 16

SEZIONE 4: Misure di primo soccorso

· **4.1 Descrizione delle misure di primo soccorso**

· **Indicazioni generali:**

Allontanare immediatamente gli abiti contaminati dal prodotto.

In caso di respirazione irregolare o di blocco respiratorio praticare la respirazione artificiale.

· **Inalazione:** Se il soggetto è svenuto provvedere a tenerlo durante il trasporto in posizione stabile su un fianco.

· **Contatto con la pelle:** Lavare immediatamente con acqua e sapone sciacquando accuratamente.

· **Contatto con gli occhi:**

Lavare con acqua corrente per diversi minuti tenendo le palpebre ben aperte e consultare il medico.

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- **Ingestione:** Non provocare il vomito, chiamare subito il medico.
- **4.2 Principali sintomi ed effetti, sia acuti che ritardati** Non sono disponibili altre informazioni.
- **4.3 Indicazione dell'eventuale necessità di consultare immediatamente un medico e di trattamenti speciali**
Non sono disponibili altre informazioni.

SEZIONE 5: Misure antincendio

- **5.1 Mezzi di estinzione**
- **Mezzi di estinzione idonei:**
CO₂, polvere o acqua nebulizzata. Estinguere gli incendi di grosse dimensioni con acqua nebulizzata o con schiuma resistente all'alcool.
- **5.2 Pericoli speciali derivanti dalla sostanza o dalla miscela** Non sono disponibili altre informazioni.
- **5.3 Raccomandazioni per gli addetti all'estinzione degli incendi**
- **Mezzi protettivi specifici:** Non sono richiesti provvedimenti particolari.

SEZIONE 6: Misure in caso di rilascio accidentale

- **6.1 Precauzioni personali, dispositivi di protezione e procedure in caso di emergenza** Non necessario.
- **6.2 Precauzioni ambientali:** Impedire infiltrazioni nella fognatura/nelle acque superficiali/nelle acque freatiche.
- **6.3 Metodi e materiali per il contenimento e per la bonifica:**
Raccogliere il liquido con materiale assorbente (sabbia, tripoli, legante di acidi, legante universale, segatura).
Smaltimento del materiale contaminato conformemente al punto 13.
Provvedere ad una sufficiente areazione.
- **6.4 Riferimento ad altre sezioni**
Per informazioni relative ad un manipolazione sicura, vedere capitolo 7.
Per informazioni relative all'equipaggiamento protettivo ad uso personale vedere Capitolo 8.
Per informazioni relative allo smaltimento vedere Capitolo 13.

SEZIONE 7: Manipolazione e immagazzinamento

- **7.1 Precauzioni per la manipolazione sicura**
Accurata ventilazione/aspirazione nei luoghi di lavoro.
Evitare la formazione di aerosol.
- **Indicazioni in caso di incendio ed esplosione:** Non sono richiesti provvedimenti particolari.
- **7.2 Condizioni per lo stoccaggio sicuro, comprese eventuali incompatibilità**
- **Stoccaggio:**
- **Requisiti dei magazzini e dei recipienti:** Non sono richiesti requisiti particolari.
- **Indicazioni sullo stoccaggio misto:** Non necessario.
- **Ulteriori indicazioni relative alle condizioni di immagazzinamento:** Nessuno.
- **7.3 Usi finali particolari** Non sono disponibili altre informazioni.

SEZIONE 8: Controllo dell'esposizione/protezione individuale

- **Ulteriori indicazioni sulla struttura di impianti tecnici:** Nessun dato ulteriore, vedere punto 7.

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· **8.1 Parametri di controllo**

· **Componenti i cui valori limite devono essere tenuti sotto controllo negli ambienti di lavoro:**

20816-12-0 tetrossido di osmio

TWA	Valore a breve termine: 0,0047 mg/m ³ , 0,0006 ppm Valore a lungo termine: 0,0016 mg/m ³ , 0,0002 ppm (come Os)
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· **Ulteriori indicazioni:** Le liste valide alla data di compilazione sono state usate come base.

· **8.2 Controlli dell'esposizione**

· **Mezzi protettivi individuali:**

· **Norme generali protettive e di igiene del lavoro:**

- Tenere lontano da cibo, bevande e foraggi.
- Togliere immediatamente gli abiti contaminati.
- Lavarsi le mani prima dell'intervallo o a lavoro terminato.
- Custodire separatamente l'equipaggiamento protettivo.
- Evitare il contatto con la pelle.
- Evitare il contatto con gli occhi e la pelle.

· **Maschera protettiva:**

Nelle esposizioni brevi e minime utilizzare la maschera; nelle esposizioni più intense e durature indossare l'autorespiratore.

· **Guanti protettivi:**



Guanti protettivi

Il materiale dei guanti deve essere impermeabile e stabile contro il prodotto/ la sostanza/ la formulazione.

A causa della mancanza di tests non può essere consigliato alcun tipo di materiale per i guanti con cui manipolare il prodotto / la formulazione / la miscela di sostanze chimiche.

Scelta del materiale dei guanti in considerazione dei tempi di passaggio, dei tassi di permeazione e della degradazione.

· **Materiale dei guanti**

La scelta dei guanti adatti non dipende soltanto dal materiale bensì anche da altre caratteristiche di qualità variabili da un produttore a un altro. Poiché il prodotto rappresenta una formulazione di più sostanze, la stabilità dei materiali dei guanti non è calcolabile in anticipo e deve essere testata prima dell'impiego

· **Tempo di permeazione del materiale dei guanti**

Richiedere dal fornitore dei guanti il tempo di passaggio preciso il quale deve essere rispettato.

· **Occhiali protettivi:**



Occhiali protettivi a tenuta

SEZIONE 9: Proprietà fisiche e chimiche

· **9.1 Informazioni sulle proprietà fisiche e chimiche fondamentali**

· **Indicazioni generali**

· **Aspetto:**

Forma:	Liquido
Colore:	Giallo chiaro
Odore:	Simile al cloro

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· Soglia olfattiva:	Non definito.
· valori di pH a 20 °C:	7
· Cambiamento di stato Temperatura di fusione/ambito di fusione:	Non definito.
Temperatura di ebollizione/ambito di ebollizione:	100 °C
· Punto di infiammabilità:	Non applicabile.
· Infiammabilità (solido, gassoso):	Non applicabile.
· Temperatura di accensione:	
Temperatura di decomposizione:	Non definito.
· Autoaccensione:	Prodotto non autoinfiammabile.
· Pericolo di esplosione:	Prodotto non esplosivo.
· Limiti di infiammabilità: Inferiore:	Non definito.
Superiore:	Non definito.
· Tensione di vapore a 20 °C:	23 hPa
· Densità a 20 °C:	1,15624 g/cm ³
· Densità relativa	Non definito.
· Densità del vapore	Non definito.
· Velocità di evaporazione	Non definito.
· Solubilità in/Miscibilità con acqua:	Poco e/o non miscibile.
· Coefficiente di distribuzione (n-Octanol/acqua):	Non definito.
· Viscosità: Dinamica:	Non definito.
Cinematica:	Non definito.
· Tenore del solvente: Solventi organici:	0,0 %
Acqua:	96,0 %
VOC (CE)	0,00 %
Contenuto solido:	4,0 %
· 9.2 Altre informazioni	Non sono disponibili altre informazioni.

SEZIONE 10: Stabilità e reattività

- 10.1 Reattività Non sono disponibili altre informazioni.
- 10.2 Stabilità chimica
- Decomposizione termica/ condizioni da evitare: Il prodotto non si decompone se utilizzato secondo le norme.
- 10.3 Possibilità di reazioni pericolose Non sono note reazioni pericolose.
- 10.4 Condizioni da evitare Non sono disponibili altre informazioni.
- 10.5 Materiali incompatibili: Non sono disponibili altre informazioni.
- 10.6 Prodotti di decomposizione pericolosi: Non sono noti prodotti di decomposizione pericolosi.

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SEZIONE 11: Informazioni tossicologiche

- **11.1 Informazioni sugli effetti tossicologici**
- **Tossicità acuta**
Tossico se ingerito.
Letale per contatto con la pelle.
Nocivo se inalato.
- **Irritabilità primaria:**
- **Corrosione/irritazione cutanea**
Provoca irritazione cutanea.
- **Lesioni oculari gravi/irritazioni oculari gravi**
Provoca gravi lesioni oculari.
- **Sensibilizzazione respiratoria o cutanea**
Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Effetti CMR (cancerogenicità, mutagenicità e tossicità per la riproduzione)**
- **Mutagenicità delle cellule germinali**
Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Cancerogenicità** Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Tossicità per la riproduzione** Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Tossicità specifica per organi bersaglio (STOT) - esposizione singola**
Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Tossicità specifica per organi bersaglio (STOT) - esposizione ripetuta**
Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Pericolo in caso di aspirazione** Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.

SEZIONE 12: Informazioni ecologiche

- **12.1 Tossicità**
- **Tossicità acquatica:** Non sono disponibili altre informazioni.
- **12.2 Persistenza e degradabilità** Non sono disponibili altre informazioni.
- **12.3 Potenziale di bioaccumulo** Non sono disponibili altre informazioni.
- **12.4 Mobilità nel suolo** Non sono disponibili altre informazioni.
- **Ulteriori indicazioni in materia ambientale:**
- **Ulteriori indicazioni:**
Pericolosità per le acque classe 1 (D) (Autoclassificazione): poco pericoloso
Non immettere nelle acque freatiche, nei corsi d'acqua o nelle fognature non diluito o in grandi quantità.
- **12.5 Risultati della valutazione PBT e vPvB**
- **PBT:** Non applicabile.
- **vPvB:** Non applicabile.
- **12.6 Altri effetti avversi** Non sono disponibili altre informazioni.

SEZIONE 13: Considerazioni sullo smaltimento

- **13.1 Metodi di trattamento dei rifiuti**
- **Consigli:** Non smaltire il prodotto insieme ai rifiuti domestici Non immettere nelle fognature.
- **Imballaggi non puliti:**
- **Consigli:** Smaltimento in conformità con le disposizioni amministrative.

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SEZIONE 14: Informazioni sul trasporto

· 14.1 Numero ONU · ADR, IMDG, IATA	UN3287
· 14.2 Nome di spedizione dell'ONU · ADR · IMDG · IATA	3287 LIQUIDO INORGANICO TOSSICO, N.A.S. TOXIC LIQUID, INORGANIC, N.O.S., MARINE POLLUTANT TOXIC LIQUID, INORGANIC, N.O.S.
· 14.3 Classi di pericolo connesso al trasporto · ADR, IATA	
	
· Classe	6.1 Materie tossiche
· IMDG	
	
· Class	6.1 Materie tossiche
· 14.4 Gruppo di imballaggio · ADR, IMDG, IATA	III
· 14.5 Pericoli per l'ambiente: · Marine pollutant:	Simbolo (pesce e albero)
· 14.6 Precauzioni speciali per gli utilizzatori · Stowage Category · Stowage Code	Attenzione: Materie tossiche A SW2 Clear of living quarters.
· 14.7 Trasporto di rinfuse secondo l'allegato II di MARPOL ed il codice IBC	Non applicabile.
· Trasporto/ulteriori indicazioni:	
· ADR · Quantità limitate (LQ) · Quantità esenti (EQ)	5L Codice: E1 Quantità massima netta per imballaggio interno: 30 ml Quantità massima netta per imballaggio esterno: 1000 ml
· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3287 LIQUIDO INORGANICO TOSSICO, N.A.S., 6.1, III

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SEZIONE 15: Informazioni sulla regolamentazione

- **15.1 Disposizioni legislative e regolamentari su salute, sicurezza e ambiente specifiche per la sostanza o la miscela**
- **Direttiva 2012/18/UE**
- **Sostanze pericolose specificate - ALLEGATO I** Nessuno dei componenti è contenuto.
- **Categoria Seveso H2 TOSSICITÀ ACUTA**
- **Quantità limite (tonnellate) ai fini dell'applicazione dei requisiti di soglia inferiore 50 t**
- **Quantità limite (tonnellate) ai fini dell'applicazione dei requisiti di soglia superiore 200 t**
- **REGOLAMENTO (CE) n. 1907/2006 ALLEGATO XVII** Restrizioni: 3
- **15.2 Valutazione della sicurezza chimica:** Una valutazione della sicurezza chimica non è stata effettuata.

SEZIONE 16: Altre informazioni

I dati sono riportati sulla base delle nostre conoscenze attuali, non rappresentano tuttavia alcuna garanzia delle caratteristiche del prodotto e non motivano alcun rapporto giuridico contrattuale.

· **Fraasi rilevanti**

H300 Letale se ingerito.

H310 Letale per contatto con la pelle.

H314 Provoca gravi ustioni cutanee e gravi lesioni oculari.

H330 Letale se inalato.

· **Abbreviazioni e acronimi:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Acute Tox. 2: Tossicità acuta – Categoria 2

Acute Tox. 3: Tossicità acuta – Categoria 3

Acute Tox. 1: Tossicità acuta – Categoria 1

Acute Tox. 4: Tossicità acuta – Categoria 4

Skin Corr. 1B: Corrosione/irritazione della pelle – Categoria 1B

Skin Irrit. 2: Corrosione/irritazione della pelle – Categoria 2

Eye Dam. 1: Gravi lesioni oculari/irritazione oculare – Categoria 1

製品安全データシート

JIS Z7253 による分類

印刷日: 2016.11.01

改訂日: 2016.11.01

1 化学物質等及び会社情報

- ・製品識別子
- ・商品名: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION
- ・製品番号: 19140, 19150-SP, 19151, 19160, 19180, 19171, 19150, 19170, 19191, 19190
- ・該当純物質または混合物の関連特定用途及び使用禁止用途 追加的な関連情報は得られていません。
- ・成分の利用/調合 実験用化学物質
- ・安全データシートの供給元の詳細情報
- ・製造者/納入者:
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com
- ・その他の情報問い合わせ先: Product safety department
- ・緊急通報用電話番号:
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2 危険有害性の要約

- ・純物質または混合物の分類



頭蓋骨と大たい骨

急性毒性(経口) 区分3

H301 飲み込むと有毒

急性毒性(経皮) 区分2

H310 皮膚に接触すると生命に危険



腐食

重篤な眼の損傷性/眼刺激性 区分1 H318 重篤な眼の損傷



急性毒性(吸入) 区分4

H332 吸入すると有害

皮膚腐食性/刺激性 区分2

H315 皮膚刺激

- ・ラベル要素

- ・GHS ラベル要素

本製品はGHS(化学品の分類および表示に関する世界調和システム)により分類及び表示されています。

- ・危険図表



GHS05 GHS06

- ・表示語 危険

- ・危険と定められた成分をラベル表示:
四酸化オスミウム

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危険文句

- 飲み込むと有毒
- 皮膚に接触すると生命に危険
- 吸入すると有害
- 皮膚刺激
- 重篤な眼の損傷

注意文句

- 粉じん/煙/ガス/ミスト/蒸気/スプレーの吸入を避けること。
- 飲み込んだ場合: ただちに毒物センター/医師に連絡すること。
- 眼に入った場合: 水で数分間注意深く洗うこと。次にコンタクトレンズを着用していて容易に外せる場合は外すこと。その後も洗浄を続けること。
- 特別な処置が必要である(このラベルのを見よ)。
- 施錠して保管すること。
- 現地/地域/国/国際規定に従い内容物・容器の露出

その他の危険性

- PBT (残留性、生物濃縮性、毒性物質) 及び vPvB (高残留性、高生物濃縮性物質) アセスメント
- PBT (残留性、生物濃縮性、毒性物質): 情報なし
- vPvB (高残留性、高生物濃縮性物質): 情報なし

3 組成・成分情報

- 化学的特性: 混合物
- 説明: 危険のない混ぜ合わせかたをした以下成分からなる混合物

危険な含有成分:

20816-12-0	四酸化オスミウム 急性毒性(経口) 区分2, H300; 急性毒性(経皮) 区分1, H310; 急性毒性(吸入) 区分2, H330; 皮膚腐食性/刺激性 区分1B, H314	2.5-10%
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4 応急措置

- 応急手当処置に関する説明
- 一般情報:
 - プロダクトの付着した衣類は速やかに脱ぐこと
 - 呼吸が不規則な場合あるいは呼吸停止の際には人工呼吸器を使用のこと
- 吸い込んだ場合: 意識不明の場合には安定させた状態で横向きに寝かせ、移送する
- 皮膚が触れた場合: 即刻石鹼と水で洗い、よくすすぐ
- 眼に入った場合: 瞼を開けたまま、流水で何分間か眼をすすぎ、医者に相談する
- 飲み込んだ場合: 吐かずに、即医者を呼ぶ
- 医師への指示事項:
 - 最も重要な急性及び慢性の症状及び影響 追加的な関連情報は得られていません。
 - 何らかの即時医療処置及び特別治療の必要性を示す兆候 追加的な関連情報は得られていません。

5 火災時の措置

- 消火剤
- 適切な消火剤:
 - CO₂, 消火粉末剤あるいは水放射。火が大きい場合には水放射もしくは耐アルコール性泡を使用
- 本化学物質または混合物から発生する特別な危険性 追加的な関連情報は得られていません。

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- ・ 消防士向けアドバイス
- ・ 特別な保護装備: 特別な措置は必要としない

6 漏出時の措置

- ・ 個人的予防措置、保護具及び応急処置法 必要ない
- ・ 環境関連予防措置: 下水処理施設、地上水あるいは地下水に達しないようにする
- ・ 封じ込め及び浄化のための方法及び材料:
液体吸収材(砂、珪藻土、酸結合剤、ユニバーサル結合剤、おがくず)で吸収する
13項に下がい汚染材は廃棄物として処理する
十分な換気を心がける
- ・ 他のセクションへの言及
安全な取り扱い方に関しては7項を参照
人の保護装備の情報に関しては8項を参照
廃棄処分に関しては13項参照

7 取扱い・保管上の注意

- ・ 取り扱い方:
- ・ 安全操作のための予防措置
作業場では十分な換気、埃を吸い取るよう心がける
エアゾールの発生を防ぐ
- ・ 火災および爆発防止に関する注意事項: 特別な措置は必要ない
- ・ 混融危険性を含めた安全貯蔵条件
- ・ 保管:
- ・ 保管スペースおよび容器に関する要求事項: 特別な要求事項なし
- ・ 同じ場所に保管する際の注意事項: 必要ない
- ・ 保管条件に関するその他の注意事項: ない
- ・ 特定の最終用途 追加的な関連情報は得られていません。

8 暴露防止及び保護措置

- ・ 技術設備の形体に関する追加注意事項: その他の申し立てなし、7項参照
- ・ 管理パラメーター
- ・ 作業場において限界値の監視を要する成分:
このプロダクトは作業場において監視する必要のある限界値を持つ成分は含まれていない
- ・ 追加注意事項: 生成時に有効なリストがもとなっている
- ・ 暴露管理
- ・ 人的保護装備:
- ・ 一般防止措置および衛生措置:
食物、飲み物、飼料からは遠ざける
汚れのしみ込んだ衣類は即刻脱ぐ
休憩の前、作業終了後には手を洗う
防護服は別に保管する
皮膚が触れないようにする
眼に入らないよう、また皮膚に接触しないよう注意する
- ・ 呼吸保護器具:
短時間もしくは負担が小さい場合には呼吸フィルター付装置を、集中的にあるいは長時間触れる場合には、酸素ポンペ付き呼吸保護装備を使用すること

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製品安全データシート

JIS Z7253 による分類

印刷日: 2016.11.01

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(3ページの続き)

手の保護:



保護手袋

手袋の材質は物質/材料/調合剤に対して耐性であり、成分を通すことがあってはならない
テストをおこなっていないため、物質/調合剤/化合物を取り扱う際の手袋の材質として勧められるもの
はない

浸透時間、透過性および劣化の点を留意しながら手袋の材質を選択する

手袋材

適当な手袋は材質だけではなく、その他の品質によっても変わり、各メーカーによって異なる。調合する際の物質は複数の成分から生成されるため、手袋材の耐久性は予想できない。このため使用前には必ずチェックしなければならない

手袋材の浸透時間 正確な浸透時間については保護手袋メーカーに問い合わせ、それを遵守すること

眼の保護:



密閉式保護めがね

9 物理的及び化学的性質

基本的な物理及び化学特性に関する情報

一般指示事項

外観

形:	液体
色:	ライトイエロー
におい:	塩素のような
嗅覚閾値	決まっていない。

pH-値 約 20 °C: 7

状態の変化

融点/融解範囲:	決まっていない
沸点/沸点範囲:	100 °C

引火点: 情報なし

発火性 (個体、気体): 情報なし

発火温度:

分解温度: 決まっていない。

自然発火性: プロダクトは自然発火しない

爆発の危険: プロダクトは爆発する危険はない

爆発限界:

下限:	決まっていない。
上限:	決まっていない。

蒸気圧 約 20 °C: 23 hPa

密度 約 20 °C:	1.15624 g/cm ³
相対的密度	決まっていない。
蒸気密度	決まっていない。

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・気化速度	決まっていない。
・以下成分における消和性/との混和性 水:	混ぜ合わせられない、ほとんど混ぜ合わせられない
・分配係数 (n-オクタノール/水):	決まっていない。
・粘性: 力学的: 運動性:	決まっていない。 決まっていない。
・溶剤含有量: 有機溶剤: 水:	0.0 % 96.0 %
・固形物含有量: 他の情報	4.0 % 追加的な関連情報は得られていません。

10 安定性及び反応性

- ・反応性 追加的な関連情報は得られていません。
- ・化学的安定性
- ・熱分解/回避すべき条件: 規定どおりの使用では分解しない
- ・危険反応の可能性 危険な反応は起きていない
- ・避けるべき条件 追加的な関連情報は得られていません。
- ・不適合物質: 追加的な関連情報は得られていません。
- ・危険な分解生成物: 危険な分解プロダクトはない

11 有害性情報

- ・毒性学的影響に関する情報
- ・急性毒性:
- ・初期刺激作用:
- ・皮膚において: 皮膚と粘膜を刺激
- ・眼において: 重大な目の損傷の危険を伴う強い刺激作用
- ・感作作用: 感作作用はない
- ・毒性に関する補足注意事項:
調合に関するEUの最新の一般分類ガイドラインの計算によれば、プロダクトでは以下の危険が見込まれる
毒性が強い
刺激的
毒性が非常に強い
経皮吸収の危険

12 環境影響情報

- ・毒性
- ・水生生物に対する毒性: 追加的な関連情報は得られていません。
- ・持続性及び分解性 追加的な関連情報は得られていません。
- ・環境システムにおける作用:
- ・生体内蓄積能 追加的な関連情報は得られていません。
- ・土壌内移動性 追加的な関連情報は得られていません。

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- ・その他のエコロジーに関する注意事項:
- ・一般注意事項:
 - 水への危険度分類1(ドイツの規定)(自己査定): 水に対する危険性はわずかにある
 - 薄めずに、あるいは大量に地下水、河川もしくは下水施設に流してはならない
- ・PBT(残留性、生物濃縮性、毒性物質)及びvPvB(高残留性、高生物濃縮性物質)アセスメント
- ・PBT(残留性、生物濃縮性、毒性物質): 情報なし
- ・vPvB(高残留性、高生物濃縮性物質): 情報なし
- ・他の副作用 追加的な関連情報は得られていません。

13 廃棄上の注意

- ・廃棄物処理方法
- ・勧告: 家庭ごみとはいっしょに処分できない。下水処理施設に流してはならない
- ・洗浄されていないパッケージ:
- ・勧告: 関係当局の規則に従って処分する

14 輸送上の注意

・ UN 番号	
・ ADR, IMDG, IATA	UN3287
・ 国連出荷正式名	
・ ADR	3287 TOXIC LIQUID, INORGANIC, N.O.S.
・ IMDG	TOXIC LIQUID, INORGANIC, N.O.S., MARINE POLLUTANT
・ IATA	TOXIC LIQUID, INORGANIC, N.O.S.
・ 輸送の危険性クラス	
・ ADR, IATA	
・ 分類	6.1 毒性成分
・ IMDG	
・ Class	6.1 毒性成分
・ パッケージの分類	
・ ADR, IMDG, IATA	III
・ 環境危険:	
・ 海の汚染物質:	シンボル(魚やツリー)
・ ユーザー用特別予防措置	警告: 毒性成分
・ Stowage Category	A
・ Stowage Code	SW2 Clear of living quarters.

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・マルポール条約 (MARPOL73/78) 付属書II及び IBCコードに準じたバルク輸送	情報なし
・輸送/その他の説明:	
・ADR ・Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
・IMDG ・Limited quantities (LQ) ・Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
・UN "模範規制:	UN 3287 TOXIC LIQUID, INORGANIC, N.O.S., 6.1, III

15 適用法令

- ・該当純物質または混合物に対する安全、衛生及び環境規制・法律
- ・化審法

・既存化学物質

20816-12-0 | 四酸化オスミウム

・特定化学物質

内容成分はリストアップされていない

・監視化学物質、旧第二種監視化学物質、旧第三種監視化学物質

内容成分はリストアップされていない

・優先評価化学物質

内容成分はリストアップされていない

・白物質

内容成分はリストアップされていない

・既存化学物質安全性点検結果 (分解性・蓄積性)

内容成分はリストアップされていない

・既存化学物質安全性点検結果 (毒性)

内容成分はリストアップされていない

・PRTR Class 1 designated substances

PRTR 制度 - 第一種指定化学物質

内容成分はリストアップされていない

・PRTR Class 2 designated substances

PRTR 制度 - 第二種指定化学物質

内容成分はリストアップされていない

・Poisonous and Deleterious Substances Control Act - Deleterious Substances

毒物及び劇物取締法 - 劇物

内容成分はリストアップされていない

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・ **Poisonous and Deleterious Substances Control Act - Poisonous Substances**
毒物及び劇物取締法 - 毒物

内容成分はリストアップされていない

・ **Poisonous and Deleterious Substances Control Act - Specified Poisonous Substances**
毒物及び劇物取締法 - 特定毒物

内容成分はリストアップされていない

・ **GHS ラベル要素**

本製品はGHS(化学品の分類および表示に関する世界調和システム)により分類及び表示されています。

・ **危険図表**



GHS05 GHS06

・ **表示語** 危険

・ **危険と定められた成分をラベル表示:**

四酸化オスミウム

・ **危険文句**

飲み込むと有毒

皮膚に接触すると生命に危険

吸入すると有害

皮膚刺激

重篤な眼の損傷

・ **注意文句**

粉じん/煙/ガス/ミスト/蒸気/スプレーの吸入を避けること。

飲み込んだ場合: ただちに毒物センター/医師に連絡すること。

眼に入った場合: 水で数分間注意深く洗うこと。次にコンタクトレンズを着用していて容易に外せる場合は外すこと。その後も洗浄を続けること。

特別な処置が必要である(このラベルのを見よ)。

施錠して保管すること。

現地/地域/国/国際規定に従い内容物・容器の露出

・ **化学物質の安全性評価:** 化学物質安全性評価が遂行されていない

16 その他の情報

この情報は現在の我々の認識に基づいている。ただし、プロダクトの特性を保証するものではなく、また契約において法的根拠にはならない

・ **縮約と二文字語:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

PRTR/化管法: 化学物質排出把握管理促進法

急性毒性(経口) 区分2: Acute toxicity – Category 2

急性毒性(経口) 区分3: Acute toxicity – Category 3

急性毒性(経皮) 区分1: Acute toxicity – Category 1

急性毒性(吸入) 区分4: Acute toxicity – Category 4

皮膚腐食性/刺激性 区分1B: Skin corrosion/irritation – Category 1B

皮膚腐食性/刺激性 区分2: Skin corrosion/irritation – Category 2

重篤な眼の損傷性/眼刺激性 区分1: Serious eye damage/eye irritation – Category 1

물질안전보건자료 GHS에 따라

기압점: 2016.11.01

개정: 2016.11.01

1 화학제품과 회사에 관한 정보

- 제품 식별자
- 제품명: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION
- 상품번호: 19140, 19150-SP, 19151, 19160, 19180, 19171, 19150, 19170, 19191, 19190
- 해당 순물질이나 혼합물의 관련 하위용도 및 사용금지용도 추가적인 정보가 존재하지 않습니다.
- 제품의 권고 용도와 사용상의 제한: 실험실화 학품
- 안전데이터표(Safety Data Sheet)내 공급업체 관련 상세 정보
- 제조자/수입자/유통업자 정보:
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com
- Samchang Commercial Co., Ltd.
Yeo Eui Do
PO Box 1110
Seoul, Korea
Tel: 82 2 703 3040
Fax: 82 2 717 3298
- 추가적인 정보 획득 가능: Product safety department
- 비상연락 전화번호:
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2 유해성·위험성

- 순물질 또는 혼합물의 분류



두개골과 대퇴골

급성 독성 - 경구 - 구분 3

H301 삼키면 유독함

급성 독성 - 경피 - 구분 2

H310 피부와 접촉하면 치명적임



부식

심한 눈 손상성/눈 자극성 - 구분 1 H318 눈에 심한 손상을 일으킴



급성 독성 - 흡입 - 구분 4

H332 흡입하면 유해함

피부 부식성/피부 자극성 - 구분 2

H315 피부에 자극을 일으킴

- 라벨표기 요소

- GHS 라벨 요소

본 제품은 화학물질의 분류 및 표기에 관한 국제조화시스템(GHS)에 따라 분류 및 표기되었습니다.

(2 쪽에 계속)

물질안전보건자료

GHS에 따라

기압점: 2016.11.01

개정: 2016.11.01

제품명: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(1 쪽부터계속)

· **그림문자**



GHS05 GHS06

· **신호어 위험**

· **상표상에명확히위험성이표시된성분:**

Osmium Tetroxide

· **유해.위험 문구**

- 삼키면 유독함
- 피부와 접촉하면 치명적임
- 흡입하면 유해함
- 피부에 자극을 일으킴
- 눈에 심한 손상을 일으킴

· **예방조치 문구**

- (분진·흙·가스·미스트·증기·스프레이)의 흡입을 피하십시오.
- 삼켰을 시: 즉시 독성물질센터/병원 연락 필요.
- 눈에 물으면 몇 분간 물로 조심해서 씻으시오. 가능하면콘택트렌즈를 제거하십시오. 계속 씻으시오.
- (라벨 참조) 처치를 하시오.
- 잠금장치가 있는 저장장소에 저장 하시오.
- 현지/지역/국가/국제 규정에 따라서 내용물/용기 노출

· **기타 유해성**

- PBT(잔류성, 생물농축성, 독성 물질) 및 vPvB(고 잔류성, 고 생물농축성 물질) 평가 결과
- PBT(잔류성, 생물농축성, 독성 물질): 해당사항 없음.
- vPvB(고 잔류성, 고 생물농축성 물질): 해당사항 없음.

3 구성성분의 명칭 및 함유량

- **화학적 특성:** 혼합물
- **설명:** 무해한 첨가물이 함유된 아래에 열거된 물질로 만들어진 혼합물.

· **위험 요소:**

20816-12-0	Osmium Tetroxide ☠ 급성 독성 - 경구 - 구분 2, H300; ☠ 급성 독성 - 경피 - 구분 1, H310; ☠ 급성 독성 - 흡입 - 구분 2, H330; ☠ 피부 부식성/피부 자극성 - 구분 1, H314	2.5-10%
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4 응급조치 요령

· **응급조치요령 내용**

· **일반적 정보:**

- 이제품에 의해 오염된 의상은 즉시 제거한다.
- 불규칙적인 호흡이나 호흡정지상태에서는 인공 호흡을 실시한다.
- **흡입했을 때:** 환자가 의식을 잃었을 경우에는 안전한 자세에서 환자를 운반한다.
- **피부에 접촉했을 때:** 즉시물과비누로씻고잘행군다.
- **눈에 들어갔을 때:** 흐르는 물에 눈을 몇분동안 씻어내고나서, 의사와 상담한다
- **먹었을 때:** 구토를 유발시키지 않는다. 즉시 의료진의 도움을 구한다.
- **기타 의사의 주의사항:**
- **가장 중요한 급·만성 증상 및 영향** 추가적인 정보가 존재하지 않습니다.

(3 쪽에계속)

물질안전보건자료

GHS에 따라

기압점: 2016.11.01

개정: 2016.11.01

제품명: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

· **즉각적인 의료처치 및 특별치료가 필요함을 시사하는 징후** 추가적인 정보가 존재하지 않습니다. (2 쪽부터계속)

5 폭발·화재시 대처방법

- **소화제**
- **적절한 소화제:**
이산화탄소, 진화용 석회 가루 또는 물 방사를 사용하고, 더 큰 화재는 물을 분사하거나 알코올이 함유된 거품으로 끈다.
- **본 화학물질이나 혼합물에서 발생하는 특별 유해성** 추가적인 정보가 존재하지 않습니다.
- **소방관에 대한 권고사항**
- **화재 진압 시 착용할 보호구 및 예방조치:** 특별한 조치가 필요없음.

6 누출 사고 시 대처방법

- **개인적 예방조치, 보호장비 및 응급처치 절차** 필요없음.
- **환경 관련 예방조치:** 하수도망/해수면위의물/지하수로도달하지않게한다.
- **밀폐 및 정화 방법과 소재:**
액체가 혼합된 물질 (모래, 규조토, 산성 결합 물, 일반 결합 물, 톱밥)에 흡입되도록 한다.
항목 13에 따라 오염된 물질을 쓰레기로 처분한다.
충분한 환기가 되도록 한다.
- **타 섹션 참조**
안전관리에 대한 정보는 제7 장 을 참고하시오.
개인 보호 장비에 대한 정보는 제8 장 을 참고하시오.
쓰레기 처리에 대한 정보는 제13 장 을 참고하시오.

7 취급 및 저장방법

- **취급:**
- **안전 취급을 위한 예방조치**
작업장에서는 통풍이 잘 되고/습기 제거가 잘 되게 주의한다.
연무질이 형성되는 것을 피한다.
- **화재 및 폭발 사고 예방대책에 관한 정보:** 특별한 조치가 필요없음.
- **혼합위험성 등 안전 저장 조건**
- **보관:**
- **안전한 저장 방법:** 특별한 요구사항이 없음.
- **하나의 공동 보관 시설에 대한 보관 관련 정보:** 필요없음
- **보관 조건에 관한 추가적인 정보:** 없음
- **구체적 최종 사용자** 추가적인 정보가 존재하지 않습니다.

8 노출방지 및 개인보호구

- **첨단시설 디자인에 대한 추가정보:** 더 이상 의 자료는 없음. 항 목 7 을 참고하시오.
- **통제 변수**

· **화학물질의 노출기준, 생물학적 노출기준 등:**

20816-12-0 Osmium Tetroxide

TLV (KR)	단기간의값: 0.0006 mg/m ³ , 0.0006 ppm
	장기간의값: 0.002 mg/m ³ , 0.0002 ppm

(4 쪽에계속)

물질안전보건자료

GHS에 따라

기압점: 2016.11.01

개정: 2016.11.01

제품명: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(3 쪽부터계속)

PEL (US)	장기간의값: 0.002* mg/m ³ *as Os
REL (US)	단기간의값: 0.006 mg/m ³ , 0.0006 ppm 장기간의값: 0.002 mg/m ³ , 0.0002 ppm
TLV (US)	단기간의값: 0.0047 mg/m ³ , 0.0006 ppm 장기간의값: 0.0016 mg/m ³ , 0.0002 ppm

· **추가정보:** 제조할 당시에 유효한 목록을 기초로 사용했다.

· **노출 통제**

· **개인 보호구**

· **일반적보호조치및위생조치:**

· 식료품, 음료수와 사료로부터 멀리 떨어져 두어 놓는다.

· 더러워지거나 음료수가 묻은 옷은 즉시 탈의한다.

· 휴식전이나 작업이 끝날때마다 손을 씻는다.

· 방호복은 따로 보관한다.

· 피부와의 접촉을 피한다.

· 눈과 피부와의 접촉은 피한다.

· **호흡기 보호:**

· 단시간 또는 경미한 오염의 경우에는 호흡여과기를 사용한다. 심각한 또는 장기간 노출시에는 호흡보호장비를 사용한다.

· **손 보호:**



보호용 장갑

장갑재질은제품 / 원료 / 조제를투과시키지않아야하고, 내구성이있어야한다.

테스트를 하지 않았기 때문에 제품 / 조제 / 화학 혼합물에 적합한 장갑재질에 대한 추천이 없다.

투과 시간, 침투율과 저하를 고려해서 장갑 재료를 선택한다.

· **장갑의재료**

· 적합한장갑의선택은재질차이뿐만아니라품질기준의차이도고려하여이루어져야하고제조업종에따라서도다르게선정되어야한다. 제품은다양한재료로부터의조제로이루어지는것이기때문에, 장갑재질의안정성은사전예측되어질수있는것이아니고, 반드시사용전에 (그안전성이) 체크되어야한다.

· **장갑재료의투과시간** 정확한관통시간은보호장갑제조자에의하여인지되고, 준수되어야한다.

· **눈 보호:**



확조이는보안경

9 물리화학적 특성

· **기본 물리 및 화학적 특성에 대한 정보**

· **일반정보**

· **외형**

· 물리적 상태:	액체
· 색:	연한 노랑
· 냄새:	염소성질의
· 후각역치	알맞지않다.

· pH 의경우 20 °C: 7

(5 쪽에계속)

물질안전보건자료

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(4 쪽부터계속)

· 상태변화 녹는점/어는점: 초기 끓는점과 끓는점 범위:	맞지않는 100 °C
· 인화점:	해당사항 없음.
· 인화성(고체, 기체):	해당사항 없음.
· 점화온도:	
· 분해 온도:	알맞지않다.
· 자기점화:	이제품은자연발화성이없다.
· 폭발위험:	이제품은폭발위험성이없다
· 인화 또는 폭발 범위의 상한/하한 아래로: 위로:	알맞지않다. 알맞지않다.
· 증기압 의경우 20 °C:	23 hPa
· 밀도 의경우 20 °C:	1.15624 g/cm ³
· 비중:	알맞지않다.
· 증기밀도:	알맞지않다.
· 증발 속도:	알맞지않다.
· 용해도: 물:	각각의경우에따라서는거의혼합할수없는
· n 옥탄올/물 분배계수:	알맞지않다.
· 점도: 역학성: 동점성:	알맞지않다. 알맞지않다.
· 용매내용물 유기용매: 물: VOC (EU)	0.0 % 96.0 % 0.00 %
· 고체의 함량: · 기타 정보	4.0 % 추가적인 정보가 존재하지 않습니다.

10 안정성 및 반응성

- 반응성 추가적인 정보가 존재하지 않습니다.
- 화학적 안정성
- 화학적 안정성 및 유해 반응의 가능성 / 피해야 할 조건: 규정에따라사용할경우해체는없다
- 유해반응 가능성 위험한반응으로는알려지지않았다.
- 피해야 할 조건 추가적인 정보가 존재하지 않습니다.
- 혼합 금지 물질: 추가적인 정보가 존재하지 않습니다.
- 유해분해물질: 위험성있는분해물들은알려지지않았다.

KR

(6 쪽에계속)

물질안전보건자료

GHS에 따라

기압점: 2016.11.01

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(5 쪽부터계속)

11 독성에 관한 정보

· 독성학적 영향에 대한 정보

- 급성 독성:
- 일차적 자극 효과:
- 피부 부식성 또는 자극성: 피부와 점막을 자극한다.
- 심한 눈 손상 또는 자극성: 심각한 안구상처의 위험이 있는 강한 자극
- 감각화: 민감한 영향이 없는 것으로 알려져 있다.
- 추가적인 독성에 관한 정보:
 이 제품은 유럽 공동체의 공동 분류 원칙의 합법적인 절차에 근거하여 최근에 발효된 원고에서 아래 위험들의 사전 준비에 대하여 제시하고 있다.
 독성의
 자극적인
 맹독성의
 피부유입시위험

12 환경에 미치는 영향

- 독성
- 수생독성: 추가적인 정보가 존재하지 않습니다.
- 지속성 및 분해성: 추가적인 정보가 존재하지 않습니다.
- 환경 시스템에서의 행동:
- 생물농축 잠재성: 추가적인 정보가 존재하지 않습니다.
- 토양내 이동성: 추가적인 정보가 존재하지 않습니다.
- 추가적인 생태학 정보:
- 일반 특징:
 수질오염등급 1 (자체등급분류): 약하게 수질오염이 된
 희석시키지 않은 채 대량으로 지하수나, 하천으로 그리고 하수도망에도 도달하지 않게 한다.
- PBT(잔류성, 생물농축성, 독성 물질) 및 vPvB(고 잔류성, 고 생물농축성 물질) 평가 결과
- PBT(잔류성, 생물농축성, 독성 물질): 해당사항 없음.
- vPvB(고 잔류성, 고 생물농축성 물질): 해당사항 없음.
- 기타 부작용: 추가적인 정보가 존재하지 않습니다.

13 폐기시 주의사항

- 폐기물 처리 방법
- 권고: 생활쓰레기와 함께 처리되어서는 안 된다. 하수도망으로 유입되어서는 안 된다.
- 비위생적 포장:
- 권고: 당국의 지침에 입각한 쓰레기 처리.

14 운송에 필요한 정보

- | | |
|--|--|
| <ul style="list-style-type: none"> · 유엔 번호 · ADR, IMDG, IATA | UN3287 |
| <ul style="list-style-type: none"> · UN 적정 선적명 · ADR · IMDG | 3287 TOXIC LIQUID, INORGANIC, N.O.S.
TOXIC LIQUID, INORGANIC, N.O.S., MARINE
POLLUTANT |

(7 쪽에계속)

물질안전보건자료



GHS에 따라

기압점: 2016.11.01

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· IATA · 교통 위험 클래스 · ADR, IATA  · 등급 · IMDG  · Class · 용기등급 · ADR, IMDG, IATA · 환경적 유해물질: · 해양오염물질: · 이용자 특별 예방조치 · Stowage Category · Stowage Code · MARPOL73/78(선박으로부터의 해양오염방지협약) 부속서2 및 IBC Code(국제선적화물코드)에 따른 벌크(bulk) 운송 · 운 송/추가 정보: · ADR · 한정 수량 (LQ) · Excepted quantities (EQ) · IMDG · Limited quantities (LQ) · Excepted quantities (EQ) · UN "모범 규제":	TOXIC LIQUID, INORGANIC, N.O.S. 6.1 독성물질 6.1 독성물질 III 심벌 (물고기와 나무) 경고: 독성물질 A SW2 Clear of living quarters. 해당사항 없음. 5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml 5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml UN 3287 TOXIC LIQUID, INORGANIC, N.O.S., 6.1, III
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15 법적 규제현황

· 해당 순물질 또는 혼합물에 대한 안전, 보건 및 환경 규제/법률

· Korean Existing Chemical Inventory		
20816-12-0	Osmium Tetroxide	KE-27435
7732-18-5	water, distilled, conductivity or of similar purity	KE-35400

(8 쪽에계속)

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(7 쪽부터계속)

· **화학물질관리법**

· **사고대비물질**

어떠한내용물도목록화되어있지않다

· **금지물질**

어떠한내용물도목록화되어있지않다

· **제한물질**

어떠한내용물도목록화되어있지않다

· **유독물질**

20816-12-0 Osmium Tetroxide

· **허가물질**

어떠한내용물도목록화되어있지않다

· **GHS 라벨 요소**

본 제품은 화학물질의 분류 및 표기에 관한 국제조화시스템(GHS)에 따라 분류 및 표기되었습니다.

· **그림문자**



GHS05 GHS06

· **신호어 위험**

· **상표상에명확히위험성이표시된성분:**

Osmium Tetroxide

· **유해.위험 문구**

- 삼키면 유독함
- 피부와 접촉하면 치명적임
- 흡입하면 유해함
- 피부에 자극을 일으킴
- 눈에 심한 손상을 일으킴

· **예방조치 문구**

- (분진·흙·가스·미스트·증기·스프레이)의 흡입을 피하십시오.
- 삼켰을 시: 즉시 독성물질센터/병원 연락 필요.
- 눈에 묻으면 몇 분간 물로 조심해서 씻으시오. 가능하면콘택트렌즈를 제거하십시오. 계속 씻으시오.
- (라벨 참조) 처치를 하시오.
- 잠금장치가 있는 저장장소에 저장 하시오.
- 현지/지역/국가/국제 규정에 따라서 내용물/용기 노출

· **화학물질 안전성 평가:** 화학물질 안전성 평가가 수행되지 않음

16 그 밖의 참고사항

이보고는 우리지식에대한오늘날의상태에대하여평가하고있다, 하지만이보고서는생산특성에관한보증은 기술하지않았으며계약적인법률관계에기반을두고있지도않다

· **최초 작성일자:** 2016.11.01

· **개정 횟수 및 최종 개정일자:** 1 / 2016.11.01

· **약어와 두문자어:**

- ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
- IMDG: International Maritime Code for Dangerous Goods
- IATA: International Air Transport Association
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances

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GHS에 따라

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CAS: Chemical Abstracts Service (division of the American Chemical Society)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative

(8 쪽부터계속)

KR

Risalah Data Keselamatan Bahan

Menurut 91/155 EC

Tarikh cetak 01.11.2016

Disemak semula pada 01.11.2016

1 Pengenalpastian bahan/sediaan dan syarikat

- **Pengenal pasti produk**
- **Nama dagang:** OSMIUM TETROXIDE 4% AQUEOUS SOLUTION
- **Nombor artikel:** 19140, 19150-SP, 19151, 19160, 19180, 19171, 19150, 19170, 19191, 19190
- **Kegunaan berkaitan yang dikenal pasti bagi bahan atau campuran dan penggunaan**
Tiada maklumat lanjut yang diperolehi.
- **Penggunaan bahan/sediaan** Bahan kimia makmal
- **Perincian pembekal risalah data keselamatan**
- **Pengilang/Pembekal:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkceck@aol.com
www.emsdiasum.com
- **Maklumat lanjut dapat diperolehi daripada:** Product safety department
- **Nombor telefon kecemasan:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2 Pengenalpastian bahaya

- **Pengelasan bahan atau campuran**



Tengkorak dan tulang bersilang

Toks. Akut 3 H301 Toksik jika tertelan.

Toks. Akut 2 H310 Maut jika terkena kulit.



Kakisan

Kros. Mata 1 H318 Menyebabkan kerosakan mata yang serius.



Toks. Akut 4 H332 Memudaratkan jika tersedut.

Kreng. Kulit 2 H315 Menyebabkan kerengsaan kulit.

- **Melabelkan unsur**
- **Unsur label GHS** Produk ini dikelaskan dan dilabelkan menurut Sistem Terharmoni Global (GHS).
- **Piktogram hazard**



GHS05



GHS06

- **Perkataan isyarat Bahaya**
- **Komponen pelabelan yang menentukan bahaya:**
Osmium Tetroxide

(Bersambung ke halaman 2)

Risalah Data Keselamatan Bahan

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Nama dagang: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION



(Sambungan halaman 1)

- **Pernyataan hazard**
Toksik jika tertelan.
Maut jika terkena kulit.
Memudaratkan jika tersedut.
Menyebabkan kerengsaan kulit.
Menyebabkan kerosakan mata yang serius.
- **Pernyataan langkah perlindungan**
Elakkan daripada tersedut habuk/wasap/gas/kabus/wap/semburan.
JIKA TERTELAN: Segera hubungi PUSAT RACUN/doktor.
JIKA TERKENA MATA: Bilas berhati-hati dengan air selama beberapa minit. Tanggalkan kanta lekap, jika ada dan dapat dilakukan dengan mudah. Teruskan membilas.
Rawatan khas (lihat label ini).
Simpan di tempat berkunci.
Lupuskan kandungan/bekas menurut peraturan tempatan/wilayah/kebangsaan/antarabangsa.
- **Bahaya lain**
- **Keputusan penilaian PBT dan vPvB**
- **PBT:** Tidak berkekaan
- **vPvB:** Tidak berkekaan

3 Komposisi/maklumat ramuan

- **Ciri kimia:** Campuran
- **Keterangan:** Campuran bahan disenaraikan di bawah bersama dengan bahan tambah tidak berbahaya.

· **Komponen berbahaya :**

20816-12-0	Osmium Tetroxide  Toks. Akut 2, H300; Toks. Akut 1, H310; Toks. Akut 2, H330;  Kks. Kulit 1B, H314	2,5-10%
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4 Langkah pertolongan cemas

- **Keterangan langkah pertolongan cemas**
- **Maklumat am:**
Segera tanggalkan mana-mana pakaian yang terkena produk.
Berikan pernafasan bantuan jika pernafasan tidak tetap atau terhenti.
- **Jika tersedut:**
Jika mangsa tidak sedarkan diri, letakkan pesakit dengan stabil dalam kedudukan mengiring untuk diangkat.
- **Jika terkena kulit:** Segera basuh dengan air dan sabun serta bilas bersih-bersih.
- **Jika terkena mata:**
Bilas mata sambil membukanya di bawah air yang mengalir selama beberapa minit. Kemudian hubungi doktor.
- **Jika tertelan:** Jangan paksa mangsa muntah, segera dapatkan bantuan perubatan.
- **Maklumat untuk doktor:**
- **Gejala dan kesan paling penting, akut dan lewat** Tiadak maklumat lanjut yang diperoleh.
- **Arahan bagi apa-apa rawatan perubatan dan rawatan khas yang diperlukan**
Tiadak maklumat lanjut yang diperoleh.

5 Langkah memadam kebakaran

- **Bahan pemadam api**
- **Agen pemadam yang sesuai:**
CO₂, serbuk atau semburan air. Padam kebakaran besar dengan semburan air atau busa rintangan alkohol.
- **Bahaya khusus yang timbul daripada bahan atau campuran** Tiadak maklumat lanjut yang diperoleh.

(Bersambung ke halaman 3)

Risalah Data Keselamatan Bahan

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Nama dagang: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(Sambungan halaman 2)

- **Panduan kepada pemadam kebakaran**
- **Kelengkapan perlindungan:** Tiada langkah khusus diperlukan.

6 Langkah menangani pelepasan yang tidak disengajakan

- **Langkah perlindungan diri, kelengkapan pelindung dan prosedur kecemasan** Tidak diperlukan.
- **Langkah perlindungan alam sekitar:** Jangan biarkannya memasuki pembentung/air permukaan atau tanah.
- **Kaedah dan bahan untuk pembendungan dan pembersihan:**
Serap dengan bahan cecair pengikat (pasir, diatomit, pengikat asid, pengikat semesta, habuk papan)
Lupuskan bahan tercemar sebagai sisa mengikut perkara 13.
Pastikan pengalihudaraan mencukupi.
- **Rujukan ke bahagian lain**
Lihat Bahagian 7 untuk maklumat pengendalian yang selamat.
Lihat Bahagian 8 untuk maklumat kelengkapan perlindungan diri.
Lihat Bahagian 13 untuk maklumat pelupusan.

7 Pengendalian dan penyimpanan

- **Pengendalian:**
- **Langkah perlindungan untuk pengendalian selamat**
Pastikan pengalihudaraan/ekzos yang mencukupi di tempat kerja.
Elakkan pembentukan aerosol.
- **Maklumat kebakaran dan perlindungan daripada letupan:** Tiada langkah berjaga-jaga yang khusus diperlukan.
- **Keadaan untuk penyimpanan selamat, termasuk apa-apa ketakserasian**
- **Penyimpanan:**
- **Keperluan yang mesti dipenuhi oleh bilik stor dan ruang simpanan.** Tiada keperluan khusus.
- **Maklumat penyimpanan di dalam satu tempat penyimpanan yang biasa:** Tidak diperlukan.
- **Maklumat lanjut tentang syarat penyimpanan:** Tiada.
- **Kegunaan akhir yang khusus** Tiada maklumat lanjut yang diperolehi.

8 Kawalan pendedahan/perlindungan diri

- **Maklumat tambahan tentang reka bentuk kemudahan teknikal:** Tiada maklumat lanjut, lihat perkara 7.
- **Parameter kawalan**

· **Ramuan dengan nilai had yang memerlukan pemantauan di tempat kerja:**

20816-12-0 Osmium Tetroxide

PEL	Nilai jangka panjang: 0,0016 mg/m ³ , 0,0002 ppm sebagai Os
-----	---

- **Maklumat tambahan:** Senarai yang sah semasa pembuatan digunakan sebagai asas.
- **Kawalan pendedahan**
- **Kelengkapan perlindungan diri:**
- **Langkah perlindungan dan kebersihan am:**
Jauhkan daripada makanan, minuman dan makanan haiwan.
Segera tanggalkan semua pakaian yang tercemar dan kotor.
Basuh tangan sebelum berhenti rehat dan apabila kerja selesai.
Simpan pakaian perlindungan secara berasingan.
Elakkan daripada terkena kulit.
Elakkan daripada terkena mata dan kulit.

(Bersambung ke halaman 4)

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(Sambungan halaman 3)

· **Perlindungan pernafasan:**

Jika berlaku pendedahan sekejap atau sedikit pencemaran, gunakan alat penapis pernafasan. Jika berlaku pendedahan yang intensif atau berpanjangan, gunakan alat pernafasan perlindungan serba lengkap.

· **Perlindungan tangan:**



Sarung tangan pelindung.

Bahan sarung tangan hendaklah telus dan kalis terhadap produk/bahan/sediaan.

Oleh sebab tiada ujian yang dijalankan, maka tiada syor bagi bahan sarung tangan yang boleh diberikan untuk produk/sediaan/campuran kimia.

Pemilihan bahan sarung tangan berdasarkan waktu penembusan, kadar pembauran dan degradasi.

· **Bahan sarung tangan**

Pemilihan sarung tangan yang sesuai bukan hanya bergantung pada bahannya, tetapi juga tanda kualiti lainnya serta perbezaannya daripada satu pengeluar dengan pengeluar yang lain. Memandangkan produk merupakan suatu sediaan daripada beberapa bahan, ketahanan bahan sarung tangan tidak boleh dipastikan terlebih dahulu, oleh itu sarung tangan hendaklah diperiksa sebelum digunakan.

· **Jangka masa penyerapan bahan sarung tangan**

Waktu kemunculan yang tepat hendaklah diperoleh pengeluar sarung tangan pelindung dan hendaklah dipatuhi.

· **Perlindungan mata:**



Gogal bertutup rapat

9 Ciri fizik dan kimia

· **Maklumat tentang ciri fizik dan kimia**

· **Maklumat Am**

· **Rupa:**

Bentuk:

Cecair

Warna:

Kuning muda

· **Bau:**

Seperti klorin

· **Had ambang bau:**

Tidak ditentukan.

· **Nilai pH pada 20 °C:**

7

· **Perubahan pada keadaan**

Takat lebur/Julat lebur:

Tidak ditentukan.

Takat didih/Julat didih:

100 °C

· **Takat kilat:**

Tidak berkenaan

· **Kemudahbakaran (pepejal, gas)**

Tidak berkenaan

· **Suhu pencucuhan:**

Suhu penguraian:

Tidak ditentukan.

· **Pencucuhan sendiri**

Produk tidak tercucuh sendiri

· **Bahaya letupan:**

Produk tidak ada bahaya letupan.

· **Had letupan :**

Bawah:

Tidak ditentukan.

(Bersambung ke halaman 5)

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Disemak semula pada 01.11.2016

Nama dagang: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(Sambungan halaman 4)

Atas:	Tidak ditentukan.
· Tekanan wap pada 20 °C:	23 hPa
· Ketumpatan pada 20 °C:	1,15624 g/cm ³
· Ketumpatan relatif	Tidak ditentukan.
· Ketumpatan wap	Tidak ditentukan.
· Kadar penyejatan	Tidak ditentukan.
· Keterlarutan dalam / Keterlarutcampuran dengan Air:	Tidak terlarut campur atau sukar bercampur.
· Pekali pengasingan (n-oktanol/air)	Tidak ditentukan.
· Kelikatan:	
· Dinamik:	Tidak ditentukan.
· Kinematik:	Tidak ditentukan.
· Kandungan pelarut:	
· Pelarut organik:	0,0 %
· Air:	96,0 %
· Kandungan pepejal:	4,0 %
· Maklumat lain	Tiada maklumat lanjut yang diperoleh.

10 Kestabilan dan kereaktifan

- **Kereaktifan** Tiada maklumat lanjut yang diperoleh.
- **Kestabilan kimia**
- **Penguraian termal/keadaan yang perlu dielakkan:** Tiada penguraian jika digunakan mengikut spesifikasi.
- **Kemungkinan tindak balas berbahaya** Tiada tindak balas berbahaya yang diketahui.
- **Keadaan yang perlu dielakkan** Tiada maklumat lanjut yang diperoleh.
- **Bahan tidak serasi:** Tiada maklumat lanjut yang diperoleh.
- **Produk penguraian yang berbahaya:** Tiada produk penguraian berbahaya yang diketahui.

11 Maklumat toksikologi

- **Maklumat tentang kesan toksikologi**
 - **Ketoksikan akut:**
 - **Kesan kerengsaan primer:**
 - **pada kulit:** Merengsa kepada kulit dan mukus membran.
 - **pada mata** Perengsa yang kuat dengan bahaya kecederaan mata yang teruk.
 - **Pemekaan:** Tiada kesan pemekaan yang diketahui.
 - **Maklumat tambahan toksikologi:**
- Produk menunjukkan bahaya berikut mengikut kaedah pengiraan Garis Panduan Pengelasan Am EU bagi Sediaan seperti yang dikeluarkan dalam versi terbaru:
- Toksik
Perengsa
Sangat toksik
Berbahaya melalui peresapan kulit.

MY

(Bersambung ke halaman 6)

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Nama dagang: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(Sambungan halaman 5)


12 Maklumat ekologi

- **Ketoksikan**
- **Ketoksikan akuatik:** Tiada maklumat lanjut yang diperolehi.
- **Keterusan dan keterdegradasikan** Tiada maklumat lanjut yang diperolehi.
- **Kelakuan dalam sistem alam sekitar:**
- **Potensi bioakumulatif** Tiada maklumat lanjut yang diperolehi.
- **Mobiliti di dalam tanah** Tiada maklumat lanjut yang diperolehi.
- **Maklumat tambahan ekologi:**
- **Nota am:**
Bahaya air kelas 1 (Peraturan Jerman) (Penilaian sendiri): sedikit berbahaya kepada air
Jangan biarkan produk yang tidak dicairkan atau dalam kuantiti yang banyak memasuki air tanah, saluran air atau sistem pembetungan.
- **Keputusan penilaian PBT dan vPvB**
- **PBT:** Tidak berkenaan
- **vPvB:** Tidak berkenaan
- **Kesan buruk yang lain** Tiada maklumat lanjut yang diperolehi.

13 Maklumat pelupusan

- **Kaedah rawatan sisa**
- **Syor:**
Tidak boleh dilupuskan bersama dengan sampah isi rumah. Jangan biarkan produk memasuki sistem pembentungan.
- **Pembungkusan yang tidak bersih:**
- **Syor:** Pelupusan mestilah dijalankan menurut peraturan rasmi

14 Maklumat pengangkutan

- | | |
|---|---|
| · Nombor UN | |
| · ADR, IMDG, IATA | UN3287 |
| · Nama penghantaran UN yang betul | |
| · ADR | 3287 TOXIC LIQUID, INORGANIC, N.O.S. |
| · IMDG | TOXIC LIQUID, INORGANIC, N.O.S., MARINE POLLUTANT |
| · IATA | TOXIC LIQUID, INORGANIC, N.O.S. |
| · pengangkutan kelas bahaya | |
| · ADR, IATA | |
|  | |
| · Kelas | 6.1 Bahan toksik. |

(Bersambung ke halaman 7)

MY

Risalah Data Keselamatan Bahan

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Nama dagang: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(Sambungan halaman 6)

· **IMDG**



· **Class**

6.1 Bahan toksik.

· **Kumpulan pembungkusan**
· **ADR, IMDG, IATA**

III

· **Hazard persekitaran:**
· **Bahan cemar marin:**

Tanda (ikan dan pokok)

· **Langkah perlindungan khas untuk pengguna**
· **Stowage Category**
· **Stowage Code**

Amaran: Bahan toksik.
A
SW2 Clear of living quarters.

· **Pengangkutan dalam pukal menurut Lampiran II**
MARPOL73/78 dan Kod IBC

Tidak berkenaan

· **Pengangkutan/Maklumat Tambahan:**

· **ADR**

· **Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· **IMDG**

· **Limited quantities (LQ)**

5L

· **Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· **"Peraturan Model" UN:**

UN 3287 TOXIC LIQUID, INORGANIC, N.O.S., 6.1, III

15 Maklumat Pengawalaturan

- **Peraturan/undang-undang keselamatan, kesihatan dan persekitaran khusus untuk bahan atau campuran tersebut**
- **Unsur label GHS** Produk ini dikelaskan dan dilabelkan menurut Sistem Terharmoni Global (GHS).
- **Piktogram hazard**



GHS05 GHS06

- **Perkataan isyarat Bahaya**
- **Komponen pelabelan yang menentukan bahaya:**
Osmium Tetroxide
- **Pernyataan hazard**
Toksik jika tertelan.
Maut jika terkena kulit.
Memudaratkan jika tersedut.
Menyebabkan kerengsaan kulit.

(Bersambung ke halaman 8)

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Nama dagang: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(Sambungan halaman 7)

Menyebabkan kerosakan mata yang serius.

· **Pernyataan langkah perlindungan**

Elakkan daripada tersedut habuk/wasap/gas/kabus/wap/semburan.

JIKA TERTELAN: Segera hubungi PUSAT RACUN/doktor.

JIKA TERKENA MATA: Bilas berhati-hati dengan air selama beberapa minit. Tanggalkan kanta lekap, jika ada dan dapat dilakukan dengan mudah. Teruskan membilas.

Rawatan khas (lihat label ini).

Simpan di tempat berkunci.

Lupuskan kandungan/bekas menurut peraturan tempatan/wilayah/kebangsaan/antarabangsa.

· **Penilaian keselamatan bahan kimia:** Penilaian Keselamatan Bahan Kimia belum dilakukan.

16 Maklumat lain

Maklumat ini berdasarkan maklumat kami yang terkini. Walau bagaimanapun, ini tidak akan menjadi jaminan bagi apa-apa ciri produk yang khusus dan tidak akan mewujudkan hubungan kontraktual yang sah dari segi undang-undang.

· **Singkatan dan akronim:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Toks. Akut 2: Acute toxicity – Category 2

Toks. Akut 3: Acute toxicity – Category 3

Toks. Akut 1: Acute toxicity – Category 1

Toks. Akut 4: Acute toxicity – Category 4

Kks. Kulit 1B: Skin corrosion/irritation – Category 1B

Kreng. Kulit 2: Skin corrosion/irritation – Category 2

Kros. Mata 1: Serious eye damage/eye irritation – Category 1

MY

物質安全資料表

根據 GB/T 16483-2008, GB/T 17519-2013

打印日期 2016.11.01

在 2016.11.01 審核

1 化學品及企業標識

- 產品識別者
- 化學品中文(英文)名稱, 化學品俗名或商品名: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION
- 商品編號: 19140, 19150-SP, 19151, 19160, 19180, 19171, 19150, 19170, 19191, 19190
- 相應純物質或者混合物的相關下位用途及禁止用途 無相關詳細資料。
- 原材料的應用/準備工作進行 實驗室化學物
- 安全技術說明書內供應商詳細信息
- 企業名稱:
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com
- 可獲取更多資料的部門: Product safety department
- 緊急聯繫電話號碼:
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2 危險性概述

· 緊急情況概述:

淺黃色, 液體, 吞咽會中毒。皮膚接觸致死。吸入有害。引起皮膚刺激。引起嚴重的眼睛損傷。

· GHS危險性類別



骷髏和交叉骨

急毒性物質(吞食) 第3級 H301 吞咽會中毒
急毒性物質(皮膚) 第2級 H310 皮膚接觸致死



腐蝕

嚴重損傷/刺激眼睛物質 第1級 H318 引起嚴重的眼睛損傷



急毒性物質(吸入) 第4級 H332 吸入有害
腐蝕/刺激皮膚物質 第2級 H315 引起皮膚刺激

· 標籤因素

- GHS標籤元素 本產品根據化學物質分類及標記全球協調制度(GHS)進行了分類及標記。

· 圖示



GHS05 GHS06

- 名稱 危險

(在 2 頁繼續)

物質安全資料表

根據 GB/T 16483-2008, GB/T 17519-2013

打印日期 2016.11.01

在 2016.11.01 審核

化學品中文(英文)名稱, 化學品俗名或商品名: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(在 1 頁繼續)

· 標籤上辨別危險的成份:

鐵酸酐

· 危險字句

· 吞咽會中毒

· 皮膚接觸致死

· 吸入有害

· 引起皮膚刺激

· 引起嚴重的眼睛損傷

· 警戒字句

· 預防措施

· 避免吸入粉塵/煙/氣體/煙霧/蒸氣/噴霧

· 事故響應

· 如誤吞咽: 立即呼叫解毒中心/醫生

· 如進入眼睛: 用水小心沖洗幾分鐘。如戴隱型眼鏡並可方便地取出, 取出隱型眼鏡。繼續沖洗。

· 具體治療(見本標籤上的)

· 安全貯存

· 存放處須加鎖。

· 廢棄處置

· 按照本地 / 地區 / 國家 / 國際規例處理內含物 / 容器。

· 其他有害性

· PBT(殘留性、生物濃縮性、毒性物質) 及 vPvB(高殘留性、高生物濃縮性物質) 評價結果

· PBT(殘留性、生物濃縮性、毒性物質) 不適用的



· vPvB(高殘留性、高生物濃縮性物質): 不適用的

3 成分/組成資訊

· 混合物

· 描述: 由以下含有無害添加劑的成分組成的混合物

· 危險的成分:

20816-12-0	鐵酸酐	2.5-10%
	 急毒性物質(吞食) 第2級, H300; 急毒性物質(皮膚) 第1級, H310; 急毒性物質(吸入) 第2級, H330;  腐蝕/刺激皮膚物質 第1B級, H314	

4 急救措施

· 應急措施要領

· 總說明:

· 馬上脫下染有該產品的衣服。

· 萬一出現了不規則的呼吸或呼吸的阻礙, 請為病人提供人工呼吸。

· 吸入: 萬一病人不清醒時, 請讓病人側躺以便移動。

· 皮膚接觸: 馬上用水和肥皂進行徹底的沖洗。

· 眼睛接觸: 張開眼睛在流水下沖洗數分鐘, 然後諮詢醫生。

· 食入: 切勿引發嘔吐; 請馬上尋求醫療的協助。

· 給醫生的資料:

· 最重要的急慢性症狀及其影響 無相關詳細資料。

· 需要及時的醫療處理及特別處理的症狀 無相關詳細資料。

TW

(在 3 頁繼續)

物質安全資料表

根據 GB/T 16483-2008, GB/T 17519-2013

打印日期 2016.11.01

在 2016.11.01 審核

化學品中文(英文)名稱, 化學品俗名或商品名 : OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(在 2 頁繼續)

5 消防措施

- **滅火方法**
- **滅火的方法和滅火劑:** 二氧化碳 (CO₂)、滅火粉末或灑水. 使用灑水或抗酒精泡沫滅火劑撲滅較大的火種.
- **特別危險性** 無相關詳細資料。
- **特殊滅火方法**
- **消防人員特殊的防護裝備:** 沒有要求特別的措施。

6 洩漏應急處理

- **保護措施** 沒有要求。
- **環境保護措施:** 切勿讓其進入下水道/水面或地下水。
- **密封及淨化方法和材料:**
吸收液體粘合原料 (沙粒、矽藻土、酸性粘合劑、通用粘合劑、鋸屑)。
根據第 13 條條款棄置受汙染物。
確保有足夠的通風裝置。
- **參照其他部分**
有關安全處理的資料請參閱第 7 節。
有關個人保護裝備的資料請參閱第 8 節。
有關棄置的資料請參閱第 13 節。

7 操作處置與儲存

- **操作處置**
- **儲存**
確保工作間有良好的通風/排氣裝置。
防止氣溶膠的形成。
- **有關火災及防止爆炸的資料:** 不需特別的措施。
- **混合危險性等安全儲存條件**
- **儲存:**
· **儲存庫和容器須要達到的要求:** 沒有特別的要求。
· **有關使用一個普通的儲存設施來儲存的資料:** 不需要。
· **有關儲存條件的更多資料:** 沒有。
· **具體的最終用戶** 無相關詳細資料。

8 接觸控制和個體防護

- **工程控制方法:** 沒有進一步數據, 見第 7 項。
- **控制變數**

· 在工作場需要監控的限值成分

20816-12-0 鉻酸酐

PEL (TW)	PC-TWA: 0.0016 mg/m ³ , 0.0002 ppm (as Os)
----------	--

- **額外的資料:** 制作期間有效的清單將作為基礎來使用。
- **遺漏控制**
- **個人防護設備:**
- **一般保護和衛生措施:**
遠離食品、飲料和飼料。

(在 4 頁繼續)

物質安全資料表

根據 GB/T 16483-2008, GB/T 17519-2013

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立即除去所有的不潔的和被汙染的衣服。

在休息之前和工作完畢後請清洗雙手。

分開儲存保護性衣服。

避免和皮膚接觸。

避免和眼睛及皮膚接觸。

· 呼吸系統防護:

如果會短暫接觸或在低汙染的情況下,請使用呼吸過濾裝置. 如果會深入或較長時間接觸,請使用獨立的呼吸保護裝置.

· 手防護:



保護手套

手套的物料必須是不滲透性的,且能抵抗該產品/物質/添加劑.

基於缺乏測試,對於產品/制劑/化學混合物,並不會提供手套材料的建議

選擇手套材料時,請注意材料的滲透時間,滲濾率和降解參數

· 手套材料

選擇合適的手套不單取決於材料,亦取決於質量特征,以及來自哪一間生產廠家,因為該產品是由很多材料配制而成,手套材料的抵抗力並不可預計,所以,必須在使用之前進行檢查

· 滲入手套材料的時間 請向勞保手套生產廠家獲取準確的破裂時間並觀察實際的破裂時間

· 眼睛防護:



密封的護目鏡

9 理化特性

· 有關基本物理及化學特性的資訊

· 一般說明

· 外觀:

形狀: 液體

顏色: 淺黃色

· 氣味: 類似氯

· 嗅覺閾限: 未決定.

· pH值 在 20 °C: 7

· 條件的更改

熔點: 未確定的

沸點/初沸點和沸程: 100 °C

· 閃點: 不適用的

· 可燃性(固體、氣體): 不適用的

· 點火溫度:

分解溫度: 未決定.

· 自燃溫度: 該產品是不自燃的

· 爆炸的危險性: 該產品並沒有爆炸的危險

· 爆炸極限:

較低: 未決定.

(在 5 頁繼續)

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(在 4 頁繼續)

· 較高:	未決定.
· 蒸氣壓 在 20 °C:	23 hPa
· 密度 在 20 °C:	1.15624 g/cm ³
· 相對密度	未決定.
· 蒸氣密度	未決定.
· 蒸發速率	未決定.
· 溶解性	
水:	不能拌和的或難以拌和
· n-辛醇/水分配係數:	未決定.
· 黏性:	
動態:	未決定.
運動學的:	未決定.
· 溶劑成份:	
有機溶劑:	0.0 %
水:	96.0 %
· 固體成份:	4.0 %
· 其他資訊	無相關詳細資料。

10 穩定性和反應性

- 反應性 無相關詳細資料。
- 穩定性
- 熱分解/要避免的情況: 如果遵照規格使用則不會分解。
- 有害反應可能性 未有已知的危險反應。
- 應避免的條件 無相關詳細資料。
- 不相容的物質: 無相關詳細資料。
- 危險的分解產物: 未知有危險的分解產品。

11 毒理學資訊

- 對毒性學影響的資訊
- 急性毒性:
- 主要的刺激性影響:
- 皮膚: 刺激皮膚和粘膜。
- 在眼睛上面: 強烈的刺激性和造成嚴重傷害眼睛的危險。
- 致敏作用: 沒有已知的敏化影響。
- 更多毒物的資料:
根據有關配制的 一般歐盟分類指南的計算方法 (刊印在最新版本), 該產品顯示以下的危險:
毒性的
刺激性的
非常毒性的
通過皮膚吸收造成危險。

12 生態學資訊

- 生態毒性
- 水生毒性: 無相關詳細資料。

(在 6 頁繼續)

物質安全資料表

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打印日期 2016.11.01

在 2016.11.01 審核

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(在 5 頁繼續)

- 持久性和降解性 無相關詳細資料。
- 環境系統習性:
- 潛在的生物累積性 無相關詳細資料。
- 土壤內移動性 無相關詳細資料。
- 額外的生態學資料:
- 總括注解:
水危害級別 1(德國規例) (通過名單進行自我評估): 對水是稍微危害的
不要讓未稀釋或大量的產品接觸地下水、水道或者汗水系統。
- PBT(殘留性、生物濃縮性、毒性物質) 及 vPvB(高殘留性、高生物濃縮性物質) 評價結果
- PBT(殘留性、生物濃縮性、毒性物質) 不適用的
- vPvB(高殘留性、高生物濃縮性物質): 不適用的
- 其他副作用 無相關詳細資料。

13 廢棄處置

- 廢棄處置方法
- 建議: 不能將該產品和家居垃圾一起丟棄. 不要讓該產品接觸汗水系統.
- 受污染的容器和包裝:
- 建議: 必須根據官方的規章來丟棄.

14 運輸資訊

- 聯合國危險貨物編號(UN號)
- ADR, IMDG, IATA UN3287
- UN適當裝船名
- ADR 3287 TOXIC LIQUID, INORGANIC, N.O.S.
- IMDG TOXIC LIQUID, INORGANIC, N.O.S., MARINE POLLUTANT
- IATA TOXIC LIQUID, INORGANIC, N.O.S.
- 運輸危險等級
- ADR, IATA
- 級別 6.1 有毒物質
- IMDG
- Class 6.1 有毒物質
- 包裝組別
- ADR, IMDG, IATA III
- 危害環境:
- 海運污染物質: 象徵符號 (魚和樹)

(在 7 頁繼續)

物質安全資料表

根據 GB/T 16483-2008, GB/T 17519-2013

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(在 6 頁繼續)

· 用戶特別預防措施	警告: 有毒物質
· Stowage Category	A
· Stowage Code	SW2 Clear of living quarters.
· MARPOL73/78(針對船舶引起的海洋污染預防協約)附件書2及根據IBC Code(國際裝船貨物編碼)的大量運送	不適用的
· 運輸/額外的資料:	
· ADR	
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· IMDG	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "標準規定":	UN 3287 TOXIC LIQUID, INORGANIC, N.O.S., 6.1, III

15 法規資訊

· 對相應純物質或者混合物的安全、保健及環境法規/法律

· 中國現有化學物質名錄

列出所有成分

· GHS標籤元素 本產品根據化學物質分類及標記全球協調制度(GHS)進行了分類及標記。

· 圖示



GHS05 GHS06

· 名稱 危險

· 標籤上辨別危險的成份:

鐵酸酐

· 危險字句

吞咽會中毒

皮膚接觸致死

吸入有害

引起皮膚刺激

引起嚴重的眼睛損傷

· 警戒字句

· 預防措施

避免吸入粉塵/煙/氣體/煙霧/蒸氣/噴霧

· 事故響應

如誤吞咽: 立即呼叫解毒中心/醫生

如進入眼睛: 用水小心沖洗幾分鐘。如戴隱型眼鏡並可方便地取出, 取出隱型眼鏡。繼續沖洗。

具體治療(見本標籤上的)

(在 8 頁繼續)

物質安全資料表

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(在 7 頁繼續)

- **安全貯存**
存放處須加鎖。
- **廢棄處置**
按照本地 / 地區 / 國家 / 國際規例處理內含物 / 容器。
- **化學物質安全性評價**: 尚未進行化學物質安全性評價

16 其他資訊

該資料是基於我們目前的知識。然而,這並不構成對任何特定產品特性的擔保並且不建立一個法律上有效的合同關係。

縮寫:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

PBT: 持久性生物累積性有毒物質

vPvB: very Persistent and very Bioaccumulative

急性物質(吞食) 第2級: Acute toxicity – Category 2

急性物質(吞食) 第3級: Acute toxicity – Category 3

急性物質(皮膚) 第1級: Acute toxicity – Category 1

急性物質(吸入) 第4級: Acute toxicity – Category 4

腐蝕/刺激皮膚物質 第1B級: Skin corrosion/irritation – Category 1B

腐蝕/刺激皮膚物質 第2級: Skin corrosion/irritation – Category 2

嚴重損傷/刺激眼睛物質 第1級: Serious eye damage/eye irritation – Category 1

TW

Sikkerhetsdatablad

iflg. forordning (EF) nr. 1907/2006, Artikkel 31

Trykkdato: 01.11.2016

revidert den: 01.11.2016

Avsnitt 1: Identifikasjon av kjemikaliyet og ansvarlig firma

- **1.1 Produktidentifikator**
- **Handelsnavn:** OSMIUM TETROXIDE 4% AQUEOUS SOLUTION
- **Artikkelnummer:** 19140, 19150-SP, 19151, 19160, 19180, 19171, 19150, 19170, 19191, 19190
- **1.2 Relevante, identifiserte anvendelser av stoffet eller stoffblandingen, samt anvendelser som frarådes**
Ikke noe mer relevant informasjon tilgjengelig.
- **Bruk av stoffet/ tilberedning** laboratoriekjemikalier
- **1.3 Enkeltopplysninger om foretaket som leverer sikkerhetsdatabladet**
- **Produsent/leverandør:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com
- **Avdeling for nærmere informasjon:** Product safety department
- **1.4 Nødnummer:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

Avsnitt 2: Viktigste faremomenter

- **2.1 Klassifisering av stoff eller stoffblanding**
- **Klassifisering i henhold til EC-forskrift nr.1272/2008**



GHS06 Dødningshede med korslagte knokler

Acute Tox. 3 H301 Giftig ved svelging.

Acute Tox. 2 H310 Dødelig ved hudkontakt.



GHS05 Etsende virkning

Eye Dam. 1 H318 Gir alvorlig øyeskade.



GHS07

Acute Tox. 4 H332 Farlig ved innånding.

Skin Irrit. 2 H315 Irriterer huden.

- **2.2 Etikettelementer**
- **Merking iht. bestemmelse (EC) Nr. 1272/2008**
Produktet er klassifisert og merket i henhold til CLP-forordningen.
- **Farepiktogrammer**



GHS05



GHS06

- **Varselord Fare**

(fortsatt på side 2)

Sikkerhetsdatablad

iflg. forordning (EF) nr. 1907/2006, Artikkel 31

Trykkdato: 01.11.2016

revidert den: 01.11.2016

Handelsnavn: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(fortsatt fra side 1)

· **Farebestemmende komponenter ved etikettering:**

osmiumtetraoksid

· **Faresetninger**

H301 Giftig ved svelging.

H310 Dødelig ved hudkontakt.

H332 Farlig ved innånding.

H315 Irriterer huden.

H318 Gir alvorlig øyeskade.

· **Sikkerhetssetninger**

P261 Unngå innånding av støv/røyk/gass/tåke/damp/aerosoler.

P301+P310 VED SVELGING: Kontakt umiddelbart et GIFTINFORMASJONSSENTER/ en lege.

P305+P351+P338 VED KONTAKT MED ØYNENE: Skyll forsiktig med vann i flere minutter. Fjern eventuelle kontaktlinser dersom dette enkelt lar seg gjøre. Fortsett skyllingen.

P321 Særlig behandling (se på etiketten).

P405 Oppbevares innelåst.

P501 Innholdet / emballasjen skal avhendes i henhold til de lokale / regionale / nasjonale / internasjonale forskrifter.

· **2.3 Andre farer**

· **Resultater av PBT- og vPvB-vurdering**

· **PBT:** Ikke brukbar.

· **vPvB:** Ikke brukbar.

Avsnitt 3: Stoffblandingers sammensetning og stoffenes klassifisering

· **3.2 Kjemisk karakterisering: Blandinger**

· **Beskrivelse:** Blanding av nedenstående oppførte stoffer med ufarlige tilsetninger.

· **Farlige innholdsstoffer:**

CAS: 20816-12-0	osmiumtetraoksid	2,5-10%
EINECS: 244-058-7	Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; Skin Corr. 1B, H314	

· **Ytterligere informasjoner:** Teksten til de fareangivelsene som er inkludert her, kan konsulteres i kapittel 16.

Avsnitt 4: Førstehjelpstiltak

· **4.1 Beskrivelse av førstehjelpstiltak**

· **Generelle informasjoner:**

Klær som er tilsølt med produktet må fjernes omgående.

Kunstig åndedrett ved uregelmessig åndedrett eller åndedrettsstillstand.

· **Etter innånding:** Ved bevisstløshet lagring og transport i stabil sidestilling.

· **Etter hudkontakt:** Vask straks med vann og sepe og skyll godt etterpå.

· **Etter øyekontakt:** Skyll øynene med åpne øyenlokk i flere minutter under rennende vann og tilkall lege.

· **Etter svelging:** Ikke få pasienten til å kaste opp. Tilkall lege straks.

· **4.2 De viktigste symptomer og effekter, både akutt og forsinket** Ikke noe mer relevant informasjon tilgjengelig.

· **4.3 Indikasjon på omgående medisinsk hjelp eller påkrevet spesialbehandling**

Ikke noe mer relevant informasjon tilgjengelig.

NO

(fortsatt på side 3)

Sikkerhetsdatablad

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Avsnitt 5: Tiltak ved brannslukning

- **5.1 Slökkemiddel**
- **Egnede slukningsmidler:**
CO₂, slukningspulver eller vann i spredt stråle. Større branner bekjempes med vann i spredt stråle eller med skum som er motstandsdyktig mot alkohol.
- **5.2 Spesielle farer som oppstår pga. substanser eller blandinger** Ikke noe mer relevant informasjon tilgjengelig.
- **5.3 Informasjon vedr. brannbekjempelse**
- **Spesielt verneutstyr:** Ingen spesielle tiltak nødvendig.

Avsnitt 6: Tiltak ved utilsiktet utslipp

- **6.1 Personlige vernetiltak, verneutstyr og prosedyrer ved nødsituasjoner** Ikke nødvendig.
- **6.2 Miljøvernetiltak:** La ikke produktet komme ned i kloakk/overflatevann/grunnvann.
- **6.3 Metoder og materiale for oppsamling og opprensing:**
Ta opp stoffet med væskebindende materiale (sand, kiselgur, syrebindemiddel, universalbindemiddel, sagflis). Bortskaff kontaminert materiale som avfall i.h.t. punkt 13. Sørg for tilstrekkelig ventilasjon.
- **6.4 Henvisning til andre avsnitt**
Informasjoner om sikker håndtering, se kapittel 7.
Informasjoner om personlig beskyttelsesutstyr, se kapittel 8.
Informasjoner om bortskaffelse/deponering, se kapittel 13.

Avsnitt 7: Håndtering og oppbevaring

- **7.1 Forholdsregler for sikker håndtering**
Sørg for god ventilasjon/avsugning på arbeidsplassen.
Unngå aerosoldannelse.
- **Henvisninger om brann- og eksplosjonsvern:** Ingen særlige tiltak nødvendig.
- **7.2 Vilkår for sikker lagring, inkl. eventuelle inkompatibiliteter**
- **Lagring:**
- **Krav til lagerrom og beholdere:** Ingen spesielle krav.
- **Informasjoner om felles lagring:** Ikke nødvendig.
- **Ytterligere informasjoner om lagervilkårene:** Ingen.
- **7.3 Spesiell sluttbruk** Ikke noe mer relevant informasjon tilgjengelig.

Avsnitt 8: Eksponeringskontroll og personlig verneutstyr

- **Ytterligere informasjoner om utforming av tekniske anlegg:** Ingen ytterligere informasjoner, se punkt 7.

8.1 Kontrollparametere

- **Komponenter med grenseverdier for arbeidsplass som må overholdes:**

20816-12-0 osmiumtetraoksid

AG Langtidsverdi: 0,002 mg/m³, 0,0002 ppm

- **Ytterligere informasjoner:** Basis: listene som var gyldige ved oppstillingen.

8.2 Begrensning og kontroll av eksponering

- **Personlig verneutstyr:**
- **Generelle verne- og hygienetiltak:**
Holdes adskilt fra næringsmidler, drikkevarer og førstoffer.
Fjern omgående forurensede, gjennomvåtede klær.

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Vask hendene før arbeidspauser og ved arbeidets slutt.

Beskyttelsesklær må oppbevares adskilt.

Unngå berøring med huden.

Unngå berøring med øyne og hud.

• **Åndedrettsvern:**

Ved korttidig eller liten belastning åndedrettsfilterapparat; ved intensiv eller lengre utsetting: bruk omluft-uavhengig åndedrettsbeskyttelsesapparat.

• **Håndvern:**



Beskytteshansker

Hanskematerialet må være ugjennomtrengelig og bestandig overfor produktet /stoffet /blandingen.

På grunn av manglende tester kan det ikke gis noen anbefaling om hanskemateriale for produktet / tilberedningsprosessen/kjemikalieblanding.

Hanskematerialet velges under hensyntagen til holdbarhetstid, gjennomtrengelighet og degradering.

• **hanskemateriale**

Valget av egnet hanske er ikke bare avhengig av materiale, men også av andre kvalitetskjenner og er forskjellig fra produsent til produsent. Da produktet representerer en sammensetning av flere stoffer, kan holdbarheten av hanskematerialet ikke forhåndsberegnes, og denne må testes før bruk.

• **gjennomtrengingstid for hanskemateriale**

Den nøyaktige holdbarhetstiden må bringes på det rene hos hanskeprodusenten og overholdes.

• **Øyevern:**



Tettsittende vernebrille

Avsnitt 9: Fysiske og kjemiske egenskaper

• **9.1 Informasjon om grunnleggende fysiske og kjemiske egenskaper**

• **alminnelige opplysninger**

• **Utseende:**

Form: Væske

Farge: Lysegul

• **Lukt:** Klorlignende

• **Luktterskel:** Ikke bestemt.

• **pH-verdi ved 20 °C:** 7

• **Tilstandsending**

Smeltepunkt/smelteområde: Ikke bestemt.

Kokepunkt/kokeområde: 100 °C

• **Flammepunkt:** Ikke brukbar.

• **Antennelighet (fast, gassformet):** Ikke brukbar.

• **Antennelsestemperatur:**

Spaltningsstemperatur: Ikke bestemt.

• **Selvantennelighet:** Produktet er ikke selvantennelig.

• **Eksplisjonsfare:** Produktet er ikke eksplosjonsfarlig.

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· Ekspløsjongrensener:	
Nedre:	Ikke bestemt.
Øvre	Ikke bestemt.
· Damptrykk ved 20 °C:	23 hPa
· Tetthet ved 20 °C:	1,15624 g/cm ³
· relativt tetthet	Ikke bestemt.
· damptetthet	Ikke bestemt.
· fordampningshastighet	Ikke bestemt.
· Løslighet i / blandbarhet med vann:	Ikke, hhv. lite blandbar.
· Fordelingskoeffisient (n-oktanol/vann):	Ikke bestemt.
· Viskositet:	
Dynamisk:	Ikke bestemt.
Kinematisk:	Ikke bestemt.
· Løsningsmiddelandel:	
Organiske løsningsmidler:	0,0 %
Vann:	96,0 %
VOC (EF)	0,00 %
Andel faste stoffer:	4,0 %
· 9.2 Annen informasjon	Ikke noe mer relevant informasjon tilgjengelig.

Avsnitt 10: Stabilitet og reaktivitet

- **10.1 Reaktivitet** Ikke noe mer relevant informasjon tilgjengelig.
- **10.2 Kjemisk stabilitet**
- **Termisk spaltning / vilkår som må unngås:** Ingen spaltning ved formålsriktig bruk.
- **10.3 Mulighet for farlige reaksjoner** Det kjennes ingen farlige reaksjoner.
- **10.4 Forhold som bør unngås** Ikke noe mer relevant informasjon tilgjengelig.
- **10.5 Inkompatible materialer:** Ikke noe mer relevant informasjon tilgjengelig.
- **10.6 Farlige nedbrytningsprodukter:** Ingen farlige spaltningsprodukter kjente.

Avsnitt 11: Opplysninger om helsefare

- **11.1 Informasjon om toksikologiske virkninger**
- **Akutt giftighet**
Giftig ved svelging.
Dødelig ved hudkontakt.
Farlig ved innånding.
- **Primær irritasjonsvirkning:**
- **Hudetsing/hudirritasjon**
Irriterer huden.
- **Alvorlig øyeskade/øyeirritasjon**
Gir alvorlig øyeskade.
- **Sensibiliserende ved innånding eller hudkontakt**
Basert på tilgjengelige data, klassifiseringskriteriene ikke oppfylt.

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NO

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- **Informasjon om følgende grupper med potensielle virkninger:**
- **CMR-virkninger (kreftfremkallende virkninger, arvestoffskadelige og reproduksjonsskadelige virkninger)**
- **Skader på arvestoffet i kjønnsceller** Basert på tilgjengelige data, klassifiseringskriteriene ikke oppfylt.
- **Kreftfremkallende egenskap** Basert på tilgjengelige data, klassifiseringskriteriene ikke oppfylt.
- **Reproduksjonstoksisitet** Basert på tilgjengelige data, klassifiseringskriteriene ikke oppfylt.
- **STOT – enkelteksponering** Basert på tilgjengelige data, klassifiseringskriteriene ikke oppfylt.
- **STOT – gjentatt eksponering** Basert på tilgjengelige data, klassifiseringskriteriene ikke oppfylt.
- **Aspirasjonsfare** Basert på tilgjengelige data, klassifiseringskriteriene ikke oppfylt.

Avsnitt 12: Miljøopplysninger

- **12.1 Giftighet**
- **Akvatisk toksisitet:** Ikke noe mer relevant informasjon tilgjengelig.
- **12.2 Persistens og nedbrytbarhet** Ikke noe mer relevant informasjon tilgjengelig.
- **12.3 Bioakkumulasjonspotensial** Ikke noe mer relevant informasjon tilgjengelig.
- **12.4 Mobilitet i jord** Ikke noe mer relevant informasjon tilgjengelig.
- **Ytterligere økologiske informasjoner:**
- **Generelle informasjoner:**
Vannfareklasse 1 (D) (Selvklassifisering): lett farlig for vann
Ikke la stoffet komme ufortynnet ned i grunnvannet, i vassdrag eller i kloakker.
- **12.5 Resultater av PBT- og vPvB-vurdering**
- **PBT:** Ikke brukbar.
- **vPvB:** Ikke brukbar.
- **12.6 Andre skadelige virkninger** Ikke noe mer relevant informasjon tilgjengelig.

Avsnitt 13: Fjerning av kjemikalieavfall

- **13.1 Metoder for avfallsbehandling**
- **Anbefaling:** Må ikke bortskaffes sammen med husholdningsavfall. Må ikke komme ned i kloakk.
- **Ikke rengjort emballasje:**
- **Anbefaling:** Deponering i henhold til myndighetenes forskrifter.

Avsnitt 14: Opplysninger om transport

- | | |
|---|---|
| · 14.1 UN-nummer: | |
| · ADR, IMDG, IATA | UN3287 |
| · 14.2 Korrekt UN-forsendelsesbetegnelse | |
| · ADR | 3287 GIFTIG VÆSKE, UORGANISK, N.O.S |
| · IMDG | TOXIC LIQUID, INORGANIC, N.O.S., MARINE POLLUTANT |
| · IATA | TOXIC LIQUID, INORGANIC, N.O.S. |

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NO

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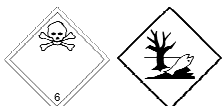
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· **14.3 transport fareklasser**· **ADR, IATA**· **klasse**

6.1 Giftige stoffer

· **IMDG**· **Class**

6.1 Giftige stoffer

· **14.4 Emballasjegruppe:**· **ADR, IMDG, IATA**

III

· **14.5 Miljøfarer:**· **Marine pollutant:**

Symbol (fisk og treet)

· **14.6 Særskilte forholdsregler for bruker**· **Stowage Category**

Advarsel: Giftige stoffer

· **Stowage Code**

A

SW2 Clear of living quarters.

· **14.7 Transport i bulk iht. anneks II til MARPOL 73/78 og til IBC-koden**

Ikke brukbar.

· **Transport/ytterligere informasjoner:**· **ADR**· **Begrenset mengde (LQ)**

5L

· **Unntatte mengder (EQ)**

Kode: E1

Maksimal nettovekt per inneremballasje: 30 ml

Maksimal nettovekt per ytteremballasje: 1000 ml

· **IMDG**· **Limited quantities (LQ)**

5L

· **Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· **UN "Model Regulation":**

UN 3287 GIFTIG VÆSKE, UORGANISK, N.O.S, 6.1, III

Avsnitt 15: Opplysninger om lover og forskrifter· **15.1 Helse-, sikkerhets- og miljøforskrifter/lovgivning som gjelder spesielt for stoffet eller stoffblandingen**

Ikke noe mer relevant informasjon tilgjengelig.

· **15.2 Kjemisk sikkerhetsvurdering:** En kjemisk sikkerhetsvurdering er ikke utført.

NO

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Avsnitt 16: Andre opplysninger av betydning for helse, miljø og sikkerhet

Opplysningene er basert på vårt kjennskap i dag. De utgjør dog ingen forsikring om produktens egenskaper og er ikke grunnlag for noe kontraktmessig rettsforhold.

• **Relevante satser**

H300 Dødelig ved svelging.

H310 Dødelig ved hudkontakt.

H314 Gir alvorlige etseskader på hud og øyne.

H330 Dødelig ved innånding.

• **Forkortelser og akronymer:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Acute Tox. 2: Acute toxicity – Category 2

Acute Tox. 3: Acute toxicity – Category 3

Acute Tox. 1: Acute toxicity – Category 1

Acute Tox. 4: Acute toxicity – Category 4

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

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SECÇÃO 1: Identificação da substância/mistura e da sociedade/empresa

- **1.1 Identificador do produto**
- **Nome comercial:** *OSMIUM TETROXIDE 4% AQUEOUS SOLUTION*
- **Código do produto:** 19140, 19150-SP, 19151, 19160, 19180, 19171, 19150, 19170, 19191, 19190
- **1.2 Utilizações identificadas relevantes da substância ou mistura e utilizações desaconselhadas**
Não existe mais nenhuma informação relevante disponível.
- **Utilização da substância / da preparação** *Químicos de laboratório*
- **1.3 Identificação do fornecedor da ficha de dados de segurança**
- **Fabricante/fornecedor:**
*Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com*
- **Entidade para obtenção de informações adicionais:** *Product safety department*
- **1.4 Número de telefone de emergência:**
*ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887*

SECÇÃO 2: Identificação dos perigos

- **2.1 Classificação da substância ou mistura**
- **Classificação em conformidade com o Regulamento (CE) n.º 1272/2008**



GHS06 caveira sobre tóxicas cruzadas

*Acute Tox. 3 H301 Tóxico por ingestão.**Acute Tox. 2 H310 Mortal em contacto com a pele.*

GHS05 corrosão

Eye Dam. 1 H318 Provoca lesões oculares graves.

GHS07

*Acute Tox. 4 H332 Nocivo por inalação.**Skin Irrit. 2 H315 Provoca irritação cutânea.*

- **2.2 Elementos do rótulo**
- **Rotulagem em conformidade com o Regulamento (CE) n.º 1272/2008**
O produto classificou-se e está etiquetado em conformidade com o regulamento CLP.
- **Pictogramas de perigo**



GHS05



GHS06

- **Palavra-sinal** *Perigo*

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- **Componentes determinantes para os perigos constantes do rótulo:**
tetróxido de ósmio
- **Advertências de perigo**
H301 Tóxico por ingestão.
H310 Mortal em contacto com a pele.
H332 Nocivo por inalação.
H315 Provoca irritação cutânea.
H318 Provoca lesões oculares graves.
- **Recomendações de prudência**
P261 Evitar respirar as poeiras/fumos/gases/névoas/vapores/aerossóis.
P301+P310 EM CASO DE INGESTÃO: contacte imediatamente um CENTRO DE INFORMAÇÃO ANTIVENENOS/médico.
P305+P351+P338 SE ENTRAR EM CONTACTO COM OS OLHOS: enxaguar cuidadosamente com água durante vários minutos. Se usar lentes de contacto, retire-as, se tal lhe for possível. Continuar a enxaguar.
P321 Tratamento específico (ver no presente rótulo).
P405 Armazenar em local fechado à chave.
P501 Eliminar o conteúdo/recipiente de acordo com a legislação local/regional/nacional/internacional.
- **2.3 Outros perigos**
- **Resultados da avaliação PBT e mPmB**
- **PBT:** Não aplicável.
- **mPmB:** Não aplicável.

SECÇÃO 3: Composição/informação sobre os componentes

- **3.2 Caracterização química: Misturas**
- **Descrição:** Mistura das seguintes substâncias com aditivos não perigosos.

· Substâncias perigosas:

CAS: 20816-12-0	tetróxido de ósmio	2,5-10%
EINECS: 244-058-7	Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; Skin Corr. 1B, H314	

- **Avisos adicionais:** O texto das indicações de perigo aqui incluído poderá ser consultado no capítulo 16.

SECÇÃO 4: Medidas de primeiros socorros

- **4.1 Descrição das medidas de primeiros socorros**
- **Indicações gerais:**
O vestuário contaminado com substâncias perigosas deve ser imediatamente removido.
Em caso de respiração irregular ou paragem da respiração, executar respiração artificial.
- **Em caso de inalação:**
Se a vítima estiver inconsciente, posicioná-la e transportá-la com estabilidade, deitada lateralmente.
- **Em caso de contacto com a pele:** Lavar imediatamente com água e sabão e enxaguar abundantemente.
- **Em caso de contacto com os olhos:**
Enxaguar os olhos durante alguns minutos sob água corrente, mantendo as pálpebras abertas, e consultar o médico.
- **Em caso de ingestão:** Não induzir o vômito; consultar o médico imediatamente.
- **4.2 Sintomas e efeitos mais importantes, tanto agudos como retardados**
Não existe mais nenhuma informação relevante disponível.

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- **4.3 Indicações sobre cuidados médicos urgentes e tratamentos especiais necessários**
Não existe mais nenhuma informação relevante disponível.

SECÇÃO 5: Medidas de combate a incêndios

- **5.1 Meios de extinção**
- **Meios adequados de extinção:**
CO₂, pó extintor ou jacto de água. Um incêndio de grandes dimensões deve ser combatido com jacto de água ou espuma resistente ao álcool.
- **5.2 Perigos especiais decorrentes da substância ou mistura**
Não existe mais nenhuma informação relevante disponível.
- **5.3 Recomendações para o pessoal de combate a incêndios**
- **Equipamento especial de protecção:** Não são necessárias medidas especiais.

SECÇÃO 6: Medidas a tomar em caso de fugas acidentais

- **6.1 Precauções individuais, equipamento de protecção e procedimentos de emergência** Não necessário.
- **6.2 Precauções a nível ambiental:** Evitar que penetre na canalização / águas superficiais / águas subterrâneas.
- **6.3 Métodos e materiais de confinamento e limpeza:**
Recolher com produtos que absorvam líquidos (areia, seixos, absorventes universais, serradura).
Eliminar residualmente as substâncias contaminadas como um resíduo segundo o Ponto 13.
Assegurar uma ventilação adequada.
- **6.4 Remissão para outras secções**
Para informações sobre uma manipulação segura, ver o capítulo 7.
Para informações referentes ao equipamento de protecção individual, ver o capítulo 8.
Para informações referentes à eliminação residual, ver o capítulo 13.

SECÇÃO 7: Manuseamento e armazenagem

- **7.1 Precauções para um manuseamento seguro**
Assegurar uma boa ventilação / exaustão no local de trabalho.
Evitar a formação de aerossóis.
- **Precauções para prevenir incêndios e explosões:** Não são necessárias medidas especiais.
- **7.2 Condições de armazenagem segura, incluindo eventuais incompatibilidades**
- **Armazenagem:**
- **Requisitos para espaços ou contentores para armazenagem:** Sem requisitos especiais.
- **Avisos para armazenagem conjunta:** Não necessário.
- **Outros avisos sobre as condições de armazenagem:** nenhuns.
- **7.3 Utilização(ões) final(is) específica(s)** Não existe mais nenhuma informação relevante disponível.

SECÇÃO 8: Controlo da exposição/Protecção individual

- **Indicações adicionais para concepção de instalações técnicas:** Não existem outras informações, ver ponto 7.
- **8.1 Parâmetros de controlo**

· **Componentes cujo valor do limite de exposição no local de trabalho deve ser monitorizado:**

20816-12-0 tetróxido de ósmio

VLE	Valor para exposição curta: 0,0006 ppm Valor para exposição longa: 0,0002 ppm Irritação ocular, do TRS e cutânea
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- **Indicações adicionais:** Foram utilizadas como base as listas válidas à data da elaboração.
- **8.2 Controlo da exposição**
- **Equipamento de protecção individual:**
- **Medidas gerais de protecção e higiene:**
 - Manter afastado de alimentos, bebidas e forragens.
 - Despir imediatamente a roupa contaminada e embebida.
 - Lavar as mãos antes das pausas e no fim do trabalho.
 - Guardar o vestuário de protecção separadamente.
 - Evitar o contacto com a pele.
 - Evitar o contacto com os olhos e com a pele.
- **Protecção respiratória:**
 - Utilizar uma máscara respiratória se a exposição for reduzida ou durante um curto espaço de tempo; se esta for mais prolongada ou mais intensa, utilizar uma máscara respiratória independente do ar ambiente.
- **Protecção das mãos:**



Luvas de protecção

O material das luvas tem de ser impermeável e resistente ao produto / à substância / preparação.
Uma vez que não foram realizados testes nesta área, não podemos recomendar um determinado tipo de material para as luvas que seja adequado para o produto / a preparação / a mistura de químicos.
Escolher o material das luvas tendo em consideração a durabilidade, a permeabilidade e a degradação.

- **Material das luvas**
 - A escolha das luvas mais adequadas não depende apenas do material, mas também de outras características qualitativas e varia de fabricante para fabricante. O facto de o produto ser composto por uma variedade de materiais leva a que não seja possível prever a duração dos mesmos e, conseqüentemente, das luvas, sendo assim necessário proceder a uma verificação antes da sua utilização.
- **Tempo de penetração no material das luvas**
 - Deve informar-se sobre a validade exacta das suas luvas junto do fabricante e respeitá-la.
- **Protecção dos olhos:**



Óculos de protecção totalmente fechados

SECÇÃO 9: Propriedades físico-químicas

· 9.1 Informações sobre propriedades físicas e químicas de base

· Informações gerais

· Aspecto:

Forma:	Líquido
Cor:	Amarelo-claro
Odor:	tipo cloro
Límiar olfactivo:	Não classificado.

· **valor pH em 20 °C:** 7

· Mudança do estado:

Ponto / intervalo de fusão:	Não classificado.
Ponto / intervalo de ebulição:	100 °C

· **Ponto de inflamação:** Não aplicável.

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· Inflamabilidade (sólido, gás):	<i>Não aplicável.</i>
· Temperatura de ignição:	
Temperatura de decomposição:	<i>Não classificado.</i>
· Auto-inflamabilidade:	<i>O produto não é auto-inflamável.</i>
· Perigos de explosão:	<i>O produto não corre o risco de explosão.</i>
· Limites de explosão:	
Inferior:	<i>Não classificado.</i>
Superior:	<i>Não classificado.</i>
· Pressão de vapor em 20 °C:	<i>23 hPa</i>
· Densidade em 20 °C:	<i>1,15624 g/cm³</i>
· Densidade relativa	<i>Não classificado.</i>
· Densidade de vapor	<i>Não classificado.</i>
· Velocidade de evaporação	<i>Não classificado.</i>
· Solubilidade em / miscibilidade com água:	<i>Pouco misturável.</i>
· Coefficiente de distribuição (n-octanol/água):	<i>Não classificado.</i>
· Viscosidade:	
Dinâmico:	<i>Não classificado.</i>
Cinemático:	<i>Não classificado.</i>
· Percentagem de solvente:	
Solventes orgânicos:	<i>0,0 %</i>
Água:	<i>96,0 %</i>
VOC (UE)	<i>0,00 %</i>
Percentagem de substâncias sólidas:	<i>4,0 %</i>
· 9.2 Outras informações	<i>Não existe mais nenhuma informação relevante disponível.</i>

SECÇÃO 10: Estabilidade e reactividade

- **10.1 Reactividade** *Não existe mais nenhuma informação relevante disponível.*
- **10.2 Estabilidade química**
- **Decomposição térmica / condições a evitar:** *Não existe decomposição se usado de acordo com as especificações.*
- **10.3 Possibilidade de reações perigosas** *Não se conhecem reações perigosas.*
- **10.4 Condições a evitar** *Não existe mais nenhuma informação relevante disponível.*
- **10.5 Materiais incompatíveis:** *Não existe mais nenhuma informação relevante disponível.*
- **10.6 Produtos de decomposição perigosos:** *Não se conhecem produtos de decomposição perigosos.*

SECÇÃO 11: Informação toxicológica

- **11.1 Informações sobre os efeitos toxicológicos**
- **Toxicidade aguda**
Tóxico por ingestão.
Mortal em contacto com a pele.
Nocivo por inalação.

(continuação na página 6)

PT

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- **Efeito de irritabilidade primário:**
- **Corrosão/irritação cutânea**
Provoca irritação cutânea.
- **Lesões oculares graves/irritação ocular**
Provoca lesões oculares graves.
- **Sensibilização respiratória ou cutânea**
Com base nos dados disponíveis, os critérios de classificação não são preenchidos.
- **Efeitos CMR (carcinogenicidade, mutagenicidade e efeitos tóxicos na reprodução)**
- **Mutagenicidade em células germinativas**
Com base nos dados disponíveis, os critérios de classificação não são preenchidos.
- **Carcinogenicidade** Com base nos dados disponíveis, os critérios de classificação não são preenchidos.
- **Toxicidade reprodutiva** Com base nos dados disponíveis, os critérios de classificação não são preenchidos.
- **Toxicidade para órgãos-alvo específicos (STOT) - exposição única**
Com base nos dados disponíveis, os critérios de classificação não são preenchidos.
- **Toxicidade para órgãos-alvo específicos (STOT) - exposição repetida**
Com base nos dados disponíveis, os critérios de classificação não são preenchidos.
- **Perigo de aspiração** Com base nos dados disponíveis, os critérios de classificação não são preenchidos.

SECÇÃO 12: Informação ecológica

- **12.1 Toxicidade**
- **Toxicidade aquática:** Não existe mais nenhuma informação relevante disponível.
- **12.2 Persistência e degradabilidade** Não existe mais nenhuma informação relevante disponível.
- **12.3 Potencial de bioacumulação** Não existe mais nenhuma informação relevante disponível.
- **12.4 Mobilidade no solo** Não existe mais nenhuma informação relevante disponível.
- **Outras indicações ecológicas:**
- **Indicações gerais:**
Classe de perigo para a água 1 (D) (auto-classificação): pouco perigoso para a água
Não deixar chegar substâncias concentradas, ou seja quantidades grandes, às águas subterrâneas, aos cursos de água ou à canalização.
- **12.5 Resultados da avaliação PBT e mPmB**
- **PBT:** Não aplicável.
- **mPmB:** Não aplicável.
- **12.6 Outros efeitos adversos** Não existe mais nenhuma informação relevante disponível.

SECÇÃO 13: Considerações relativas à eliminação

- **13.1 Métodos de tratamento de resíduos**
- **Recomendação:** Não se pode eliminar juntamente com o lixo doméstico. Não permita que chegue à canalização.
- **Embalagens contaminadas:**
- **Recomendação:** Eliminação residual conforme o regulamento dos serviços públicos.

SECÇÃO 14: Informações relativas ao transporte

- **14.1 Número ONU**
- **ADR, IMDG, IATA** UN3287
- **14.2 Designação oficial de transporte da ONU**
- **ADR** 3287 LÍQUIDO INORGÂNICO TÓXICO, N.S.A.

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· **IMDG** *TOXIC LIQUID, INORGANIC, N.O.S., MARINE POLLUTANT*

· **IATA** *TOXIC LIQUID, INORGANIC, N.O.S.*

· **14.3 Classes de perigo para efeitos de transporte**

· **ADR, IATA**



· **Classe**

6.1 Matérias tóxicas

· **IMDG**



· **Class**

6.1 Matérias tóxicas

· **14.4 Grupo de embalagem**

· **ADR, IMDG, IATA**

III

· **14.5 Perigos para o ambiente:**

· **Poluente das águas:**

Símbolo convencional (peixes e árvore)

· **14.6 Precauções especiais para o utilizador**

Atenção: Matérias tóxicas

· **Stowage Category**

A

· **Stowage Code**

SW2 Clear of living quarters.

· **14.7 Transporte a granel em conformidade com o anexo II da Convenção MARPOL e o Código IBC** Não aplicável.

· **Transporte/outras informações:**

· **ADR**

· **Quantidades Limitadas (LQ)**

5L

· **Quantidades exceptuadas (EQ)**

Código: E1

Quantidade líquida máxima por embalagem interior: 30 ml

Quantidade líquida máxima por embalagem exterior: 1000 ml

· **IMDG**

· **Limited quantities (LQ)**

5L

· **Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· **UN "Model Regulation":**

UN 3287 LÍQUIDO INORGÂNICO TÓXICO, N.S.A., 6.1, III

SECÇÃO 15: Informação sobre regulamentação

· **15.1 Regulamentação/legislação específica para a substância ou mistura em matéria de saúde, segurança e ambiente**

· **Diretiva 2012/18/UE**

· **Substâncias perigosas designadas - ANEXO I** Nenhum dos componentes se encontra listado.

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- **Categoria “Seveso” H2 TOXICIDADE AGUDA**
- **Quantidades-limiar (em toneladas), para a aplicação de requisitos de nível inferior 50 t**
- **Quantidades-limiar (em toneladas), para a aplicação de requisitos de nível superior 200 t**
- **Regulamento (CE) n.º 1907/2006 ANEXO XVII Condições de limitação: 3**
- **15.2 Avaliação da segurança química: Não foi realizada nenhuma Avaliação de Segurança Química.**

SECÇÃO 16: Outras informações

As informações fornecidas baseiam-se no estado actual dos nossos conhecimentos, embora não representem uma garantia das propriedades do produto e não fundamentam uma relação contratual.

· **Frases relevantes**

H300 Mortal por ingestão.

H310 Mortal em contacto com a pele.

H314 Provoca queimaduras na pele e lesões oculares graves.

H330 Mortal por inalação.

· **Abreviaturas e acrónimos:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Acute Tox. 2: Toxicidade aguda – Categoria 2

Acute Tox. 3: Toxicidade aguda – Categoria 3

Acute Tox. 1: Toxicidade aguda – Categoria 1

Acute Tox. 4: Toxicidade aguda – Categoria 4

Skin Corr. 1B: Corrosão/irritação cutânea – Categoria 1B

Skin Irrit. 2: Corrosão/irritação cutânea – Categoria 2

Eye Dam. 1: Lesões oculares graves/irritação ocular – Categoria 1

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SECCIÓN 1: Identificación de la sustancia o la mezcla y de la sociedad o la empresa

· 1.1 Identificador del producto

· **Nombre comercial:** OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

· **Número del artículo:** 19140, 19150-SP, 19151, 19160, 19180, 19171, 19150, 19170, 19191, 19190

· **1.2 Usos pertinentes identificados de la sustancia o de la mezcla y usos desaconsejados**

No existen más datos relevantes disponibles.

· **Utilización del producto / de la elaboración** Sustancias químicas de laboratorio

· 1.3 Datos del proveedor de la ficha de datos de seguridad

· **Fabricante/distribuidor:**

Electron Microscopy Sciences

1560 Industry Road

USA-Hatfield, PA 19440

Tel: 215-412-8400 Fax: 215-412-8450

email: sgkcck@aol.com

www.emsdiasum.com

Aname

C/ Perez Galdos no. 2

28693 Quijorna

Madrid, Spain

Tel: +34.91.816.89.50

Fax: +34.91.816.85.94

email: ventas@aname.es

· **Área de información:** Product safety department

· **1.4 Teléfono de emergencia:**

ChemTrec 1-800-424-9300 Contract CCN7661

1-703-527-3887

SECCIÓN 2: Identificación de los peligros

· **2.1 Clasificación de la sustancia o de la mezcla**

· **Clasificación con arreglo al Reglamento (CE) n° 1272/2008**



GHS06 calavera y tibias cruzadas

Acute Tox. 3 H301 Tóxico en caso de ingestión.

Acute Tox. 2 H310 Mortal en contacto con la piel.



GHS05 corrosión

Eye Dam. 1 H318 Provoca lesiones oculares graves.



GHS07

Acute Tox. 4 H332 Nocivo en caso de inhalación.

Skin Irrit. 2 H315 Provoca irritación cutánea.

· **2.2 Elementos de la etiqueta**

· **Etiquetado con arreglo al Reglamento (CE) n° 1272/2008**

El producto se ha clasificado y etiquetado de conformidad con el reglamento CLP.

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· **Pictogramas de peligro**

GHS05 GHS06

· **Palabra de advertencia Peligro**· **Componentes peligrosos a indicar en el etiquetaje:**

tetróxido de osmio

· **Indicaciones de peligro**

H301 Tóxico en caso de ingestión.

H310 Mortal en contacto con la piel.

H332 Nocivo en caso de inhalación.

H315 Provoca irritación cutánea.

H318 Provoca lesiones oculares graves.

· **Consejos de prudencia**

P261 Evitar respirar el polvo/el humo/el gas/la niebla/los vapores/el aerosol.

P301+P310 **EN CASO DE INGESTIÓN:** Llamar inmediatamente a un CENTRO DE TOXICOLOGÍA/médico.P305+P351+P338 **EN CASO DE CONTACTO CON LOS OJOS:** Aclarar cuidadosamente con agua durante varios minutos. Quitar las lentes de contacto, si lleva y resulta fácil. Seguir aclarando.

P321 Se necesita un tratamiento específico (ver en esta etiqueta).

P405 Guardar bajo llave.

P501 Eliminar el contenido o el recipiente conforme a la reglamentación local/regional/nacional/internacional.

· **2.3 Otros peligros**· **Resultados de la valoración PBT y mPmB**· **PBT:** No aplicable.· **mPmB:** No aplicable.

SECCIÓN 3: Composición/información sobre los componentes

· **3.2 Caracterización química: Mezclas**· **Descripción:** Mezcla formada por las sustancias especificadas a continuación con adiciones no peligrosas.· **Componentes peligrosos:**

CAS: 20816-12-0	tetróxido de osmio	2,5-10%
EINECS: 244-058-7	Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; Skin Corr. 1B, H314	

· **Indicaciones adicionales:** El texto de los posibles riesgos aquí indicados se puede consultar en el capítulo 16.

SECCIÓN 4: Primeros auxilios

· **4.1 Descripción de los primeros auxilios**· **Instrucciones generales:**

Quitarse de inmediato toda prenda contaminada con el producto.

En caso de respiración irregular o apnea (paro respiratorio), hágase la respiración artificial.

· **En caso de inhalación del producto:**

Las personas desmayadas deben tenderse y transportarse de lado con la suficiente estabilidad.

· **En caso de contacto con la piel:** Lavar inmediatamente con agua y jabón y enjuagar bien.

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- **En caso de con los ojos:**
Limpiar los ojos abiertos durante varios minutos con agua corriente y consultar un médico.
- **En caso de ingestión:** No provocar el vómito y solicitar asistencia médica inmediata.
- **4.2 Principales síntomas y efectos, agudos y retardados** No existen más datos relevantes disponibles.
- **4.3 Indicación de toda atención médica y de los tratamientos especiales que deban dispensarse inmediatamente**
No existen más datos relevantes disponibles.

SECCIÓN 5: Medidas de lucha contra incendios

- **5.1 Medios de extinción**
- **Sustancias extintoras apropiadas:**
CO₂, polvo extintor o chorro de agua rociada. Combatir incendios mayores con chorro de agua rociada o espuma resistente al alcohol.
- **5.2 Peligros específicos derivados de la sustancia o la mezcla** No existen más datos relevantes disponibles.
- **5.3 Recomendaciones para el personal de lucha contra incendios**
- **Equipo especial de protección:** No se requieren medidas especiales.

SECCIÓN 6: Medidas en caso de vertido accidental

- **6.1 Precauciones personales, equipo de protección y procedimientos de emergencia** No es necesario.
- **6.2 Precauciones relativas al medio ambiente:**
Evitar que penetre en la canalización /aguas de superficie /agua subterráneas.
- **6.3 Métodos y material de contención y de limpieza:**
Quitar con material absorbente (arena, kieselgur, aglutinante de ácidos, aglutinante universal, aserrín).
Desechar el material contaminado como vertido según item 13.
Asegurar suficiente ventilación.
- **6.4 Referencia a otras secciones**
Ver capítulo 7 para mayor información sobre una manipulación segura.
Ver capítulo 8 para mayor información sobre el equipo personal de protección.
Para mayor información sobre cómo desechar el producto, ver capítulo 13.

SECCIÓN 7: Manipulación y almacenamiento

- **7.1 Precauciones para una manipulación segura**
Asegurar suficiente ventilación /aspiración en el puesto de trabajo.
Evitar la formación de aerosoles.
- **Prevención de incendios y explosiones:** No se requieren medidas especiales.
- **7.2 Condiciones de almacenamiento seguro, incluidas posibles incompatibilidades**
- **Almacenamiento:**
- **Exigencias con respecto al almacén y los recipientes:** No se requieren medidas especiales.
- **Normas en caso de un almacenamiento conjunto:** No es necesario.
- **Indicaciones adicionales sobre las condiciones de almacenamiento:** Ningunos, -as.
- **7.3 Usos específicos finales** No existen más datos relevantes disponibles.

SECCIÓN 8: Controles de exposición/protección individual

- **Instrucciones adicionales para el acondicionamiento de instalaciones técnicas:**
Sin datos adicionales, ver punto 7.

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· 8.1 Parámetros de control

· Componentes con valores límite admisibles que deben controlarse en el puesto de trabajo:

20816-12-0 tetróxido de osmio

LEP	Valor de corta duración: 0,006 mg/m ³ , 0,0006 ppm Valor de larga duración: 0,002 mg/m ³ , 0,0002 ppm como Os
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· **Indicaciones adicionales:** Como base se han utilizado las listas vigentes en el momento de la elaboración.

· 8.2 Controles de la exposición

· Equipo de protección individual:

· Medidas generales de protección e higiene:

Mantener alejado de alimentos, bebidas y alimentos para animales.

Quitarse de inmediato la ropa ensuciada o impregnada.

Lavarse las manos antes de las pausas y al final del trabajo.

Guardar la ropa protectora por separado.

Evitar el contacto con la piel.

Evitar el contacto con los ojos y la piel.

· Protección respiratoria:

Si la exposición va a ser breve o de poca intensidad, colocarse una máscara respiratoria. Para una exposición más intensa o de mayor duración, usar un aparato de respiración autónomo.

· Protección de manos:



Guantes de protección

El material del guante deberá ser impermeable y resistente al producto / sustancia / preparado.

Ante la ausencia de tests específicos, no se puede recomendar ningún material específico para guantes de protección contra el producto / preparado / mezcla de sustancias químicas.

Selección del material de los guantes en función de los tiempos de rotura, grado de permeabilidad y degradación.

· Material de los guantes

La elección del guante adecuado no depende únicamente del material, sino también de otras características de calidad, que pueden variar de un fabricante a otro. Teniendo en cuenta que el producto está fabricado a partir de diferentes materiales, su calidad no puede ser evaluada de antemano, de modo que los guantes deberán ser controlados antes de su utilización.

· Tiempo de penetración del material de los guantes

El tiempo de resistencia a la penetración exacto deberá ser pedido al fabricante de los guantes. Este tiempo debe ser respetado.

· Protección de ojos:



Gafas de protección herméticas

SECCIÓN 9: Propiedades físicas y químicas

· 9.1 Información sobre propiedades físicas y químicas básicas

· Datos generales

· Aspecto:

Forma:

Líquido

Color:

Amarillo claro

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· Olor:	Similar al del cloro
· Umbral olfativo:	No determinado.
· valor pH a 20 °C:	7
· Cambio de estado	
Punto de fusión /campo de fusión:	Indeterminado.
Punto de ebullición /campo de ebullición:	100 °C
· Punto de inflamación:	No aplicable.
· Inflamabilidad (sólido, gaseiforme):	No aplicable.
· Temperatura de ignición:	
Temperatura de descomposición:	No determinado.
· Autoinflamabilidad:	El producto no es autoinflamable.
· Peligro de explosión:	El producto no es explosivo.
· Límites de explosión:	
Inferior:	No determinado.
Superior:	No determinado.
· Presión de vapor a 20 °C:	23 hPa
· Densidad a 20 °C:	1,15624 g/cm ³
· Densidad relativa	No determinado.
· Densidad de vapor	No determinado.
· Velocidad de evaporación	No determinado.
· Solubilidad en / miscibilidad con agua:	Poco o no mezclable.
· Coefficiente de reparto (n-octanol/agua):	No determinado.
· Viscosidad:	
Dinámica:	No determinado.
Cinemática:	No determinado.
· Concentración del disolvente:	
Disolventes orgánicos:	0,0 %
Agua:	96,0 %
VOC (CE)	0,00 %
· Contenido de cuerpos sólidos:	4,0 %
· 9.2 Otros datos	No existen más datos relevantes disponibles.

SECCIÓN 10: Estabilidad y reactividad

- **10.1 Reactividad** No existen más datos relevantes disponibles.
- **10.2 Estabilidad química**
- **Descomposición térmica / condiciones que deben evitarse:** No se descompone al emplearse adecuadamente.
- **10.3 Posibilidad de reacciones peligrosas** No se conocen reacciones peligrosas.
- **10.4 Condiciones que deben evitarse** No existen más datos relevantes disponibles.
- **10.5 Materiales incompatibles:** No existen más datos relevantes disponibles.
- **10.6 Productos de descomposición peligrosos:** No se conocen productos de descomposición peligrosos.

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SECCIÓN 11: Información toxicológica

- **11.1 Información sobre los efectos toxicológicos**
- **Toxicidad aguda**
Tóxico en caso de ingestión.
Mortal en contacto con la piel.
Nocivo en caso de inhalación.
- **Efecto estimulante primario:**
- **Corrosión o irritación cutáneas**
Provoca irritación cutánea.
- **Lesiones o irritación ocular graves**
Provoca lesiones oculares graves.
- **Sensibilización respiratoria o cutánea**
A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Efectos CMR (carcinogenicidad, mutagenicidad y toxicidad para la reproducción)**
- **Mutagenicidad en células germinales**
A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Carcinogenicidad** A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Toxicidad para la reproducción** A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Toxicidad específica en determinados órganos (STOT) – exposición única**
A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Toxicidad específica en determinados órganos (STOT) – exposición repetida**
A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Peligro de aspiración** A la vista de los datos disponibles, no se cumplen los criterios de clasificación.

SECCIÓN 12: Información ecológica

- **12.1 Toxicidad**
- **Toxicidad acuática:** No existen más datos relevantes disponibles.
- **12.2 Persistencia y degradabilidad** No existen más datos relevantes disponibles.
- **12.3 Potencial de bioacumulación** No existen más datos relevantes disponibles.
- **12.4 Movilidad en el suelo** No existen más datos relevantes disponibles.
- **Indicaciones medioambientales adicionales:**
- **Indicaciones generales:**
Nivel de riesgo para el agua 1 (autoclasiificación): escasamente peligroso para el agua
En estado no diluido o no neutralizado, no dejar que se infiltre en aguas subterráneas, aguas superficiales o en alcantarillados.
- **12.5 Resultados de la valoración PBT y mPmB**
- **PBT:** No aplicable.
- **mPmB:** No aplicable.
- **12.6 Otros efectos adversos** No existen más datos relevantes disponibles.

SECCIÓN 13: Consideraciones relativas a la eliminación

- **13.1 Métodos para el tratamiento de residuos**
- **Recomendación:** No debe desecharse con la basura doméstica. No debe llegar al alcantarillado.
- **Embalajes sin limpiar:**
- **Recomendación:** Eliminar conforme a las disposiciones oficiales.

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Revisión: 01.11.2016

Nombre comercial: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(se continua en página 6)

SECCIÓN 14: Información relativa al transporte

· 14.1 Número ONU · ADR, IMDG, IATA	UN3287
· 14.2 Designación oficial de transporte de las Naciones Unidas · ADR · IMDG · IATA	3287 LÍQUIDO TÓXICO, INORGÁNICO, N.E.P. TOXIC LIQUID, INORGANIC, N.O.S., MARINE POLLUTANT TOXIC LIQUID, INORGANIC, N.O.S.
· 14.3 Clase(s) de peligro para el transporte · ADR, IATA	
	
· Clase	6.1 Materias tóxicas
· IMDG	
	
· Class	6.1 Materias tóxicas
· 14.4 Grupo de embalaje · ADR, IMDG, IATA	III
· 14.5 Peligros para el medio ambiente: · Contaminante marino:	Símbolo (pez y árbol)
· 14.6 Precauciones particulares para los usuarios · Stowage Category · Stowage Code	Atención: Materias tóxicas A SW2 Clear of living quarters.
· 14.7 Transporte a granel con arreglo al anexo II del Convenio MARPOL y el Código IBC	No aplicable.
· Transporte/datos adicionales:	
· ADR · Cantidades limitadas (LQ) · Cantidades exceptuadas (EQ)	5L Código: E1 Cantidad neta máxima por envase interior: 30 ml Cantidad neta máxima por embalaje exterior: 1000 ml
· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· "Reglamentación Modelo" de la UNECE:	UN 3287 LÍQUIDO TÓXICO, INORGÁNICO, N.E.P., 6.1, III

ES

(se continua en página 8)

Ficha de datos de seguridad

según 1907/2006/CE, Artículo 31

fecha de impresión 01.11.2016

Revisión: 01.11.2016

Nombre comercial: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(se continua en página 7)

SECCIÓN 15: Información reglamentaria

- **15.1 Reglamentación y legislación en materia de seguridad, salud y medio ambiente específicas para la sustancia o la mezcla**
- **Directiva 2012/18/UE**
- **Sustancias peligrosas nominadas - ANEXO I** ninguno de los componentes está incluido en una lista
- **Categoría Seveso H2 TOXICIDAD AGUDA**
- **Cantidad umbral (toneladas) a efectos de aplicación de los requisitos de nivel inferior 50 t**
- **Cantidad umbral (toneladas) a efectos de aplicación de los requisitos de nivel superior 200 t**
- **REGLAMENTO (CE) n° 1907/2006 ANEXO XVII Restricciones: 3**
- **15.2 Evaluación de la seguridad química:** Una evaluación de la seguridad química no se ha llevado a cabo.

SECCIÓN 16: Otra información

Los datos se fundan en el estado actual de nuestros conocimientos, pero no constituyen garantía alguna de cualidades del producto y no generan ninguna relación jurídica contractual.

· **Frases relevantes**

H300 Mortal en caso de ingestión.

H310 Mortal en contacto con la piel.

H314 Provoca quemaduras graves en la piel y lesiones oculares graves.

H330 Mortal en caso de inhalación.

· **Abreviaturas y acrónimos:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Acute Tox. 2: Toxicidad aguda – Categoría 2

Acute Tox. 3: Toxicidad aguda – Categoría 3

Acute Tox. 1: Toxicidad aguda – Categoría 1

Acute Tox. 4: Toxicidad aguda – Categoría 4

Skin Corr. 1B: Corrosión o irritación cutáneas – Categoría 1B

Skin Irrit. 2: Corrosión o irritación cutáneas – Categoría 2

Eye Dam. 1: Lesiones oculares graves o irritación ocular – Categoría 1

Säkerhetsdatablad

Enligt 1907/2006/EG, Artikel 31

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AVSNITT 1: Namnet på ämnet/blandningen och bolaget/företaget

- **1.1 Produktbeteckning**
- **Handelsnamn:** OSMIUM TETROXIDE 4% AQUEOUS SOLUTION
- **Artikelnummer:** 19140, 19150-SP, 19151, 19160, 19180, 19171, 19150, 19170, 19191, 19190
- **1.2 Relevanta identifierade användningar av ämnet eller blandningen och användningar som det avråds från**
Ingen ytterligare relevant information finns till förfogande.
- **Ämnets användning / tillredningen** Laboratoriekemikalier
- **1.3 Närmare upplysningar om den som tillhandahåller säkerhetsdatablad**
- **Tillverkare/leverantör:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com
- **Område där upplysningar kan inhämtas:** Product safety department
- **1.4 Telefonnummer för nödsituationer:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

AVSNITT 2: Farliga egenskaper

- **2.1 Klassificering av ämnet eller blandningen**
- **Klassificering enligt förordning (EG) nr 1272/2008**



GHS06 döds-kalle med korsande benknötar

Acute Tox. 3 H301 Giftigt vid förtäring.

Acute Tox. 2 H310 Dödligt vid hudkontakt.



GHS05 frätande

Eye Dam. 1 H318 Orsakar allvarliga ögonskador.



GHS07

Acute Tox. 4 H332 Skadligt vid inandning.

Skin Irrit. 2 H315 Irriterar huden.

- **2.2 Märkningsuppgifter**
- **Märkning enligt förordning (EG) nr 1272/2008** Produkten är klassificerad och märkt enligt CLP-förordningen.
- **Faropiktogram**



GHS05



GHS06

- **Signalord** Fara

(Fortsättning på sida 2)

Säkerhetsdatablad

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(Fortsättning från sida 1)

· Riskbestämmande komponenter för etikettering:

osmiumtetraoxid

· Faroangivelser

H301 Giftigt vid förtäring.

H310 Dödligt vid hudkontakt.

H332 Skadligt vid inandning.

H315 Irriterar huden.

H318 Orsakar allvarliga ögonskador.

· Skyddsangivelser

P261 Undvik att inandas damm/rök/gaser/dimma/ångor/sprej.

P301+P310 VID FÖRTÄRING: Kontakta genast GIFTINFORMATIONSCENTRALEN/läkare.

P305+P351+P338 VID KONTAKT MED ÖGONEN: Skölj försiktigt med vatten i flera minuter. Ta ur eventuella kontaktlinser om det går lätt. Fortsätt att skölja.

P321 Särskild behandling (se på etiketten).

P405 Förvaras inlåst.

P501 Innehållet / behållaren avfallshanteras enligt lokala / regionala / nationella / internationella föreskrifter.

· 2.3 Andra faror
· Resultat av PBT- och vPvB-bedömningen
· PBT: Ej användbar.

· vPvB: Ej användbar.

AVSNITT 3: Sammansättning/information om beståndsdelar

· 3.2 Kemisk karakterisering: Blandningar
· Beskrivning: Blandning bestående av nedan upplistade ämnen med ofarliga tillsatser.

· Farliga ingredienser:

CAS: 20816-12-0	osmiumtetraoxid	2,5-10%
EINECS: 244-058-7	Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; Skin Corr. 1B, H314	

· Ytterligare hänvisningar: De angivna farohänvisningarnas ordalydelse framgår av kapitel 16.

AVSNITT 4: Åtgärder vid första hjälpen

· 4.1 Beskrivning av åtgärder vid första hjälpen
· Allmänna hänvisningar:

Klädesplagg som förorenats med produkten skall omedelbart avlägsnas.

Vid oregelbunden andning eller andningsstillestånd - ge konstgjord andning.

· Vid inandning: Vid medvetlöshet lägg och transportera patient stabilt i framstupa sidoläge.

· Vid kontakt med huden: Tvätta omedelbart med vatten och tvål och spola därefter noggrant.

· Vid kontakt med ögonen: Spola ögonen öppna i flera minuter under rinnande vatten och kontakta läkare.

· Vid förtäring: Framkalla ej kräkning, tillkalla omedelbart läkarhjälp.

· 4.2 De viktigaste symptomen och effekterna, både akuta och fördröjda

Ingen ytterligare relevant information finns till förfogande.

· 4.3 Angivande av omedelbar medicinsk behandling och särskild behandling som eventuellt krävs

Ingen ytterligare relevant information finns till förfogande.

SE

(Fortsättning på sida 3)

Säkerhetsdatablad

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(Fortsättning från sida 2)

AVSNITT 5: Brandbekämpningsåtgärder

- **5.1 Släckmedel**
- **Lämpliga släckningsmedel:**
CO₂, släckningspulver eller spridd vattenstråle. Större bränder skall bekämpas med spridd vattenstråle eller alkoholbeständigt skum.
- **5.2 Särskilda faror som ämnet eller blandningen kan medföra**
Ingen ytterligare relevant information finns till förfogande.
- **5.3 Råd till brandbekämpningspersonal**
- **Speciell skyddsutrustning:** Inga speciella åtgärder krävs.

AVSNITT 6: Åtgärder vid oavsiktliga utsläpp

- **6.1 Personliga skyddsåtgärder, skyddsutrustning och åtgärder vid nödsituationer** Erfordras ej.
- **6.2 Miljöskyddsåtgärder:** Förhindra produkten att tränga ner i avloppsnät/ytvatten/grundvatten.
- **6.3 Metoder och material för inneslutning och sanering:**
Sug upp med vätskebindande material (sand, kiselgur, syrabindemedel, universalbindemedel, sågspån). Omhändertata förorenat material som avfall enligt punkt 13.
Se till att ventilationen är tillräcklig.
- **6.4 Hänvisning till andra avsnitt**
Information beträffande säker hantering se kapitel 7.
Information beträffande personlig skyddsutrustning se kapitel 8.
Information beträffande avfallshantering se kapitel 13.

AVSNITT 7: Hantering och lagring

- **7.1 Försiktighetsmått för säker hantering**
Sörj för god ventilation/utsug på arbetsplatsen.
Undvik bildning av aerosol.
- **Hänvisningar beträffande brand- och explosionsskydd:** Inga speciella åtgärder krävs.
- **7.2 Förhållanden för säker lagring, inklusive eventuell oförenlighet**
- **Lagring:**
- **Krav på lagerutrymmen och behållare:** Inga speciella krav.
- **Hänvisningar beträffande sammanlagring:** Erfordras ej.
- **Ytterligare uppgifter till lagringsvillkoren:** Inga.
- **7.3 Specifik slutanvändning** Ingen ytterligare relevant information finns till förfogande.

AVSNITT 8: Begränsning av exponeringen/personligt skydd

- **Ytterligare hänvisningar beträffande utformning av tekniska anläggningar:** Inga övriga uppgifter, se punkt 7.
- **8.1 Kontrollparametrar**
- **Ämnen med yrkeshygieniska gränsvärden som bör övervakas:**
Produkten innehåller inga relevanta mängder av ämnen med arbetsplatsrelaterade gränsvärden som skall övervakas.
- **Ytterligare hänvisningar:** De vid framställningen gällande listorna har använts som utgångspunkt.
- **8.2 Begränsning av exponeringen**
- **Personlig skyddsutrustning:**
- **Allmänna skydds- och hygienåtgärder:**
Undvik kontakt med livsmedel, drycker och fodermedel.
Nedsmutsade, indränkta klädesplagg skall omedelbart tas av.

(Fortsättning på sida 4)

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(Fortsättning från sida 3)

Tvätta händerna före raster och efter arbetet.

Skyddsdräkter förvaras separat.

Undvik kontakt med huden.

Undvik kontakt med ögonen och huden.

· **Andningsskydd:**

Vid kortvarig eller ringa belastning - använd andningsfilterutrustning; vid intensiv resp. längre exponering - använd andningsskyddsutrustning som är oberoende av omgivningsluften.

· **Handskydd:**



Skyddshandskar

Handskmaterialet måste vara tätt och beständigt mot produkt/ämne/tillredning.

Handskmaterialrekommendationer kan inte ges för produkt/tillredning/kemikalielösning, då inga tester genomförts.

Val av handskmaterial beaktande penetrationstider, permeationskvoter och degradation.

· **Handskmaterial**

Val av lämplig handske är inte enbart beroende av material utan även av andra kvalitetskriterier och varierar från en tillverkare till nästa. Då produkten bereds av flera material, kan handskmaterialets beständighet inte förutses och måste därför kontrolleras före användningen.

· **Handskmaterialets penetreringstid**

Exakt penetrationstid fastställs av skyddshandskarnas tillverkare och skall beaktas.

· **Ögonskydd:**



Tättslutande skyddsglasögon

AVSNITT 9: Fysikaliska och kemiska egenskaper

· **9.1 Information om grundläggande fysikaliska och kemiska egenskaper**

· **Allmänna uppgifter**

· **Utseende:**

· Form:	Vätska
· Färg:	Ljuskul
· Lukt:	Kloraktig
· Luktröskel:	Ej bestämd.

· **pH-värde vid 20 °C:** 7

· **Tillståndsändring**

· Smältpunkt/smältområde:	Ej bestämd.
· Kokpunkt / kokområde:	100 °C

· **Flampunkt:** Ej användbar.

· **Lättantändlighet (fast, gasformig):** Ej användbar.

· **Tändtemperatur:**

· **Sönderdelningstemperatur:** Ej bestämd.

· **Självantändbarhet:** Produkten är ej självantändande.

· **Explosionsfara:** Produkten är ej explosiv.

(Fortsättning på sida 5)

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(Fortsättning från sida 4)

· Explosionsgränser:	
Nedre:	Ej bestämd.
Övre:	Ej bestämd.
· Ångtryck vid 20 °C:	23 hPa
· Densitet vid 20 °C:	1,15624 g/cm ³
· Relativ densitet	Ej bestämd.
· Ångdensitet	Ej bestämd.
· Förångningshastighet	Ej bestämd.
· Löslighet i / blandbarhet med Vatten:	Ej resp. föga blandbar.
· Fördelningskoefficient (n-octanol/vatten):	Ej bestämd.
· Viskositet:	
Dynamisk:	Ej bestämd.
Kinematisk:	Ej bestämd.
· Lösningsmedelhalt:	
Organiska lösningsmedel:	0,0 %
Vatten:	96,0 %
VOC (EG)	0,00 %
Andel av fasta partiklar:	4,0 %
· 9.2 Annan information	Ingen ytterligare relevant information finns till förfogande.

AVSNITT 10: Stabilitet och reaktivitet

- **10.1 Reaktivitet** Ingen ytterligare relevant information finns till förfogande.
- **10.2 Kemisk stabilitet**
- **Termisk sönderdelning / förhållanden som bör undvikas:** Inget sönderfall vid ändamålsenlig användning.
- **10.3 Risken för farliga reaktioner** Inga farliga reaktioner kända.
- **10.4 Förhållanden som ska undvikas** Ingen ytterligare relevant information finns till förfogande.
- **10.5 Oförenliga material:** Ingen ytterligare relevant information finns till förfogande.
- **10.6 Farliga sönderdelningsprodukter:** Inga farliga sönderfallsprodukter kända.

AVSNITT 11: Toxikologisk information

- **11.1 Information om de toxikologiska effekterna**
- **Akut toxicitet**
Giftigt vid förtäring.
Dödligt vid hudkontakt.
Skadligt vid inandning.
- **Primär retnings effekt:**
- **Frätande/irriterande på huden**
Irriterar huden.
- **Allvarlig ögonskada/ögonirritation**
Orsakar allvarliga ögonskador.
- **Luftvägs-/hudsensibilisering**
Kriterierna för klassificering kan på grundval av tillgängliga data inte anses vara uppfyllda.

(Fortsättning på sida 6)

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(Fortsättning från sida 5)

- **CMR-effekter (cancerframkallande, mutagena och reproduktionstoxiska egenskaper)**
- **Mutagenitet i könsceller**
Kriterierna för klassificering kan på grundval av tillgängliga data inte anses vara uppfyllda.
- **Cancerogenitet** Kriterierna för klassificering kan på grundval av tillgängliga data inte anses vara uppfyllda.
- **Reproduktionstoxicitet**
Kriterierna för klassificering kan på grundval av tillgängliga data inte anses vara uppfyllda.
- **Specifik organtoxicitet – enstaka exponering**
Kriterierna för klassificering kan på grundval av tillgängliga data inte anses vara uppfyllda.
- **Specifik organtoxicitet – upprepad exponering**
Kriterierna för klassificering kan på grundval av tillgängliga data inte anses vara uppfyllda.
- **Fara vid aspiration** Kriterierna för klassificering kan på grundval av tillgängliga data inte anses vara uppfyllda.

AVSNITT 12: Ekologisk information

- **12.1 Toxicitet**
- **Akvatisk toxicitet:** Ingen ytterligare relevant information finns till förfogande.
- **12.2 Persistens och nedbrytbarhet** Ingen ytterligare relevant information finns till förfogande.
- **12.3 Bioackumuleringsförmåga** Ingen ytterligare relevant information finns till förfogande.
- **12.4 Rörlighet i jord** Ingen ytterligare relevant information finns till förfogande.
- **Ytterligare ekologiska hänvisningar:**
- **Allmänna hänvisningar:**
Vattenföroreningsklass 1 (Självtvärdering): liten risk för vattenförorening.
Låt ej tränga ner i grundvatten, vattendrag eller i avloppsnätet i outspätt tillstånd resp. i större mängder.
- **12.5 Resultat av PBT- och vPvB-bedömningen**
- **PBT:** Ej användbar.
- **vPvB:** Ej användbar.
- **12.6 Andra skadliga effekter** Ingen ytterligare relevant information finns till förfogande.

AVSNITT 13: Avfallshantering

- **13.1 Avfallsbehandlingsmetoder**
- **Rekommendation:** Får inte deponeras ihop med hushållsavfall. Får inte tömmas i avloppsnätet.
- **Ej rengjorda förpackningar:**
- **Rekommendation:** Avfallshanteras enligt myndigheters föreskrifter.

AVSNITT 14: Transportinformation

- | | |
|--|---|
| · 14.1 UN-nummer | |
| · ADR, IMDG, IATA | UN3287 |
| · 14.2 Officiell transportbenämning | |
| · ADR | 3287 GIFTIG OORGANISK VÄTSKA, N.O.S. |
| · IMDG | TOXIC LIQUID, INORGANIC, N.O.S., MARINE POLLUTANT |
| · IATA | TOXIC LIQUID, INORGANIC, N.O.S. |

(Fortsättning på sida 7)

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(Fortsättning från sida 6)

· 14.3 Faroklass för transport

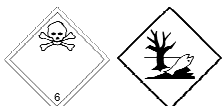
· ADR, IATA



· Klass

6.1 Giftiga ämnen

· IMDG



· Class

6.1 Giftiga ämnen

· 14.4 Förpackningsgrupp

· ADR, IMDG, IATA

III

· 14.5 Miljöfaror:

· Marine pollutant:

Symbol (fisk och träd)

· 14.6 Särskilda skyddsåtgärder

· Stowage Category

Varning: Giftiga ämnen

· Stowage Code

A

SW2 Clear of living quarters.

· 14.7 Bulktransport enligt bilaga II till Marpol 73/78 och IBC-koden

Ej användbar.

· Transport / ytterligare uppgifter:

· ADR

· Begränsade mängder (LQ)

5L

· Reducerade mängder (EQ)

Kod: E1

Högsta nettomängd per innerförpackning: 30 ml

Högsta nettomängd per ytterförpackning: 1000 ml

· IMDG

· Limited quantities (LQ)

5L

· Excepted quantities (EQ)

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· UN "Model Regulation":

UN 3287 GIFTIG OORGANISK VÄTSKA, N.O.S., 6.1, III

AVSNITT 15: Gällande föreskrifter

· 15.1 Föreskrifter/lagstiftning om ämnet eller blandningen när det gäller säkerhet, hälsa och miljö

· Direktiv 2012/18/EU

· Namngivna farliga ämnen - BILAGA I Inga beståndsdelar är listade.

· Seveso-kategorier H2 AKUT TOXICITET

· Tröskelvärden (i ton) för tillämpning av krav för lägre nivå 50 t

· Tröskelvärden (i ton) för tillämpning av krav för övre nivå 200 t

· Förordning (EG) nr 1907/2006 BILAGA XVII Villkor: 3

(Fortsättning på sida 8)

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(Fortsättning från sida 7)

· **15.2 Kemikaliesäkerhetsbedömning:** En kemikaliesäkerhetsbedömning har ej gjorts.**AVSNITT 16: Annan information**

Uppgifterna är baserade på våra aktuella kunskaper. De representerar emellertid ingen som helst garanti beträffande produkttegenskaper och utgör ingen grund för ett avtalat rättsförhållande.

· **Relevanta fraser***H300 Dödligt vid förtäring.**H310 Dödligt vid hudkontakt.**H314 Orsakar allvarliga frätskador på hud och ögon.**H330 Dödligt vid inandning.*· **Förkortningar och akronymer:***ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)**IMDG: International Maritime Code for Dangerous Goods**IATA: International Air Transport Association**GHS: Globally Harmonised System of Classification and Labelling of Chemicals**EINECS: European Inventory of Existing Commercial Chemical Substances**ELINCS: European List of Notified Chemical Substances**CAS: Chemical Abstracts Service (division of the American Chemical Society)**VOC: Volatile Organic Compounds (USA, EU)**PBT: Persistent, Bioaccumulative and Toxic**vPvB: very Persistent and very Bioaccumulative**Acute Tox. 2: Akut toxicitet – Kategori 2**Acute Tox. 3: Akut toxicitet – Kategori 3**Acute Tox. 1: Akut toxicitet – Kategori 1**Acute Tox. 4: Akut toxicitet – Kategori 4**Skin Corr. 1B: Frätande eller irriterande på huden – Kategori 1B**Skin Irrit. 2: Frätande eller irriterande på huden – Kategori 2**Eye Dam. 1: Allvarlig ögonskada eller ögonirritation – Kategori 1*

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การระบุสาร/ การทำ/ และของบริษัท / บริษัทที่เข้าถือครอง

- 1.1 ลักษณะเฉพาะของผลิตภัณฑ์
- ชื่อทางการค้า **OSMIUM TETROXIDE 4% AQUEOUS SOLUTION**
- เลขที่รายชื่อ 19140, 19150-SP, 19151, 19160, 19180, 19171, 19150, 19170, 19191, 19190
- 1.2 สารหรือสารผสมที่เกี่ยวข้องที่ระบุให้ใช้และที่ไม่ควรให้ใช้ ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- การประยุกต์ใช้สาร/ การทำ เคมีภัณฑ์ห้องทดลอง
- 1.3 รายละเอียดของผู้จัดหาข้อมูลด้านความปลอดภัย
- ผู้ผลิต/ ผู้จัดหา
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com
- ข้อมูลรายละเอียดเพิ่มเติมหาได้จาก Product safety department
- 1.4 หมายเลขโทรศัพท์ฉุกเฉิน:
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

การระบุสิ่งที่อันตราย

- 2.1 การจำแนกประเภทของสารหรือสารผสม
- การแบ่งประเภทตามข้อบังคับ (จีซี) เลขที่ 1272/2008



หัวกระโหลกและกระดูกไขว้

Acute Tox. 3 H301 มีพิษหากกลืนเข้าไป

Acute Tox. 2 H310 เป็นอันตรายถึงตายหากสัมผัสกับผิวหนัง



การกัดกร่อน

Eye Dam. 1 H318 เป็นสาเหตุให้เกิดอันตรายต่อดวงตาอย่างสาหัส



Acute Tox. 4 H332 ให้โทษหากสูดหายใจเข้า

Skin Irrit. 2 H315 เป็นสาเหตุให้เกิดการระคายเคืองผิวหนัง

- 2.2 องค์ประกอบของฉลาก
- ฉลากตามระเบียบ (EC) เลขที่ 1272/2008 ผลิตภัณฑ์ได้รับการจัดประเภทและติดฉลากตามข้อบังคับของ CLP
- ภาพสัญลักษณ์ที่เป็นอันตราย



GHS05 GHS06

- สัญญาณคำ อันตราย
- ส่วนประกอบที่ระบุอันตรายบนฉลาก
Osmium Tetroxide

(ต่อที่หน้า 2)

TH

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(ต่อที่หน้า 2)

- 5.3 คำแนะนำสำหรับพนักงานดับเพลิง
- อุปกรณ์ป้องกันภัย ไม่ต้องมีมาตรการพิเศษ

มาตรการลดอุบัติเหตุ

- 6.1 การป้องกันส่วนบุคคล อุปกรณ์ป้องกัน และขั้นตอนดำเนินการเมื่อเกิดกรณีฉุกเฉิน ไม่ได้กำหนด
- 6.2 การให้ความคุ้มครองสิ่งแวดล้อม: อย่าปล่อยให้เข้าไปในท่อน้ำทิ้ง/ น้ำบนดินหรือใต้ดิน
- 6.3 วิธีดำเนินการและวัสดุสำหรับการบรรจุและการทำความสะอาด:
ดูดซับด้วยวัสดุที่สามารถยึดของเหลวไว้ (ทรายไดอะโตไมท์ตัวยึดเกาะกรดตัวยึดทั่วไปซีลีย)
- 6.4 การอ้างอิงถึงส่วนอื่น
ดูข้อมูลรายละเอียดเรื่องความปลอดภัยในการขนถ่ายจากส่วนที่ 7
ดูข้อมูลรายละเอียดเรื่องอุปกรณ์ป้องกันส่วนบุคคลจากส่วนที่ 8
ดูข้อมูลรายละเอียดเรื่องการจัดเก็บจากส่วนที่ 13

การขนถ่ายและการจัดเก็บ

- 7.1 การป้องกันล่วงหน้าสำหรับการจัดการด้านความปลอดภัย
ทำให้แน่ใจว่าสถานที่ทำงานมีการระบายอากาศ/ ไอเสียที่ดี
ป้องกันการเกิดละอองสารฟุ้ง
- ข้อมูลรายละเอียดเกี่ยวกับการป้องกันอัคคีภัยและการระเบิด ไม่มีมาตรการพิเศษ
- 7.2 เงื่อนไขในการเก็บรักษาอย่างปลอดภัย, รวมถึงสิ่งที่เข้ากันไม่ได้ใดๆ
- การจัดเก็บ
- ข้อกำหนดที่ต้องปฏิบัติตามสำหรับห้องเก็บและภาชนะบรรจุ ไม่มีข้อกำหนดพิเศษ
- ข้อมูลรายละเอียดด้านการจัดเก็บในสถานที่จัดเก็บรวม ไม่ได้กำหนด
- ข้อมูลรายละเอียดเพิ่มเติมด้านสภาพการจัดเก็บ ไม่มี
- 7.3 การระบุถึงการสิ้นสุดการใช้ ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้

การควบคุมการทิ้งในลักษณะเปิด / การป้องกันภัยส่วนบุคคล

- ข้อมูลรายละเอียดเสริมสำหรับการออกแบบสิ่งอำนวยความสะดวกทางเทคนิค ไม่มีข้อมูลนอกเหนือจากนี้ดูรายการ 7

8.1 การควบคุมตัวแปร

- ส่วนผสมพร้อมค่าขอบเขตที่ต้องเฝ้าดูในสถานที่ปฏิบัติงาน

20816-12-0 Osmium Tetroxide

PEL (US)	ค่าระยะยาว: 0.002* mg/m ³ *as Os
REL (US)	ค่าระยะสั้น: 0.006 mg/m ³ , 0.0006 ppm ค่าระยะยาว: 0.002 mg/m ³ , 0.0002 ppm
TLV (US)	ค่าระยะสั้น: 0.0047 mg/m ³ , 0.0006 ppm ค่าระยะยาว: 0.0016 mg/m ³ , 0.0002 ppm

- ข้อมูลรายละเอียดเสริม รายการถูกต้องระหว่างที่จัดทำโดยอาศัยการใช้งานเป็นหลัก
- 8.2 การควบคุมการสัมผัส
- อุปกรณ์ป้องกันภัยส่วนบุคคล
- มาตรการการป้องกันและสุขอนามัยทั่วไป
เก็บให้ห่างจากสิ่งของที่เปื้อนอาหารเครื่องดื่มและอาหารสัตว์
ให้ถอดเสื้อผ้าที่เปื้อนและเจือปนออกทันที

(ต่อที่หน้า 4)

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(ต่อหน้า 3)

ล้างมือก่อนที่จะหยุดพักและเมื่อสิ้นสุดเวลาทำงาน

เก็บขวดป้องกันแยกต่างหาก

หลีกเลี่ยงการสัมผัสถูกผิวหนัง

หลีกเลี่ยงการสัมผัสถูกตาและผิวหนัง

- **การป้องกันการสูดหายใจเข้าไป**

ในกรณีที่อยู่เป็นเวลาสั้นหรืออากาศเป็นพิษระดับต่ำใช้หน้ากากกรองเพื่อช่วยหายใจในกรณีที่มีความเข้มข้นสูงหรืออยู่เป็นเวลานานให้ใช้เครื่องป้องกันที่มีอุปกรณ์ช่วยหายใจในตัว

- **การป้องกันมือ**



ถุงมือป้องกัน

วัสดุของถุงมือจะต้องไม่ให้อากาศผ่านเข้าออกและทนทานต่อผลิตภัณฑ์/ สาร/ การผลิตเนื่องจากขาดการทดสอบจึงไม่มีคำแนะนำสำหรับวัสดุที่ใช้ทำถุงมือสำหรับผลิตภัณฑ์ / การผลิต / ของผสมเคมี

เลือกวัสดุสำหรับถุงมือโดยพิจารณาจากเวลาที่ใช้ในการซึมผ่านอัตราการแพร่และการเสื่อม

- **วัสดุที่ใช้ทำถุงมือ**

การเลือกใช้ถุงมือที่เหมาะสมไม่เพียงแต่ขึ้นอยู่กับวัสดุแต่ยังขึ้นกับมาตรฐานด้านคุณภาพและข้อแตกต่างระหว่างผู้ผลิตแต่ละแห่งโดยที่ผลิตภัณฑ์เตรียมมาจากสารหลายชนิดความทนทานของวัสดุถุงมือไม่สามารถที่จะคำนวณล่วงหน้าดังนั้นจึงต้องตรวจสอบกับการใช้งาน

- **เวลาที่ใช้ในการทะลุผ่านวัสดุที่ใช้ทำถุงมือ**

ผู้ผลิตถุงมือป้องกันจะต้องทดสอบหาเวลาแน่นอนที่ใช้ในการทะลุผ่านและจะต้องมีการตรวจสอบติดตาม

- **การป้องกันตา**



แว่นตาที่ขอบปิดสนิท

คุณสมบัติทางกายภาพและเคมี

- 9.1 ข้อมูลคุณสมบัติพื้นฐานทางกายภาพและเคมี

- ข้อมูลรายละเอียดทั่วไป

- ลักษณะ :

รูปสีฐาน

ของเหลว

สี

สีเหลืองอ่อน

- กลิ่น

คล้ายคลอรีน

- เกณฑ์กลิ่น :

ไม่ได้กำหนดไว้.

- ค่า pH ที่ 20 °C

7

- การเปลี่ยนสภาวะ

จุดหลอมเหลว/ ขอบเขตการหลอมละลาย

ไม่ได้กำหนด

จุดเดือด/ ขอบเขตการเดือด

100 °C

- จุดวาบไฟ

ไม่สามารถใช้ได้

- ความสามารถติดไฟ (ของแข็งแกส)

ไม่สามารถใช้ได้

- อุณหภูมิจุดระเบิด

อุณหภูมิละลายตัว

ไม่ได้กำหนดไว้.

(ต่อหน้า 5)

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(ต่อที่หน้า 4)

· การเผาไหม้ด้วยตัวเอง	ผลิตภัณฑ์ไม่เป็นสารจุดไฟติดด้วยตัวเอง
· อันตรายจากการระเบิด	ผลิตภัณฑ์ไม่ได้มีอันตรายจากการระเบิด
· ขอบเขตการระเบิด ชั้นต่ำ ชั้นสูง	ไม่ได้กำหนดไว้. ไม่ได้กำหนดไว้.
· ความดันไอ ที่ 20 °C	23 hPa
· ความหนาแน่น ที่ 20 °C · ความหนาแน่นสัมพัทธ์ · ความหนาแน่นของไอ · อัตราการระเหย	1.15624 g/cm ³ ไม่ได้กำหนดไว้. ไม่ได้กำหนดไว้. ไม่ได้กำหนดไว้.
· ความสามารถในการละลายใน / ความสามารถผสมเป็นสารละลายเนื้อเดียวทุกส่วนผสมกับน้ำ	ไม่สามารถผสมกันได้หรือยากที่จะผสม
· สัมประสิทธิ์การแยกตัว (เอ็น-ออกทานอล/น้ำ)	ไม่ได้กำหนดไว้.
· ความหนืด (ไดนามิค) พลศาสตร์ (คิเนเมติก) จลนศาสตร์	ไม่ได้กำหนดไว้. ไม่ได้กำหนดไว้.
· ปริมาณส่วนประกอบตัวทำละลาย ตัวทำละลายอินทรีย์ น้ำ VOC (EC)	0.0 % 96.0 % 0.00 %
· ส่วนประกอบที่เป็นของแข็ง · 9.2 ข้อมูลอื่นๆ	4.0 % ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้

ความเสถียรและความสามารถในการทำปฏิกิริยา

- 10.1 ปฏิกิริยาได้ตอบ ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- 10.2 เสถียรภาพทางเคมี
- การสลายตัวด้วยความร้อน / เจือจางที่ต้องหลีกเลี่ยง ไม่มีการสลายตัวถ้าใช้ตามรายละเอียดที่ระบุไว้
- 10.3 ความเป็นไปได้ของการเกิดปฏิกิริยาอันตราย ไม่มีปฏิกิริยาเป็นอันตรายที่รู้จัก
- 10.4 เจือจางเพื่อการหลีกเลี่ยง ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- 10.5 วัสดุที่เข้ากันไม่ได้: ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- 10.6 อันตรายจากการสลายตัวของผลิตภัณฑ์: ไม่มีสารจากการสลายตัวที่เป็นอันตรายที่รู้จัก

ข้อมูลรายละเอียดเกี่ยวกับพิษวิทยา

- 11.1 ข้อมูลเกี่ยวกับผลกระทบทางพิษวิทยา
- ความเป็นพิษอย่างสาหัส:
มีพิษหากกลืนเข้าไป
เป็นอันตรายถึงตายหากสัมผัสกับผิวหนัง
ให้โทษหากสูดหายใจเข้า
- อาการระคายเคืองเบื้องต้น
- บนมผิวหนัง
เป็นสาเหตุให้เกิดการระคายเคืองผิวหนัง
- ที่ดวงตา
เป็นสาเหตุให้เกิดอันตรายต่อดวงตาอย่างสาหัส

(ต่อที่หน้า 6)

-TH-

แผนข้อมูลความปลอดภัย

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· การทำให้แพ้

(ต่อที่หน้า 5)


ข้อมูลรายละเอียดเกี่ยวกับนิเวศวิทยา

- 12.1 **ความเป็นพิษ**
- **ความเป็นพิษที่เกี่ยวกับน้ำ** ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- 12.2 **การคงอยู่และการย่อยสลาย** ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- 12.3 **การสะสมทางชีวภาพที่อาจเกิดขึ้น** ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- 12.4 **การเปลี่ยนแปลงในดิน** ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- **ข้อมูลรายละเอียดเสริมเกี่ยวกับนิเวศวิทยา**
- **หมายเหตุทั่วไป**
เป็นอันตรายต่อน้ำชั้น 1 (กฏข้อบังคับของเยอรมัน) (การประเมินค่าด้วยตัวเอง) : เป็นอันตรายเล็กน้อยกับน้ำ
อยู่ปละลายให้ผลิตภัณฑ์ที่ยังไม่ได้เจือจางหรือผลิตภัณฑ์เป็นจำนวนมากไปถึงน้ำผิวดินเส้นทางน้ำหรือระบบระบายน้ำเสีย
- 12.5 **ผลของ PBT และการประเมิน vPvB**
- **PBT:** ไม่สามารถใช้ได้
- **vPvB:** ไม่สามารถใช้ได้
- 12.6 **ผลข้างเคียงอื่นๆ** ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้

การพิจารณาการจัด

- 13.1 **วิธีการกำจัดของเสีย**
- **คำแนะนำ** ต้องไม่ทิ้งไปพร้อมกับขยะจากบ้านเรือนอย่าปล่อยให้ผลิตภัณฑ์เข้าถึงระบบระบายน้ำเสีย
- **ภาชนะบรรจุที่ยังไม่ได้สร้างทำความสะอาด**
- **คำแนะนำ** การกำจัดจะต้องทำตามกฎระเบียบที่เป็นทางการ

ข้อมูลรายละเอียดในการขนส่ง

- 14.1 **เลขที่ UN**
- **ADR, IMDG, IATA** UN3287
- 14.2 **ชื่อการจัดส่งสินค้าที่เหมาะสมของ UN**
- **ADR** 3287 TOXIC LIQUID, INORGANIC, N.O.S.
- **IMDG** TOXIC LIQUID, INORGANIC, N.O.S., MARINE POLLUTANT
- **IATA** TOXIC LIQUID, INORGANIC, N.O.S.
- 14.3 **ชั้นเรียนอันตรายจากการขนส่ง**
- **ADR, IATA**
- 
- **ประเภท** 6.1 สารมีพิษ

(ต่อที่หน้า 7)

TH

แผ่นข้อมูลความปลอดภัย

ตาม 1907/2006/EC, มาตรา 31

วันที่พิมพ์ 2016.11.01

การปรับปรุงใหม่ : 2016.11.01

ชื่อทางการค้า OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(ต่อหน้า 6)

· IMDG



· Class

6.1 สารมีพิษ

 · 14.4 กลุ่มของภาชนะบรรจุ
 · ADR, IMDG, IATA

III

 · 14.5 สิ่งที่เป็นอันตรายต่อสภาพแวดล้อม
 · สารที่เป็นพิษต่อทะเล

สัญลักษณ์ (ปลาและต้นไม้)

· 14.6 การป้องกันพิเศษล่วงหน้าสำหรับผู้ใช้

คำเตือน !: สารมีพิษ

· Stowage Category

A

· Stowage Code

SW2 Clear of living quarters.

 · 14.7 การขนส่งขนาดใหญ่ตามภาคผนวก 2 ของ
 MARPOL/73/78 และรหัส IBC

ไม่สามารถใช้ได้

· การขนส่ง/ข้อมูลรายละเอียดเสริม

· ADR

· ปริมาณที่จำกัด (LQ)

5L

· Excepted quantities (EQ)

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· IMDG

· Limited quantities (LQ)

5L

· Excepted quantities (EQ)

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· “กฎระเบียบต้นแบบ” ของ UN

UN 3287 TOXIC LIQUID, INORGANIC, N.O.S., 6.1, III

ข้อมูลรายละเอียดของกฎระเบียบ

· 15.1 ความปลอดภัย สุขภาพและระเบียบ/กฎหมายสิ่งแวดล้อมโดยเฉพาะของสารหรือสารผสม

ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้

· 15.2 การประเมินความปลอดภัยของสารเคมี: ไม่ได้ดำเนินการตามการประเมินความปลอดภัยของสารเคมี

ข้อมูลรายละเอียดอื่นๆ

ข้อมูลรายละเอียดนี้ใช้ความรู้ปัจจุบันของเราเป็นหลัก อย่างไรก็ตาม ข้อมูลนี้ไม่ใช่การรับประกันจากสถาบันต่อคุณสมบัติเฉพาะของผลิตภัณฑ์และไม่สามารถยืนยันการบังคับใช้ตามกฎหมายที่เกี่ยวข้องกับสัญญา

· วลีที่เกี่ยวข้องกับ

H300 เป็นอันตรายถึงชีวิตหากกลืนเข้าไป

H310 เป็นอันตรายถึงตายหากสัมผัสกับผิวหนัง

H314 เป็นสาเหตุให้ผิวหนังไหม้อย่างสาหัสและทำอันตรายต่อดวงตา

H330 เป็นอันตรายถึงชีวิตหากสูดหายใจเข้าไป

· คำย่อและชื่อย่อที่ผสมขึ้น

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

(ต่อหน้า 8)

แผ่นข้อมูลความปลอดภัย

ตาม 1907/2006/EC, มาตรา 31

วันที่พิมพ์ 2016.11.01

การปรับปรุงใหม่ : 2016.11.01

ชื่อทางการค้า OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(ต่อหน้า 7)

IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Acute Tox. 2: Acute toxicity – Category 2
Acute Tox. 3: Acute toxicity – Category 3
Acute Tox. 1: Acute toxicity – Category 1
Acute Tox. 4: Acute toxicity – Category 4
Skin Corr. 1: Skin corrosion/irritation – Category 1
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1

TH

Güvenlik Bilgi Formu

1907/2006/AT uyarınca, Madde 31

Baskı tarihi: 01.11.2016

Yeniden düzenleme tarihi: 01.11.2016

Bölüm 1: Maddenin/karışımın ve şirketin/dağıtıcının kimliği

- **1.1 Madde/Karışım kimliği**
- **Ticari adı:** OSMIUM TETROXIDE 4% AQUEOUS SOLUTION
- **Mal numarası:** 19140, 19150-SP, 19151, 19160, 19180, 19171, 19150, 19170, 19191, 19190
- **1.2 Madde veya karışımın belirlenmiş kullanımları ve tavsiye edilmeyen kullanımları**
Daha başka önemli bilgi mevcut değildir.
- **Maddenin Kullanımı / Hazırlanması** Laboratuarda kullanılan kimyasal maddeler
- **1.3 Güvenlik bilgi formu tedarikçisinin bilgileri**
- **Üretici / Teslimatı yapan:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com
- **Güvenlik hakkında bilgiler veren kesim:** Product safety department
- **1.4 Acil durum telefon numarası**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

Bölüm 2: Zararlılık tanımlanması

- **2.1 Madde veya karışımın sınıflandırılması**
- **Düzenlemeye göre sınıflandırma (EC) No 1272/2008**



GHS06 Kuru kafa ve çapraz kemikler

Acute Tox. 3 H301 Yutulması halinde toksiktir.

Acute Tox. 2 H310 Cilt ile teması halinde öldürücüdür.



GHS05 Aşınma

Eye Dam. 1 H318 Ciddi göz hasarına yol açar.



GHS07

Acute Tox. 4 H332 Solunması halinde zararlıdır.

Skin Irrit. 2 H315 Cilt tahrişine yol açar.

- **2.2 Etiket unsurları**
- **Yönetmelik (EC) No 1272/2008'e göre etiketleme**
Ürün SEA yönetmeliğine göre sınıflandırılmış ve etiketlenmiştir.
- **Zararlılık İşaretleri**



GHS05



GHS06

- **Uyarı Kelimesi Tehlike**

(Devamı sayfa 2 'da)

Güvenlik Bilgi Formu

1907/2006/AT uyarınca, Madde 31

Baskı tarihi: 01.11.2016

Yeniden düzenleme tarihi: 01.11.2016

Ticari adı: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(Sayfa 1 'nin devamı)

· **Etiketlendirme için tehlikeyi belirleyici bileşenler:**

osmiyum tetraoksit

· **Zararlılık İfadesi**

H301 Yutulması halinde toksiktir.

H310 Cilt ile teması halinde öldürücüdür.

H332 Solunması halinde zararlıdır.

H315 Cilt tahrişine yol açar.

H318 Ciddi göz hasarına yol açar.

· **Önlem İfadesi**

P261 Tozunu/dumanını/gazını/sisini/buharını/spreyini solumaktan kaçının.

P301+P310 YUTULDUĞUNDA: ULUSAL ZEHİR DANIŞMA MERKEZİNİN 114 NOLU TELEFONUNU/ doktoru arayın.

P305+P351+P338 GÖZ İLE TEMASI HALİNDE: Su ile birkaç dakika dikkatlice durulayın. Takılı ve yapması kolaysa, kontak lensleri çıkartın. Durulamaya devam edin.

P321 Özel müdahale gerekli (etikete bakın)

P405 Kilit altında saklayın.

P501 İçeriği/kabı yerel/bölgesel/ulusal/uluslararası mevzuata uygun şekilde bertaraf edin.

· **2.3 Diğer zararlar**

· **PBT ve vPvB değerlendirmesi sonuçları**

· **PBT:** Uygulanamaz.· **vPvB:** Uygulanamaz.

Bölüm 3: Bileşimi/İçindekiler hakkında bilgi

· **3.2 Karışımlar**

· **Tarifi:** Tehlikesiz katkılar ihtiva eden ve aşağıda belirtilen maddelerden oluşan karışım.

· **İhtiva ettiği tehlikeli maddeler:**

CAS: 20816-12-0	osmiyum tetraoksit	%2,5-10
EINECS: 244-058-7	Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; Skin Corr. 1B, H314	

· **Ek uyarılar:** belirtilmiş olan tehlike işaretlerinin metnini Bölüm 16'dan alınız

Bölüm 4: İlk yardım önlemleri

· **4.1 İlk yardım önlemlerinin açıklaması**

· **Genel uyarılar:**

Ürünün bulaşmış olduğu giyim eşyalarını derhal uzaklaştırınız.

Düzensiz solunum ya da solunumun durması halinde suni solunum.

· **Teneffüs ettikten sonra:** Baygınlık halinde yatırılması ve taşınması sabit yan pozisyonda olmalıdır.· **Cilde temas ettikten sonra:** Derhal su ve sabunla yıkayarak iyice durulayınız.

· **Gözlere temas ettikten sonra:**

Gözleri, gözkapakları açık bir şekilde birkaç dakika süreyle akan suyun altına tutunuz ve doktora başvurunuz.

· **Yuttuktan sonra:** Kusmasını sağlamayınız, derhal doktor çağrınız.· **4.2 Akut ve sonradan görülen önemli belirtiler ve etkiler** Daha başka önemli bilgi mevcut değildir.· **4.3 Tıbbi müdahale ve özel tedavi gereği için ilk işaretler** Daha başka önemli bilgi mevcut değildir.

TR

(Devamı sayfa 3 'da)

Güvenlik Bilgi Formu

1907/2006/AT uyarınca, Madde 31

Baskı tarihi: 01.11.2016

Yeniden düzenleme tarihi: 01.11.2016

Ticari adı: **OSMIUM TETROXIDE 4% AQUEOUS SOLUTION**

(Sayfa 2 'nin devamı)

Bölüm 5: Yangınla mücadele önlemleri

- **5.1 Yangın söndürücüler**
- **Elverişli söndürücü maddeler:**
CO₂, söndürme tozu ya da püskürtme su. Daha büyük yangınlarla püskürtme su ve alkole mukavim köpükle mücadele ediniz.
- **5.2 Madde veya karışımdan kaynaklanan özel zararlar** Daha başka önemli bilgi mevcut değildir.
- **5.3 Yangın söndürme ekipleri için tavsiyeler**
- **Özel koruyucu teçhizat:** Özel önlemlerin alınması gerekmez.

Bölüm 6: Kaza sonucu yayılmaya karşı önlemler

- **6.1 Kişisel önlemler, koruyucu donanım ve acil durum prosedürleri** Gerekli değildir.
- **6.2 Çevresel önlemler** Kanalizasyona/Yüzeysel suya/Yeraltı suyuna karışmasını önleyiniz.
- **6.3 Muhafaza etme ve temizleme için yöntemler ve materyaller**
Sıvı bağlayıcı malzemeye (Kum, diatomit, asit bağlayıcı, genel bağlayıcı, un halinde testere talaşı) ile eminiz. Zararlı madde karışmış malzemeyi çöp olarak madde 13 'e göre tasfiye ediniz. Yeterli havalandırma sağlayınız.
- **6.4 Diğer bölümlere atıflar**
Güvenli kullanım ile ilgili bilgileri 7. bölümden alınız.
Kişisel koruyucu teçhizat ile ilgili bilgileri 8. bölümden alınız.
Tasfiye ile ilgili bilgileri 13. bölümden alınız.

Bölüm 7: Elleçleme ve depolama

- **7.1 Güvenli elleçleme için önlemler**
Çalışılan yerin iyi havalandırılması / havanın iyi emilmesini sağlayınız.
Aerosol (bir gazın içinde sis şeklinde dağılmış sıvı) oluşumunu önleyiniz.
- **Yangın ve patlamadan korunmak için uyarılar:** Özel önlemlerin alınması gerekmez.
- **7.2 Uyuşmazlıkları da içeren güvenli depolama için koşullar**
- **Depolama:**
- **Depolarda ve kaplarda aranan özellikler:** Belirli şartlar aranmaz.
- **Birarada depolama ile ilgili uyarılar:** Gerekli değil.
- **Depolama şartları ile ilgili diğer bilgiler:** Yoktur.
- **7.3 Belirli son kullanımlar** Daha başka önemli bilgi mevcut değildir.

Bölüm 8: Maruz kalma kontrolleri/kişisel korunma

- **Teknik tesisatların şekillendirilmesi ile ilgili ek bilgiler:** Başka bilgi yoktur, madde 7 'den bakınız.
- **8.1 Kontrol parametreleri**
- **Çalışma yeri ile ilgili, kontrol edilmesi gereken sınır değerleri olan bileşenler:**
Ürün, çalışılan mahal ile ilgili ve kontrol edilmesi gereken sınır değerleri olan maddeleri önemli miktarda ihtiva etmemektedir.
- **Ek uyarılar:** Düzenlendiği tarihte geçerli listeler esas alınmıştır.
- **8.2 Maruz kalma kontrolleri**
- **Kişisel koruyucu teçhizat:**
- **Genel koruyucu ve sıhhi önlemler:**
Gıda maddelerinden, içeceklerden ve yem maddelerinden uzak tutunuz.
Kirlenmiş, sıvı bulaşmış giyim eşyalarını derhal çıkartınız.
Molalardan önce ve mesai sonunda ellerinizi yıkayınız.

(Devamı sayfa 4 'da)

Güvenlik Bilgi Formu

1907/2006/AT uyarınca, Madde 31

Baskı tarihi: 01.11.2016

Yeniden düzenleme tarihi: 01.11.2016

Ticari adı: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(Sayfa 3 'nin devamı)

Koruyucu giyimi ayrı yerde muhafaza ediniz.
Cildinize değmesinden kaçınınız.
Gözlerinize ve cildinize değmesinden kaçınınız.

· Nefes koruyucu önlemler:

Kısa süreli ya da düşük ölçüde olumsuz tesir altında kalındığında nefes filtre aleti, yoğun bir şekilde ya da uzun süre etkisi altında kalındığında çevredeki havadan bağımsız olan nefes koruyucu cihaz kullanınız.

· Elleri koruyucu:



Koruyucu eldivenler

Eldiven malzemesi ürün / malzeme / hazırlanan madde ile ilgili olarak geçirmez ve dayanıklı olmalıdır. Testlerin yapılmamış olması nedeni ile ürün / hazırlanmış madde / kimyasal karışım için lâzım olan eldiven imalatında kullanılması gereken malzeme ile ilgili herhangi bir tavsiye yapılamamaktadır.

Eldiven imalatı için kullanılan malzemelerin seçiminde delinme sürelerinin, geçirgenlik oranlarının ve bozulmanın göz önüne alınması gereklidir.

· Eldiven malzemesi

Uygun eldivenin seçiminde yalnız imalat malzemesi değil, aynı zamanda diğer kalite özellikleri de dikkate alınmalıdır ve bunlar imalatçıdan imalatçıya değişiklik göstermektedir. Her ürün birçok malzemenin birleşiminden meydana geldiği için eldivenlerin dayanıklılığı önceden hesaplanamamaktadır ve dolayısı ile her eldiven kullanılmadan önce kontrole tabi tutulmalıdır.

· Eldiven malzemesine nüfuz etme süresi

Kesin delinme (aşınma) süresi eldiven imalatçısından öğrenilmeli ve bu sürelere riayet edilmelidir.

· Gözleri koruyucu:



Kenarları tam kapatan koruyucu gözlük

Bölüm 9: Fiziksel ve kimyasal özellikler

· 9.1 Temel fiziksel ve kimyasal özellikler hakkında bilgi

· Genel bilgiler

· Görünüm

· Biçim:	Sıvı
· Renk:	Açık sarı
· Koku:	Klor gibi
· Koku eşiği	Belirli değil.

· pH - değeri 20 °C'de: 7

· Durum değişikliği

· Erime ısısı / Erime ısı alanı:	Belirlenmemiştir.
· Kaynama noktası / Kaynama ısı alanı:	100 °C

· Alev alma ısısı: Uygulanamaz.

· Tutuşabilme özelliği (katı, gaz şeklinde): Uygulanamaz.

· Tutuşma ısısı:

· Çözülme ısısı:	Belirli değil.
-------------------------	----------------

· Kendiliğinden tutuşabilme özelliği: Ürün kendiliğinden tutuşmaz niteliktedir.

(Devamı sayfa 5 'da)

Güvenlik Bilgi Formu

1907/2006/AT uyarınca, Madde 31

Baskı tarihi: 01.11.2016

Yeniden düzenleme tarihi: 01.11.2016

Ticari adı: **OSMIUM TETROXIDE 4% AQUEOUS SOLUTION**

(Sayfa 4 'nin devamı)

· Patlama tehlikesi:	Ürünün patlama tehlikesi yoktur.
· Patlama sınırları:	
Alt:	Belirli değil.
Üst:	Belirli değil.
· Buhar basıncı 20 °C'de:	23 hPa
· Yoğunluk 20 °C'de:	1,15624 g/cm ³
· Nisbi yoğunluk	Belirli değil.
· Buhar yoğunluğu	Belirli değil.
· Buharlaştırma hızı	Belirli değil.
· Çözülme kabiliyeti / karışma kabiliyeti suyla:	Karıştırılmaz ya da düşük ölçüde karıştırılabilir.
· Dağılım katsayısı (n-Octanol/Su):	Belirli değil.
· Viskozitesi:	
Dinamik:	Belirli değil.
Kinematik:	Belirli değil.
· Çözücü madde oranı:	
Organik çözücü madde:	%0.0
Su:	%96.0
VOC (CE)	0,00 %
· Katı madde oranı:	%4.0
· 9.2 Diğer bilgiler	Daha başka önemli bilgi mevcut değildir.

Bölüm 10: Kararlılık ve tepkime

- **10.1 Tepkime** Daha başka önemli bilgi mevcut değildir.
- **10.2 Kimyasal kararlılık**
- **Termik ayrışma / kaçınılması gereken şartlar:** Usulüne uygun şekilde kullanıldığında ayrışma olmaz.
- **10.3 Zararlı tepkime olasılığı** Tehlikeli reaksiyonları duyulmamıştır.
- **10.4 Kaçınılması gereken durumlar** Daha başka önemli bilgi mevcut değildir.
- **10.5 Kaçınılması gereken maddeler** Daha başka önemli bilgi mevcut değildir.
- **10.6 Zararlı bozunma ürünleri** Ayrışmada oluşan tehlikeli ürünler duyulmamıştır.

Bölüm 11: Toksikolojik bilgiler

- **11.1 Toksik etkiler hakkında bilgi**
- **Akut toksik**
Yutulması halinde toksiktir.
Cilt ile teması halinde öldürücüdür.
Solunması halinde zararlıdır.
- **Asli tahriş edici etkisi:**
- **Cilt aşınması/tahrişi**
Cilt tahrişine yol açar.
- **Ciddi göz hasarları/tahrişi**
Ciddi göz hasarına yol açar.
- **Solunum yolları veya cilt hassaslaşması** Mevcut bilgilere göre, sınıflandırma kriterlerini karşılamamaktadır.

(Devamı sayfa 6 'da)

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1907/2006/AT uyarınca, Madde 31

Baskı tarihi: 01.11.2016

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Ticari adı: OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(Sayfa 5 'nin devamı)

- **Aşağıdaki grupların potansiyel etkilerine dair bilgiler:**
- **CMR-etkileri (kanser üretici, irsiyet değiştirici ve üremeyi tehdit edici etki)**
- **Eşey hücre mutajenitesi** Mevcut bilgilere göre, sınıflandırma kriterlerini karşılamamaktadır.
- **Kanserojenite** Mevcut bilgilere göre, sınıflandırma kriterlerini karşılamamaktadır.
- **Üreme toksisitesi** Mevcut bilgilere göre, sınıflandırma kriterlerini karşılamamaktadır.
- **Belirli Hedef Organ Toksikitesi - tek maruz kalma**
Mevcut bilgilere göre, sınıflandırma kriterlerini karşılamamaktadır.
- **Belirli Hedef Organ Toksikitesi - tekrarlı maruz kalma**
Mevcut bilgilere göre, sınıflandırma kriterlerini karşılamamaktadır.
- **Aspirasyon zararı** Mevcut bilgilere göre, sınıflandırma kriterlerini karşılamamaktadır.

Bölüm 12: Ekolojik bilgiler

- **12.1 Toksikite**
- **Su toksisitesi:** Daha başka önemli bilgi mevcut değildir.
- **12.2 Kalıcılık ve bozunabilirlik** Daha başka önemli bilgi mevcut değildir.
- **12.3 Biyobirikim potansiyeli** Daha başka önemli bilgi mevcut değildir.
- **12.4 Toprakta hareketlilik** Daha başka önemli bilgi mevcut değildir.
- **Diğer ekolojik uyarılar:**
- **Genel uyarılar:**
Suyu tehdit sınıfı 1 (:): suyu hafif tehdit edicidir
Sulandırılmamış vaziyette ya da büyük miktarlarda yeraltı suyuna, duran ve akan sulara ve kanalizasyona ulaşmasını " önleyiniz.
- **12.5 PBT ve vPvB değerlendirmesinin sonuçları**
- **PBT:** Uygulanamaz.
- **vPvB:** Uygulanamaz.
- **12.6 Diğer olumsuz etkiler** Daha başka önemli bilgi mevcut değildir.

Bölüm 13: Bertaraf etme bilgileri

- **13.1 Atık işleme yöntemleri**
- **Tavsiye:** Ev çöpüyle beraber tasfiye edilmesi yasaktır. Kanalizasyona ulaşmasını önleyiniz.
- **Temizlenmemiş ambalajlar:**
- **Tavsiye:** Tasfiyesi resmi makamların yönetmeliklerine göre yapılır.

Bölüm 14: Taşımacılık bilgileri

- | | |
|--|---|
| · 14.1 UN numarası | UN3287 |
| · ADR, IMDG, IATA | |
| · 14.2 Uygun UN taşımacılık adı | 3287 ZEHİRLİ SIVI, İNORGANİK, B.B.B. |
| · ADR | TOXIC LIQUID, INORGANIC, N.O.S., MARINE |
| · IMDG | POLLUTANT |
| · IATA | TOXIC LIQUID, INORGANIC, N.O.S. |

(Devamı sayfa 7 'da)

TR

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1907/2006/AT uyarınca, Madde 31

Baskı tarihi: 01.11.2016

Yeniden düzenleme tarihi: 01.11.2016

Ticari adı: **OSMIUM TETROXIDE 4% AQUEOUS SOLUTION**

(Sayfa 6'nın devamı)

· 14.3 Taşımacılık zararlılık sınıf(lar)ı

· ADR, IATA



· sınıfı

6.1 Zehirli maddeler

· IMDG



· Class

6.1 Zehirli maddeler

· 14.4 Ambalajlama grubu

· ADR, IMDG, IATA

III

· 14.5 Çevresel zararlar

· Marine pollutant:

Sembol (balık ve ağaç)

· 14.6 Kullanıcı için özel önlemler

· Stowage Category

· Stowage Code

Uyarı: Zehirli maddeler

A

SW2 Clear of living quarters.

· 14.7 MARPOL 73/78 ek II ve IBC koduna göre dökme taşımacılık

Uygulanamaz.

· Nakliyat/diğer bilgiler:

· ADR

· Sınırlı Miktarlar

· İstisnai miktarlar (EQ)

5L

Kod: E1

İç ambalaj başına maksimum net miktar: 30 ml

Dış ambalaj başına maksimum net miktar: 1000 ml

· IMDG

· Limited quantities (LQ)

· Excepted quantities (EQ)

5L

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· UN "Model Düzenleme":

UN 3287 ZEHİRLİ SIVI, İNORGANİK, B.B.B., 6.1, III

Bölüm 15: Mevzuat bilgileri

· 15.1 Madde veya karışıma özgü güvenlik, sağlık ve çevre mevzuatı Daha başka önemli bilgi mevcut değildir.

· 15.2 Kimyasal güvenlik değerlendirmesi: Bir Kimyasal güvenlik değerlendirmesi yapılmamıştır.

Bölüm 16: Diğer bilgiler

Veriler bugünkü bilgi durumumuza istinat etmektedir, ancak ürün özellikleri ile ilgili teminat teşkil etmezler ve akdî bir hukuki ilişki tesis etmezler.

(Devamı sayfa 8'da)

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Yeniden düzenleme tarihi: 01.11.2016

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(Sayfa 7 'nin devamı)

Önemli terkipleri

- H300 Yutulması halinde öldürücüdür.
- H310 Cilt ile teması halinde öldürücüdür.
- H314 Ciddi cilt yanıklarına ve göz hasarına yol açar.
- H330 Solunması halinde öldürücüdür.

Kısaltmalar ve:

- ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
- IMDG: International Maritime Code for Dangerous Goods
- IATA: International Air Transport Association
- GHS: Globally Harmonised System of Classification and Labelling of Chemicals
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- VOC: Volatile Organic Compounds (USA, EU)
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative
- Acute Tox. 2: Akut toksisite, Kategori 2
- Acute Tox. 3: Akut toksisite, Kategori 3
- Acute Tox. 1: Akut toksisite, Kategori 1
- Acute Tox. 4: Akut toksisite, Kategori 4
- Skin Corr. 1B: Cilt aşınması/tahrişi, Kategori 1B
- Skin Irrit. 2: Cilt aşınması/tahrişi, Kategori 2
- Eye Dam. 1: Ciddi göz hasarı/göz tahrişi, Kategori 1

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1 Nhận biết các chất hoặc hỗn hợp và các doanh nghiệp

- **Phân loại sản phẩm**
- **Tên giao dịch** **OSMIUM TETROXIDE 4% AQUEOUS SOLUTION**
- **Mã giao dịch:** 19140, 19150-SP, 19151, 19160, 19180, 19171, 19150, 19170, 19191, 19190
- **Các trường hợp được dùng chất, hỗn hợp này và các trường hợp chống chỉ định**
Không có thêm thông tin có liên quan.
- **Hướng dẫn sử dụng** Phòng thí nghiệm hóa chất
- **Thông tin chi tiết của các nhà cung cấp các bảng dữ liệu an toàn**
- **Nhà sản xuất / Nhà phân phối:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com
- **Các thông tin chi tiết có thể tìm thấy ở:** Product safety department
- **Số điện thoại khẩn cấp:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2 Xác định các trường hợp nguy hiểm có thể xảy ra

- **Phân loại chất và hỗn hợp**



Đầu lâu xương chéo

Nhiễm độc cấp tính 3 H301 Độc hại nếu nuốt phải.

Nhiễm độc cấp tính 2 H310 Gây tử vong khi tiếp xúc với da.



Ăn mòn

Có hại cho mắt 1. H318 Gây thiệt hại nghiêm trọng cho mắt.



Nhiễm độc cấp tính 4 H332 Có hại nếu hít phải.

Kích ứng da 2 H315 Gây kích ứng da.

- **Các phần tử nhãn hiệu**
- **Các yếu tố trên nhãn GHS** Sản phẩm được xếp loại và ghi nhãn theo quy định của GHS
- **Các hình biểu thị sự nguy hiểm**



GHS05 GHS06

- **Từ chỉ dấu hiệu** Nguy hiểm
- **Các thành phần nguy hiểm về việc ghi nhãn:**
Osmium Tetroxide

(Xem tiếp ở trang 2)

Dữ liệu an toàn

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Sửa lại: 2016.11.01

Tên giao dịch OSMIUM TETROXIDE 4% AQUEOUS SOLUTION



(Xem tiếp ở trang 1)

- **Các hướng dẫn về các nguy hiểm**
 - Độc hại nếu nuốt phải.
 - Gây tử vong khi tiếp xúc với da.
 - Có hại nếu hít phải.
 - Gây kích ứng da.
 - Gây thiệt hại nghiêm trọng cho mắt.
- **Các hướng dẫn an toàn**
 - Tránh hít thở bụi/khói/khí/sương/hơi/bụi nước
 - Nếu nuốt phải gọi ngay trung tâm giải độc/ bác sĩ
 - NẾU DÍNH MẮT:** Rửa thật cẩn thận với nước trong vài phút. Tháo kính áp tròng nếu có và nếu dễ làm.
 - Sau đó tiếp tục rửa
 - Việc chữa trị cụ thể (xem trên nhãn mác).
 - Nơi cất giữ được khóa lại
 - Vứt sản phẩm/vỏ hộp theo quy định của địa phương/khu vực/quốc gia/quốc tế.
- **Các dấu hiệu nguy hiểm khác:**
- **Kết quả của đánh giá PBT và vPvB Results**
- **PBT:** Không được áp dụng
- **vPvB:** Không được áp dụng

3 Thành phần / Thông tin của công thức

- **Mô tả tính chất hóa học: Hỗn hợp**
- **Mô tả** Hỗn hợp các chất sau với những thành phần phụ gia không gây nguy hiểm

- **Các chất thành phần nguy hiểm:**

20816-12-0	Osmium Tetroxide  Nhiễm độc cấp tính 2, H300; Nhiễm độc cấp tính 1, H310; Nhiễm độc cấp tính 2, H330;  Ăn mòn da 1B, H314	2.5-10%
------------	--	---------

- **Các hướng dẫn đính kèm:** Đối với các từ ngữ dùng để chỉ rủi ro được liệt kê trong mục 16

4 Các biện pháp sơ cứu

- **Mô tả về các biện pháp sơ cứu**
- **Hướng dẫn chung:**
 - Ngay lập tức loại bỏ quần áo bị vấy bẩn bởi sản phẩm
 - Trong trường hợp thở không đều hoặc ngừng hô hấp, phải hô hấp nhân tạo
- **Sau khi hít vào:**
 - Trong trường hợp người bệnh bất tỉnh giữ bệnh nhân ở vị trí nằm nghiêng và chuyển đi.
- **Sau khi tiếp xúc với da:** Rửa ngay và thật sạch với nước và xà phòng
- **Sau khi tiếp xúc với mắt:** Nhẹ nhàng rửa mắt trong vài phút dưới vòi nước, sau đó xin tư vấn bác sĩ
- **Sau khi nuốt phải:** Không cố móc để nôn ra; gọi cấp cứu ngay.
- **Thông tin dành cho bác sĩ:**
- **Những triệu chứng và tác dụng cấp và chậm quan trọng nhất:**
 - Không có thông tin liên quan nào khác
- **Các chỉ dẫn về sự giúp đỡ tức thời của bác sĩ và trợ giúp đặc biệt**
 - Không có thêm thông tin liên quan

5 Các giải pháp chữa cháy

- **Các phương tiện chữa cháy**
- **Các giải pháp chữa cháy thích hợp**
 - CO2, bột hay phun bụi nước. Chữa đám cháy lớn hơn phải phun bụi nước hay bột ARC

(Xem tiếp ở trang 3)

Dữ liệu an toàn

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(Xem tiếp ở trang 2)

- **Những nguy cơ gây cháy từ các chất hoặc hỗn hợp** Không có thêm thông tin liên quan
- **Hướng dẫn trong trường hợp chữa cháy**
- **Các thiết bị bảo vệ** Không cần đến những biện pháp đặc biệt

6 Các biện pháp trong trường hợp giải phóng bất ngờ

- **Các biện pháp phòng ngừa cá nhân, thiết bị bảo hộ và thủ tục khẩn cấp** Không yêu cầu
- **Các biện pháp bảo vệ môi trường**
Ngăn không cho tràn vào hệ thống nước thải, nước mặt hay nước ngầm
- **Các phương pháp và nguyên liệu dùng cho việc ngăn chặn và làm sạch**
Có thể ngấm vào vật liệu giữ chất lỏng (cát, diatomite, vữa axit, vữa thường, mùn cưa)
Loại bỏ vật liệu bị ô nhiễm theo quy định về chất thải tại mục 13
Đảm bảo thoáng khí
- **Liên hệ đến các phần khác**
Xem phần 7 để biết thông tin về xử lý an toàn
Xem phần 8 để biết thông tin và thiết bị bảo hộ cá nhân
Xem phần 13 để biết thông tin về xả thải

7 Xử lý và lưu trữ

- **Xử lý**
- **Các biện pháp bảo vệ để xử lý an toàn**
Đảm bảo nơi làm việc thoáng khí
Tránh hình thành aerosol
- **Thông tin về các biện pháp chống cháy**, Không có yêu cầu về biện pháp đặc biệt
- **Điều kiện cho việc lưu trữ an toàn, bao gồm cả sự không tương thích**
- **Lưu trữ:**
- **Yêu cầu đối với phòng chứa và dụng cụ chứa** Không có yêu cầu đặc biệt nào
- **Thông tin về lưu trữ đối với một cơ sở lưu trữ thông thường** Không yêu cầu
- **Thông tin thêm về điều kiện lưu trữ** Không
- **Tác dụng của sản phẩm** Không có thêm thông tin liên quan

8 Kiểm soát các tình huống nguy hiểm / Bảo vệ cá nhân

- **Thông tin thêm về thiết kế các phương tiện kỹ thuật** Không có thêm dữ liệu; xem mục 7
- **Các thông số điều khiển**

- **Các thành phần với giá trị giới hạn cần được yêu cầu giám sát tại nơi làm việc**

20816-12-0 Osmium Tetroxide

PEL (US)	Giá trị dài hạn: 0.002* mg/m ³ *as Os
REL (US)	Giá trị ngắn hạn: 0.006 mg/m ³ , 0.0006 ppm Giá trị dài hạn: 0.002 mg/m ³ , 0.0002 ppm
TLV (US)	Giá trị ngắn hạn: 0.0047 mg/m ³ , 0.0006 ppm Giá trị dài hạn: 0.0016 mg/m ³ , 0.0002 ppm

- **Thông tin bổ sung** Danh sách có hiệu lực trong suốt quá trình thực hiện được sử dụng làm cơ sở

(Xem tiếp ở trang 4)

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(Xem tiếp ở trang 3)

- **Kiểm soát các tình huống nguy hiểm**
- **Các thiết bị an toàn cá nhân**
- **Các biện pháp bảo vệ và vệ sinh tổng thể**
Tránh xa thực phẩm, đồ uống và đồ ăn cho vật nuôi
Loại bỏ ngay lập tức tất cả quần áo bị nhiễm bẩn
rửa tay trước giờ nghỉ và cuối giờ làm
Đề riêng quần áo bảo hộ
Tránh tiếp xúc với da
Tránh tiếp xúc với mắt và da
- **Bảo vệ đường hô hấp:**
Trong trường hợp tiếp xúc ít hoặc ô nhiễm ở mức độ thấp hãy sử dụng mặt nạ phòng độc. Trong trường hợp tiếp xúc nhiều và trong thời gian lâu thì phải sử dụng bình thở ôxi
- **Bảo vệ tay**



Găng tay bảo hộ

Chất liệu làm găng phải chống thấm đối với sản phẩm/chất/chế phẩm
Do không thấy các cuộc thử nghiệm nên không có khuyến cáo về chất liệu làm găng tay cho sản phẩm/
chế phẩm/hỗn hợp hóa chất
Chọn chất liệu găng theo số lần và thời gian sử dụng

- **Chất liệu của găng tay**
Khi sản phẩm là một chế phẩm của một số chất, khả năng kháng độc của găng tay không thể tính toán trước được và do đó phải được kiểm tra trước khi ứng dụng
- **Thời gian xâm nhập của găng tay vật liệu**
Việc phá vỡ chính xác qua thời gian đã được phát hiện bởi các nhà sản xuất găng tay bảo vệ và phải được giám sát
- **Bảo vệ mắt Eye**



Kính bảo hộ dán kín

9 Tính chất vật lý và hóa học

- Thông tin về tính chất vật lý và hóa học cơ bản
- Thông tin tổng quát
- **Diện mạo:**
Hình thức:: Chất lỏng
Màu: Vàng nhạt
- **Mùi:** Giống Chlor
- **Ngưỡng mùi:** Không xác định.

• **Độ pH tại 20 °C:** 7

- **Thay đổi trong điều kiện**
Điểm tan / Phạm vi tan: Không xác định
Điểm sôi / Phạm vi sôi: 100 °C

• **Điểm bay hơi:** Không thể áp dụng.

• **Tính dễ cháy (rắn, khí):** Không thể áp dụng.

(Xem tiếp ở trang 5)

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Tên giao dịch OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(Xem tiếp ở trang 4)

· Nhiệt độ cháy:	
Nhiệt độ phân hủy:	Không xác định.
· Tự cháy: Sản phẩm không tự bốc cháy.	
· Nguy hiểm do cháy nổ: Sản phẩm không có nguy cơ cháy nổ	
· Giới hạn nổ:	
Dưới:	Không xác định
Trên:	Không xác định.
· Áp lực hơi: tại 20 °C: 23 hPa	
· Mật độ tại 20 °C: 1.15624 g/cm ³	
· Mật độ tương đối: Không xác định.	
· Mật độ của hơi: Không xác định.	
· Tỉ lệ bay hơi: Không xác định.	
· Độ hòa tan trong / Độ hòa trộn với:	
Nước:	Không thể hoặc khó trộn lẫn.
· Sự phân biệt hệ số (n-octanol / Nước): Không xác định.	
· Độ nhớt:	
Động	Không xác định.
Tĩnh	Không xác định.
· Thành phần dung môi:	
Dung môi hữu cơ:	0.0 %
Nước:	96.0 %
VOC (EC):	0.00 %
Thành phần chất rắn: 4.0 %	
· Thông tin khác: Không có thông tin chi tiết tương ứng	

10 Sự ổn định và phản ứng:

- **Phản ứng:** Không có thêm thông tin liên quan
- **Sự ổn định hóa học:**
- **Phân hủy nhiệt / Điều kiện cần tránh::** Không phân hủy nếu được sử dụng theo tiêu chuẩn.
- **Khả năng phản ứng nguy hiểm:** Chưa có phản ứng nguy hiểm nào được biết tới.
- **Các điều kiện cần tránh:** Không có thêm thông tin liên quan
- **Vật liệu không tương thích:** Không có thêm thông tin liên quan.
- **Sản phẩm phân hủy nguy hiểm:** Chưa có sản phẩm phân hủy nào được biết đến.

11 Thông tin độc tính:

- **Thông tin về các hiệu ứng độc tính:**
- **Ngộ độc cấp tính:**
- **Hiệu ứng kích thích sơ cấp:**
- **Trên da** Kích ứng da và lớp màng nhầy niêm mạc.
- **Trên mắt:** Kích ứng mạnh với nguy cơ tổn thương mắt nghiêm trọng.
- **Độ nhạy cảm** Không có tác dụng miễn cảm nào được biết tới.

(Xem tiếp ở trang 6)

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(Xem tiếp ở trang 5)

- **Thông tin thêm về độc tính::**

Sản phẩm này chỉ ra những tác hại sau theo phương pháp tính toán của hướng dẫn phân loại Châu Âu chung được ban hành trong biên bản mới nhất:

- Độc hại
- Kích ứng
- Rất độc
- Nguy hiểm qua hấp thụ da.

12 Thông tin sinh thái

- **Độc tính**
- **Thủy sản độc tính:** Không có thêm thông tin liên quan.
- **Sự kiên trì và khả năng nhạc dãn:** Không có thêm thông tin liên quan.
- **Hành vi trong các hệ thống môi trường:**
- **Tiềm năng tích lũy sinh học** Không có thêm thông tin liên quan.
- **Tính lưu động trong đất** Không có thêm thông tin liên quan.
- **Bổ sung thông tin sinh thái:**
- **Ghi chú tổng quát:**
Độc hại cho nước loại 1 (quy định của Đức) (Tự đánh giá): hơi độc cho nước.
Không để sản phẩm chưa pha loãng hoặc số lượng lớn tiếp xúc với nước ngầm, nguồn nước hoặc hệ thống nước thải.
- **Kết quả của đánh giá PBT và vPvB**
- **PBT PBT:** Không có khả năng ứng dụng.
- **vPvB vPvB:** Không có khả năng ứng dụng.
- **Các hiệu ứng bất lợi** Không có thêm thông tin liên quan.

13 Xem xét xử lý

- **Phương pháp xử lý chất thải**
- **Khuyến nghị**
Không được xử lý cùng rác thải sinh hoạt. Không được bỏ sản phẩm vào hệ thống nước thải.
- **Bao bì bán**
- **Khuyến nghị:** Việc xử lý phải thực hiện theo các quy định của chính quyền.

14 Thông tin vận chuyển

- | | |
|--|---|
| · Mã LHQ (UN) | |
| · ADR, IMDG, IATA | UN3287 |
| · Tên vận chuyển theo quy ước của LHQ | |
| · ADR | 3287 TOXIC LIQUID, INORGANIC, N.O.S. |
| · IMDG | TOXIC LIQUID, INORGANIC, N.O.S., MARINE POLLUTANT |
| · IATA | TOXIC LIQUID, INORGANIC, N.O.S. |

(Xem tiếp ở trang 7)

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(Xem tiếp ở trang 6)

- vận chuyển các lớp học nguy hiểm

- ADR, IATA



- lớp

6.1 Các chất độc.

- IMDG



- Class

6.1 Các chất độc.

- Nhóm bao bì

- ADR, IMDG, IATA

III

- Các môi trường nguy hiểm:

- Ô nhiễm biển:

Biểu tượng (cá và cây)

- Các biện pháp phòng ngừa đặc biệt cho người sử dụng:

Cảnh báo: Các chất độc.

- Stowage Category

A

- Stowage Code

SW2 Clear of living quarters.

- Vận chuyển với số lượng lớn theo Phụ Lục II của MARPOL73/78 và mã IBC

Không có khả năng ứng dụng.

- Vận chuyển/ Thông tin thêm:

- ADR

- Số lượng giới hạn (LQ)

5L

- Excepted quantities (EQ)

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

- IMDG

- Limited quantities (LQ)

5L

- Excepted quantities (EQ)

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

- Mẫu chuẩn của LHQ:

UN 3287 TOXIC LIQUID, INORGANIC, N.O.S., 6.1, III

15 Thông tin quy định:

- An toàn, sức khỏe và các quy định, pháp luật về môi trường cho các chất và hỗn hợp

- Kho hóa chất và chất hóa học của Philippin

Tất cả các thành phần được liệt kê.

- Kho chất hóa học của Australia

Tất cả các thành phần được liệt kê.

(Xem tiếp ở trang 8)

Dữ liệu an toàn

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Tên giao dịch OSMIUM TETROXIDE 4% AQUEOUS SOLUTION

(Xem tiếp ở trang 7)

· **Lập kế hoạch cho thuốc và chất độc theo mẫu chuẩn**

Không có các thành phần được liệt kê.

· **Các yếu tố trên nhãn GHS** Sản phẩm được xếp loại và ghi nhãn theo quy định của GHS

· **Các hình biểu thị sự nguy hiểm**



GHS05 GHS06

· **Từ chỉ dấu hiệu** Nguy hiểm

· **Các thành phần nguy hiểm về việc ghi nhãn:**

Osmium Tetroxide

· **Các hướng dẫn về các nguy hiểm**

Độc hại nếu nuốt phải.

Gây tử vong khi tiếp xúc với da.

Có hại nếu hít phải.

Gây kích ứng da.

Gây thiệt hại nghiêm trọng cho mắt.

· **Các hướng dẫn an toàn**

Tránh hít thở bụi/khói/khí/sương/hơi/bụi nước

Nếu nuốt phải gọi ngay trung tâm giải độc/ bác sĩ

NẾU DÍNH MẮT: Rửa thật cẩn thận với nước trong vài phút. Tháo kính áp tròng nếu có và nếu dễ làm.

Sau đó tiếp tục rửa

Việc chữa trị cụ thể (xem trên nhãn mác).

Nơi cất giữ được khóa lại

Vứt sản phẩm/vỏ hộp theo quy định của địa phương/khu vực/quốc gia/quốc tế.

· **Đánh giá an toàn hóa chất:** Đánh giá an toàn hóa chất chưa được tiến hành.

16 Thông tin khác

Thông tin này dựa trên kiến thức hiện nay của chúng tôi. Tuy nhiên, điều này không đảm bảo cho bất cứ tính chất cụ thể nào của sản phẩm và không thiết lập mối quan hệ hợp tác có giá trị pháp lý nào.

· **Chữ viết tắt hoặc Viết tắt chữ cái đầu:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Nhiễm độc cấp tính 2: Acute toxicity – Category 2

Nhiễm độc cấp tính 3: Acute toxicity – Category 3

Nhiễm độc cấp tính 1: Acute toxicity – Category 1

Nhiễm độc cấp tính 4: Acute toxicity – Category 4

Ăn mòn da 1B: Skin corrosion/irritation – Category 1B

Kích ứng da 2: Skin corrosion/irritation – Category 2

Có hại cho mắt 1.: Serious eye damage/eye irritation – Category 1