

## Safety Data Sheet

### 29 CFR 1910.1200

#### Section 1: Company and Product Identification

**Product Name:** Osmium tetroxide, 2.5 wt% sol. In tert-butanol, stab. w/ tert butylhydroperoxide

**Product Code:** 4036-S

**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

GHS07

GHS06

GHS05

GHS02

**Hazard Pictograms:**



**Signal Word:**

Danger

**Hazard Category:**

Skin corrosion/irritation Cat 1  
 Serious eye damage/eye irritation Cat 1  
 Acute tox, oral Cat 1/2  
 Specific target organ tox, single exp. Cat 3 (resp irrit)  
 Sensitization, resp. Cat 1  
 Aspiration hazard Cat 1  
 Flammable Solid

**Hazard Statements:**

H314: Causes severe skin burns and eye damage  
 H318: Causes serious eye damage  
 H300: Fatal if swallowed  
 H335: May cause respiratory irritation  
 H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled  
 H304: May be fatal if swallowed and enters airways  
 H228: Flammable solid

**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  
 P264: Wash thoroughly after handling  
 P280: Wear protective gloves/protective clothing/eye protection/face protection  
 P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and difficult to remove. Continue rinsing.  
 P402+404: Store in a dry place. Store in a closed container  
 P501: Dispose of contents/container in accordance with local/national/international rules.

**Hazards not otherwise classified:** **Danger:** May be fatal if swallowed. **Warning!** Flammable solid. Poison! Corrosive. Causes eye and skin burns. Causes digestive and respiratory tract burns. Stench. May cause central nervous system effects. May cause adverse reproductive effects.

**Target Organs:** Central nervous system.

**Section 3: Composition / Information on Ingredients**

Hazardous substance (name)	Hazard Category	CAS#	Weight %
Osmium Tetroxide	Toxic/Flammable Solid	20816-12-0	98
<b>Product Name:</b> Osmium tetroxide, 2.5 wt% sol. in tert-butanol, stab. w/ tert butylhydroperoxide <b>Chemical Family:</b> Platinum Group Metal Solution <b>Chemical Formula:</b> OsO <sub>4</sub> <b>Synonyms:</b> Osmic acid, osmium tetroxide, perosmic oxide			

**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.

**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. Get medical attention immediately.

**Skin contact:** Take off immediately all contaminated clothing. Rinse with water thoroughly. Get medical attention 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:** **Flash Point:** 39.20 °F 4 °C

Emits toxic fumes under fire conditions.

**Extinguishing:** Water spray or carbon dioxide. Do not use organics.

**Method / Equipment:**

**Hazardous Fire And Explosion Hazards**

**Decomposition Info:** Evacuate area and fight fire from a safe distance. As in any fire, wear a self-contained breathing apparatus in pressure demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Oxidizer. Greatly increases the burning rate of combustible materials. Dust can be an explosion hazard when exposed to heat or flame.

**Flammable solid. May burn rapidly with flare burning effect. May re-ignite after fire is**

**Section 6: Accidental Release Measures**

**Personal precautions, protective equipment and procedures:** Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid breathing dust. Ventilate area if easy to do so.

Contact local authorities if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

**Containment Equipment and Procedures:** Reduce airborne dust and prevent scattering by moistening with water. Wear a self-contained breathing apparatus and appropriate personal protection. (See Exposure Controls, Personal Protection section). Sweep up, then place into a suitable container for disposal. Avoid generating dusty conditions. Remove all sources of ignition. Make sure that the proper PPE is used.

**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:** Use with adequate ventilation. Minimize dust generation and accumulation. Empty containers retain

**Precautions:** product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks and flame. Do not get on skin or in eyes. Do not ingest or inhale. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

**Recommendations for Storage:** materials. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Poison room locked.

**Incompatibilities:** Strong acids, oxidizers, bases.

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

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**General** / Ventilation: Local Exhaust: Required in handling area

**Engineering Controls:** Mechanical: Desirable to insure concentration of material below TLV/TWA levels

**Other:** Handle in a glove box under a dry inert atmosphere to prevent oxidation

**Safety shower and eyewash**

**Work Clothing:** Protective work clothing which covers skin and prevents exposures.

**Eye/face protection:** Wear safety glasses with side shields or goggles or face shield.

**Skin Protection:** Wear chemical resistant gloves.

**Respiratory Protection:** Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Additional Information:** Observe good chemical hygiene practices. Do not smoke or eat while using this product. Wash hands or exposed skin after using the product.

**Section 9: Physical and Chemical Properties**

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<b>State:</b> Liquid	<b>Melting Point:</b> N/A	<b>Freezing Point:</b> N/A
<b>Color:</b> Almost White	<b>Boiling Point/Range:</b> N/A	<b>pH:</b> N/A
<b>Molecular Wt.:</b> 254.23 as OsO <sub>4</sub>	<b>Odor:</b> Chlorine like stench	<b>Water Solubility:</b> Insoluble
<b>Evaporation rate:</b> Negligible	<b>Flash Point:</b> N/A	<b>Part. Coeff (n-octanol/water):</b> N/A
<b>Upper Flam Limits:</b> N/A	<b>Lower Flam Limits:</b> N/A	<b>Vapor Pressure:</b> 7 mm Hg @ 20C as Os
<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 temperatures, Incompatible materials, ignition sources, dust generation, excess heat.

**Incompatible materials:** Strong oxidizing agents, hydrochloric acid, bases, finely powdered metals, organic materials, strong reducing

**Decomposition products:** Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.

**Section 11: Toxicological Information**

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

**Reproductive Effects:** Adverse reproductive effects have occurred in experimental animals.

**Miscellaneous Toxicological Information**

LD50/ LC50  
CAS # 20816-12-0

**Oral**  
mouse: LD50 = 162 mg/kg

Osmium Tetroxide  
ACGIH - 0.0002 ppm TWA; 0.0006 ppm STEL  
NIOSH - 0.0002 ppm TWA; 0.002 mg/m<sup>3</sup> TWA 1mg/m<sup>3</sup> IDLH (as Os)  
OSHA-Final PELs - 0.002 mg/m<sup>3</sup> TWA (as Os)

**Section 12: Ecological Information**

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**General information:** Product not tested.

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

**Section 13: Disposal Information**

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**Product disposal:** Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

**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**

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**DOT: Proper Shipping Name**

Toxic Liquid, Flammable, organic, N.O.S. (contains Osmium Tetroxide in t-butanol solution)

**Hazard Class**

6.1

**Secondary Hazard Class**

3

**DOT Identification Number**

2929

**DOT Shipping Label**

Toxic and Flammable

**Packaging Requirements**

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**IATA:** Same as DOT. Always consult IATA manual before shipping

**Section 15: Regulatory Information**

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**TSCA/RCRA:** RCRA P-Series: CAS# 20816-12-0: waste number P087.

RCRA U-Series: None listed.

**SARA SARA Hazard Classes**

Acute Health Hazard

Reactivity Hazard

**SARA Section 313 Notification**

This material contains OSMIUM TETROXIDE (CAS# 20816-12-0, 100%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

**State Regulations:** CAS# 20816-12-0 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

**Canadian DSL:** WGK (Water Danger/Protection)

CAS# 20816-12-0: 2

Canada - DSL/NDSL

CAS# 20816-12-0 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D1A, E. This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 20816-12-0 is listed on the Canadian Ingredient Disclosure List.

**Regulatory Information (EU):** Hazard Symbols:

T+

Risk Phrases:

R 26/27/28 Very toxic by inhalation, in contact with skin and if swallowed.

R 34 Causes burns.

Safety Phrases:

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 7/9 Keep container tightly closed and in a well-ventilated place.

**Section 16: Other Information**

**CERCLA Hazardous Substances and corresponding RQs**

CAS# 20816-12-0: 1000 lb final RQ; 454 kg final RQ

**SARA Section 302 Extremely Hazardous Substances**

None of the chemicals in this product have a TPQ.

**SARA Codes**

CAS # 20816-12-0: immediate, fire.

**Clean Air Act:**

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

**Clean Water Act:**

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

**OSHA:**

CAS# 20816-12-0 is considered highly hazardous by OSHA.

**NFPA Rating**

Health: 3

Fire: 3

Reactivity: 3

**HMIS Rating**

Health: 3

Fire: 3

Reactivity: 3

Personal

Protection: J

**Precautionary Label**

Toxic/Flammable Solid

***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 believe to be correct; however, you (the customer), should preform 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.*

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