

Product# 4007

**Safety Data Sheet**  
29 CFR 1910.1200

**Section 1: Company and Product Identification**

**Product Name:** Potassium Osmate

**Product Code:** 4007

**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 BLANK BLANK

**Hazard Pictograms:**



**Signal Word:** Danger

**Hazard Category:** Acute tox, oral Cat 3  
Acute tox, dermal Cat 3  
Acute tox, inh. Cat 1/2  
Skin corrosion/irritation Cat 2  
Serious eye damage/eye irritation Cat 2  
Sensitization, resp. Cat 1

**Hazard Statements:** H301: Toxic if swallowed  
H311: Toxic in contact with skin  
H330: Fatal if inhaled  
H315: Causes skin irritation  
H319: Causes serious eye irritation  
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 contact lenses if present and easy to do – continue rinsing  
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. TOXIC IN CONTACT WITH THE SKIN.

**Ingestion Hazards:**

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

**Inhalation Hazards:**

BURNING SENSATION, COUGH, HEADACHE, WHEEZING, SHORTNESS OF BREATH, VISUAL DISTURBANCES, SYMPTOMS MAY BE DELAYED. MAY BE FATAL 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 %
Potassium Osmate	Toxic	10022-66-9	100
<b>Synonyms:</b> Potassium Osmium (VI) Oxide Hydrate, Potassium Osmate <b>Chemical Name:</b> Potassium Osmium (VI) Oxide Hydrate, Potassium Osmate		<b>Chemical Family:</b> Platinum Group Metal Salts <b>Chemical Formula:</b> K <sub>2</sub> OSO <sub>4</sub> .2H <sub>2</sub> O	

**Section 4: First Aid Measures**

**General Info:** Ensure proper ventilation.

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

**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 Method / Equipment:** Suitable: Carbon dioxide, dry chemical powder, appropriate foam

**Hazardous Decomposition Info:** Constituents associated with burning / combustion are to be considered toxic. Firefighters should wear self-contained breathing apparatus and full protective gear.

**Section 6: Accidental Release Measures**

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- 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. **ADDITIONAL PERSONAL PROTECTIVE EQUIPMENT:** full face shield and proper respirator for acid gas and dust/mist/fume. Ventilate area and wash spill site after
- 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**

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- 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. 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 under an inert atmosphere. 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

**Section 8: Exposure Control / Personal Protection**

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- 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:** None

**Section 9: Physical and Chemical Properties**

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<b>State:</b> Solid	<b>Melting Point:</b> N/A	<b>Freezing Point:</b> N/A
<b>Color:</b> Violet Powder	<b>Boiling Point/Range:</b> N/A	<b>pH:</b> N/A
<b>Molecular Wt.</b> 368.18	<b>Odor:</b> Sharp chlorine like	<b>Water Solubility:</b> Slightly Soluble
<b>Evaporation rate:</b> N/A	<b>Flash Point:</b> N/A	<b>Packing Density:</b> N/A
<b>Upper Flam Limits:</b> N/A	<b>Lower Flam Limits:</b> N/A	<b>Vapor Density:</b> 12.7
<b>VOC Content (lbs/gal):</b> N/A	<b>Viscosity:</b> N/A	<b>Autoignition Temp:</b> N/A

**Section 10: Stability and Reactivity**

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**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 oxidizing agents,

**Decomposition products:** Potassium oxides.

**Section 11: Toxicological Information**

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**General Information:** To the best of our knowledge the physical, chemical, and toxicological properties of this compound have not been fully investigated.

**Toxicological Information (product):** Osmium Tetroxide - LDLH = 1 mg/m<sup>3</sup>  
- TLV = 0.0016 mg/m<sup>3</sup>

**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**

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**General information:** No Data Available

**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**

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**Product disposal:** Consult Federal EPA, State and local regulations for proper disposal/recycle/reclamation. NOTE: Chemical additions, processing, or otherwise altering this material may make the waste management information presented above incomplete, inaccurate, or otherwise inappropriate.

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

**Other considerations: RCRA Information:**  
OsO<sub>4</sub> is a listed EPA Hazardous Waste - P087

**Section 14: Transport Information**

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**DOT: Proper Shipping Name:**  
Toxic solid, inorganic, n.o.s. (Potassium (VI) osmate dihydrate)

**Hazard Class:**  
6.1

**Secondary Hazard Class:**  
NA

**DOT Identification Number:**  
3288

**DOT Shipping Label:**  
Toxic substances

**Freight Class:**  
NL

**Packaging Exceptions:**  
SEE DOT REGULATIONS

**Packaging Requirements:**  
II

**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.

**Section 15: Regulatory Information**

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**TSCA:** THIS CHEMICAL IS TSCA LISTED

**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

**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.

**European Union (EU) Regulatory Information:**

**INDICATION OF DANGER:** T

**SYMBOL OF DANGER:** TOXIC

**RISK #:** 23/24/25

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

**SAFETY #:** 22-26-36-45

**SAFETY PHRASE:** Do not breathe dust. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing. In case of accident or if you feel unwell, seek medical advice immediately (show label where possible).

**Section 16: Other Information**

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**NFPA Rating**

Health: 4

Fire: 0

Reactivity: 0

Other: TOX

**HMIS Rating**

Health: 4

Fire: 0

Reactivity: 0

Personal

Protection: J

**Precautionary Label:**

Toxic

**Disclaimer:** In compliance with the OSHA Hazard communication Standard, 29 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:** John Kerchner

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