

Safety Data Sheet

29 CFR 1910.1200

Section 1: Company and Product Identification

Product Name: Osmium(VIII) oxide

Product Code: 4008

Company: Colonial Metals, Inc.
 Building 20
 505 Blue Ball Road
 Elkton, MD 21921 United States
 Company Contact: EHS Director
 Telephone Number: 410-398-7200
 FAX Number: 410-398-2918
 E-Mail : info@colonialmetals.com
 Web Site: www.colonialmetals.com



www.colonialmetals.com

Emergency Response: Supplier Emergency Contacts & Phone Number
 Chemtrec: 800-424-9300
 World Wide - Call COLLECT to U.S: 703-527-3887

Section 2: Hazards Identification

GHS06

GHS07

GHS03

BLANK

Hazard Pictograms:



Signal Word: Danger

Hazard Category: Acute tox, oral Cat 1/2
 Acute tox, dermal Cat 1/2
 Acute tox, inh. Cat 1/2
 Skin corrosion/irritation Cat 1
 Serious eye damage/eye irritation Cat 1
 Sensitization, resp. Cat 1

Hazard Statements: H300: Fatal if swallowed
 H310: Fatal in contact with skin
 H330: Fatal if inhaled
 H314: Causes severe skin burns and eye damage
 H318: Causes serious eye damage
 H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled

Precautionary Statements: P202: Do not handle until all safety precautions have been read and understood
 P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
 P260: Do not breathe dust/fume/gas/mist/vapors/spray
 P264: Wash thoroughly after handling
 P280: Wear protective gloves/protective clothing/eye protection/face protection
 P284: Wear respiratory protection
 P302+352: IF ON SKIN: Wash with soap and water
 P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove
 P310: Immediately call a POISON CENTER or doctor/physician

Hazards not otherwise classified: THE SUBSTANCE CAN BE ABSORBED INTO THE BODY BY INHALATION OF ITS VAPORS, BY INHALATION OF ITS AEROSOL AND BY INGESTION. A HARMFUL CONTAMINATION OF AIR CAN BE REACHED VERY QUICKLY ON EVAPORATION OF THIS SUBSTANCE AT 20 DEGREE C. CONTACT WITH COMBUSTIBLE MATERIAL MAY CAUSE FIRE.

OSHA Hazards

Oxidizing, Target Organ Effect, Highly toxic by inhalation, Highly toxic by ingestion, Highly toxic by skin absorption, Respiratory sensitizer, Corrosive

Target Organs

Eyes, Central nervous system, Male reproductive system., Kidney

Other hazards which do not result in classification

Primary Routes(s) Of Entry:

Eye: Likely
 Inhalation: Likely
 Skin: Likely
 Ingestion: Likely

Eye Hazards:

REDNESS, PAIN, BLURRED VISION, LOSS OF VISION, SEVERE DEEP BURNS.

Skin Hazards:

POSSIBLE SKIN DISCOLORATION (green or black), REDNESS, SKIN BURNS, PAIN, BLISTERS. VERY TOXIC IN CONTACT WITH THE SKIN.

Ingestion Hazards:

ABDOMINAL CRAMPS, BURNING SENSATION, SHOCK OR COLLAPSE. VERY TOXIC IF SWALLOWED.

Inhalation Hazards:

BURNING SENSATION, COUGH, HEADACHE, WHEEZING, SHORTNESS OF BREATH, VISUAL DISTURBANCES, SYMPTOMS MAY BE DELAYED. VERY TOXIC IF INHALED.

Subchronic (Target Organ Effects):

EYES, SKIN, RESPIRATORY SYSTEM, CENTRAL NERVOUS SYSTEM.

Conditions Aggravated By Exposure:

AVOID ALL CONTACT WITH THIS CHEMICAL.

Conditions Aggravated By Overexposure:**Section 3: Composition / Information on Ingredients**

Hazardous substance (name)	Hazard Category	CAS#	Weight %
Osmium tetroxide / Osmium oxide	Toxic	20816-12-0	99.9
Synonyms Osmium Tetroxide, Osmic Acid, Osmium (VIII) Oxide, Osmic Anhydrate,	RCRA Number: P087	Chemical Family: Platinum Group Metal Salts Chemical Formula: OsO ₄	

Section 4: First Aid Measures

General Info: Ensure proper ventilation.

Notable Exposure Irritation to skin, eyes and areas of contact.

symptoms:

If ingested: Rinse mouth. Seek immediate medical attention. Clear the airway and administer artificial respiration if not breathing. If swallowed, do not induce vomiting unless directed to do so by medical personnel. CONTACT A PHYSICIAN IMMEDIATELY

If inhaled: Remove the victim from the contaminated area while protecting yourself from exposure by wearing an appropriate respirator. Put a similar respirator on the victim if possible. Get medical attention immediately.

Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses if present and easy to do. CONTACT A PHYSICIAN IMMEDIATELY

Skin contact: Take off immediately all contaminated clothing. Rinse with water thoroughly. CONTACT A PHYSICIAN IMMEDIATELY

Additional Info: Observe for any symptoms for several hours after exposure. Follow up with medical attention if symptoms develop.

Section 5: Fire Fighting Measures

General Info: O4Os is a strong oxidizer and may react explosively with many organic compounds. Risk of fire and explosion when mixed with combustible substances. No contact with flammable substances. Not combustible but enhances combustion of other substances. Emits toxic fumes under fire conditions

Extinguishing Suitable: Carbon dioxide, dry chemical powder, appropriate foam

Method / Equipment:

Hazardous Constituents associated with burning / combustion are to be considered toxic. Firefighters should

Decomposition Info: wear self-contained breathing apparatus and full protective gear.

Section 6: Accidental Release Measures

- Personal precautions, protective equipment and procedures:** EVACUATE AREA IMMEDIATELY! CONSULT AN EXPERT (Onsite HazMat Team or 911). SWEEP SPILLED SUBSTANCE INTO CONTAINERS; IF APPROPRIATE, MOISTEN FIRST TO PREVENT DUSTING THEN REMOVE TO SAFE PLACE. DO NOT ABSORB IN SAW-DUST OR OTHER COMBUSTIBLE MATERIAL. DO NOT LET THIS CHEMICAL ENTER THE ENVIRONMENT (EXTRA PERSONAL PROTECTIVE EQUIPMENT WITH FULL PROTECTIVE EQUIPMENT AND SELF-CONTAINED BREATHING APPARATUS IS A
- Containment Equipment and Procedures:** Large Spills: Contain actively spilling material if safe and easy to do so, avoid generating dust. Collect material and dispose
- Small Spills: Sweep and collect to waste receptacles.
- Cleanup Procedures:** Collect all contaminated media, or other cleanup materials into a waste receptacle. If cleaning surface is necessary, utilize vacuum cleaner, provided adequate ventilation is available.

Section 7: Handling and Storage

- Safe Handling Precautions:** Do not handle until all safety precautions have been read and understood. Keep containers tightly closed. Ensure adequate ventilation. Avoid breathing dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Wear appropriate personal protective equipment and wash thoroughly after handling. If eyes are exposed to vapor over a short period of time, night vision will be affected for about one evening. One will notice colored halos around lights. Avoid contact with eyes, skin and clothing. Avoid breathing dust or solution spray. Avoid exposure to vapor. Avoid prolonged or repeated exposure. Keep container closed when not in use. Use only with adequate personal protection. Use with local exhaust ventilation. Use only in closed systems. Use NIOSH approved respiratory protection.
- Recommendations for Storage:** Store in cool, dry area in a tightly closed product container, Do not store directly on ground and store away from sources of ignition or flame.
- Other Precautions:** 0.1 mg.m3 supplied air respirator with a full face piece, any self-contained breathing apparatus with a full face piece. Any chemical cartridge respirator with a high efficiency particulate filter with a full face piece and cartridges providing protection against osmic acid. Any air-purifying full face piece respirator (gas mask) with a chin style or front or back mounted canister providing protection against osmium tetroxide and having a high efficiency particulate filter. 1 mg/m3 any supplied air respirator with a full face piece and operated in a pressure-demand or other positive pressure mode
- Emergency or planned entry in unknown concentration or immediately dangerous to life or health conditions. Any self-contained breathing apparatus with full face piece and operated in a pressure-demand or other positive pressure mode. Any self-contained breathing apparatus.
- Escape: Any air-purifying full face piece respirator (gas mask) with a chin-style or front or back mounted canister providing protection against osmium tetroxide and having a high efficiency particulate filter. Any appropriate escape type self-contained breathing apparatus.
- LDLH 1mg/m3

Section 8: Exposure Control / Personal Protection

- General / Engineering Controls:** Ventilation: Local Exhaust: Yes
Mechanical: Yes
Other: Fume Hood
- Work Clothing:** Protective work clothing which covers skin and prevents exposures. Lab coat/apron, flame and chemical resistant protective clothing, eye wash, safety shower, and hygiene facilities for washing.
- Eye/face protection:** Wear safety glasses with side shields or goggles or face shield.
- Skin Protection:** Wear chemical resistant gloves.
- Respiratory Protection:** NIOSH approved chemical cartridge respirator for acid gas and dust/mist/fume or self-contained breathing apparatus with full face shield.
- Additional Information:** Ingredient(s) - Exposure Limits
Osmium Tetroxide/Osmium Oxide
NIOSH REL: TWA 0.002 MG/M3 (0.002 PPM) ST 0.006 MG/M3 (0.0006 PPM)
OSHA PEL - TWA 0.002 MG/M3
IDLH: 1 MG/M3 AS (Os)
CONVERSION: 1 PPM = 10.40 MG/M3

Section 9: Physical and Chemical Properties

State: Solid	Melting Point: 107.6 °F 39.5-41.0 °C	Freezing Point: N/A
Color: Colorless to pale yellow	Boiling Point/Range: 266.0 °F 130 °C	pH: 6-7
Molecular Wt. 254.2	Odor: Sharp chlorine like	Water : 6% @ 77 DEGREE F
Evaporation rate: N/A	Flash Point: N/A	Solubility: RELATIVE DENSITY - 4.9
Upper Flam Limits: N/A	Lower Flam Limits: N/A	Density: 7 mmHg
VOC Content (lbs/gal): N/A	Viscosity: N/A	Pressure: N/A
		Temp:

Section 10: Stability and Reactivity

General: This product is stable and non-reactive under normal conditions of use. Product is not subject to hazardous polymerization. Avoid open flame and ignition sources. Conditions To Avoid (Stability) Elevated temperature. Contact with Hydrochloric Acid will cause formation of poisonous chlorine gas.

Incompatible materials: Strong reducing agents, organic materials, hydrochloric acid, bases, chlorine gas, and finely powdered metals. Contact with HCL will form poisonous chlorine gas.

Decomposition products: BEGINS TO SUBLIME BELOW BOILING POINT AND RELEASES A POISONESS AND IRRITATING VAPOR. CONTACT WITH OTHER MATERIALS MAY CAUSE FIRE.

Section 11: Toxicological Information

General Information: REPEATED OR PROLONGED CONTACT WITH SKIN MAY CAUSE DERMATITIS. THE SUBSTANCE MAY CAUSE EFFECT ON THE KIDNEY.

Toxicological Reproductive Effects:

Information Chronic

(product): **Species:** Rat

Dose: 20336 UMOL/L

Route of Application: Intratesticular

Exposure Time: (1D MALE)

Result paternal effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count).

Paternal effects: Testes, epididymis, sperm duct

Species: Mouse

Dose: 20336 UMOL/L

Route of Application: Subcutaneous

Exposure Time: (30D MALE)

Result paternal effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count).

Paternal effects: Testes, epididymis, sperm duct

Mutagenicity (Genetic Effects):

Chronic

Species: Hamster

Dose: 200 UMOL/L

Cell type: Embryo

Mutation test: Unscheduled DNA synthesis

Intraperitoneal:

Rat

14100 UG/KG

LD50

Oral:

Mouse

162 mg/kg

Likely Routes of Exposure: Eye Contact
Skin Contact
Inhalation

Toxicological Information (contained substances)

Carcinogenicity or mutagenicity: No data available

Sensitization: Product is not expected to be a sensitizer.

Section 12: Ecological Information

General information: Product not tested. Toxicity - Aquatic And Terrestrial Plants
THIS SUBSTANCE MAY BE HAZARDOUS TO THE ENVIRONMENT; SPECIAL ATTENTION SHOULD BE GIVEN TO CRUSTACEA.

Aquatic toxicity: No specific data available. Do not allow large quantities of product to reach water, ground water, water courses or sewer systems.

Degradation / Mobility info: No specific data available.

Bioaccumulative potential: No specific data available.

Section 13: Disposal Information

Product disposal: Consult Federal EPA, State and local regulations for proper disposal/recycle/reclamation

Container disposal: Treat empty containers with extra care. Consult waste contractor.

Other considerations: NOTE: Chemical additions, processing, or otherwise altering this material may make the waste management information presented above incomplete, inaccurate, or otherwise inappropriate.

Section 14: Transport Information

DOT: Proper Shipping Name:
OSMIUM TETROXIDE

Hazard Class:
6.1

Secondary Hazard Class:
NA

DOT Identification Number:
2471

DOT Shipping Label:
Toxic substances

Freight Class:
NL

Packaging Exceptions:
SEE DOT REGULATIONS

Packaging Requirements:
PG I

IMO/IMDG: Same as DOT 49 CFR. Always consult IATA Manual before shipping

IATA: Same as DOT 49 CFR. Always consult IATA Manual before shipping

OTHER: Inquire for further transport information.

Comments: None

Section 15: Regulatory Information

TSCA: THIS CHEMICAL IS TSCA LISTED, AND IS ALSO cGMP UNDER FDA FOR IVD TESTING

SARA 313 SARA Section 313 Notification:

This product is subject to SARA Section 313 reporting requirements.

Ingredient(s) - U.S. Regulatory Information

Osmium Tetroxide/Osmium Oxide

RCRA Hazardous Waste

Acute Health Hazard

Chronic Health Hazard

SARA Section 304 Reportable Quantity: 1000:

SARA Title III - Section 313 Form "R"/TRI Reportable Chemical

SARA Section 313 Notification:

This compound is subject to the reporting requirements of SARA Section 313

State Regulations: Massachusetts Right To Know Components:

Osmic Acid CAS-No. 20816-12-0

Pennsylvania Right To Know Components:

Osmic Acid CAS-No. 20816-12-0

New Jersey Right To Know Components:

Osmic Acid CAS-No. 20816-12-0

California Prop. 65 Components:

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Canadian DSL: This product has been classified in accordance with the hazard criteria of the CPR, and the SDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

European Union (EU) Regulatory Information:

INDICATION OF DANGER: T +

SYMBOL OF DANGER: VERY TOXIC

RISK #: 26/27/28-34

RISK PHRASE: Very toxic by inhalation, in contact with skin and if swallowed. Causes burns.

SAFETY #: 7/9-26-45

SAFETY PHRASE: Keep container tightly closed and in well-ventilated place. In case of contact with eyes, rinse immediately with water and seek medical advice. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Section 16: Other Information

Health: 4

Fire: 0

Reactivity: 3

Other: TOX

HMIS Rating

Health: 4

Fire: 0

Reactivity: 0

Personal

Protection: J

Precautionary Label:

Oxidizer, Target Organ Effect, Highly toxic by inhalation, Highly toxic by ingestion, Highly toxic by skin absorption, Respiratory sensitizer, Corrosive

Disclaimer: In compliance with the OSHA Hazard communication Standard, 2.9 C.F.R 1910.1200, we are providing you with a Materials Safety Data Sheet (MSDS) for the hazardous material you are purchasing.

It is your responsibility to educate your employees on the safe use of the hazardous material. With this in mind, a copy should be forwarded to the supervisor of the user or to the user themselves, and copy should be retained in your files for future reference.

Colonial Metals, Inc. makes no presentation as to the accuracy of the information in the MSDS. The information is believed to be correct; however, you (the customer), should perform your own investigation and independent verification. If you resell the product, you are responsible to forward the information in the MSDS to your customer.

Colonial Metals, Inc.

SDS Author:

Dr. Ernest Addo

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