

MATERIAL SAFETY DATA SHEET

Section 1: Product Identification and use.

Product Name: *OSMIUM TETROXIDE, 4% Aqueous Solution*

Product Identification Number: #0163, 01641, 0165

Supplier's Name: CANEMCO INC. and MARIVAC INC.

1 chemin du lac Chevreuil, GORE, Quebec, Canada. J0V 1K0 Tel: 450-562-1451

Manufacturer's Name: Colonial Metal Inc.

Elkton, MD, USA

21921

Chemical Name: *Osmium tetroxide, Osmic acid, Osmic anhydride*

Trade Name and Synonyms: *Osmium tetroxide*

Product Use: *Laboratory product.*

Section 2: Hazardous Ingredients .

<u>Hazardous Ingredients</u>	<u>%</u>	<u>CAS Number</u>	<u>LD50 of Ingredients</u>	<u>LC50 of Ingredients</u>
<i>Osmium tetroxide</i>				
<i>Osmium oxide</i>	4 %	20816-12-0	n/d	n/d
<i>Water</i>	96%			

Section 3: Physical Data.

Physical State: *Liquid*

Odor and Appearance: *Colorless yellow liquid with a sharp chlorine like odor*

Odor Threshold (ppm): *n/d*

Vapor Pressure: *11 tor at 27°C*

Vapor Density (Air=1): *not established*

Evaporation Rate: *not established*

Boiling Point: *130°C*

Freezing Point: *n/d*

pH: *...n/d*

Specific Gravity: *...4.91*

Coeff. Water/Oil Dist: *n/d*

Section 4: Fire and Explosion Data.

Flammability: Yes: No: **X**

If Yes, Under

Which Condition?:

Means of Extinction: *. Water spray or Carbon dioxide, do not use organics. Use self contained breathing apparatus with full face-piece and full protective clothing*

Flashpoint and method: *n/a*

Upper Flammable Limit (% by Volume): *n/a*

Lower Flammable Limit (% by Volume): *. n/a*

Autoignition Temperature: *n/d*

Hazardous Combustion Products: *n/d*

Explosion Data: *. Osmium tetroxide is a strong oxidizer and may react explosively with many organic compounds.*

Sensitivity to Impact: *n/d*

Sensitivity to Static Discharge: *n/d*

Section 5: Reactivity Data.

Chemical Stability *Stable*

If No, Under

Which Condition:

Incompatibility with Other Substances:

Yes: No: If So, Which Ones: *Organic materials and hydrochloric acid*

Reactivity and Under What Conditions: *Subjection of crystals to elevated temperatures causing sublimation*

Hazardous Decomposition Products: *none*

PRODUCT IDENTIFIER: → *OSMIUM TETROXIDE, 4% Aqueous Solution, #0163, 0164, 0165*

Section 6: Toxicological Properties.

Route of Entry

Skin Contact: • X Skin Absorption: • X Eye Contact: • X Inhalation: • X Ingestion: X •

Effect of Acute Exposure to Product: *.Eye irritation, lacrimation, visual disturbance, conjunctivities, headache, potential damage of cornea. Skin: dermatitis, possible skin discoloration green or black. Inhalation: Coughing, shortness of breath, unconsciousness, could cause tracheitis, bronchitis, bronchial spasm which may lead to inflammatory lesions of the lung. Ingestion: Irritation, cough, dyspnea, death.*

Effect of Chronic Exposure to Product: *potential kidney damage*

Exposure Limits: *OSHA/PEL: 0.002 mg/m³, ACGIH/TLV: 0.002 mg/m³*

Irritancy of Product: *irritant*

Sensitization to Product: *sensitive*

Carcinogenicity: *n/d*

Teratogenicity: *n/d*

Reproductive Toxicity: *n/d*

Mutagenicity: *n/d*

Synergistic Products: *n/d*

Section 7: Preventive Measures.

Personal Protective Equipment:

Gloves: *rubber/neoprene*

Respirator: *chemical cartridge respirator for acid gases and dust/mist/fume or self-contained breathing apparatus with full-face piece.*

Eye: *safety goggles or full-face piece with respirator*

Footwear: *none*

Clothing: *apron or protective clothing for skin*

Other: *n/d*

Engineering Controls: *Local exhaust required in handling area, or mechanical exhaust desirable to insure concentration of material below TLV/TWA levels. or Chemical Fume Hood.*

Leak and Spill Procedure: *Sweep up or cover spill with dry sand or vermiculite and mix well. Place in a sealed container, taking care to avoid dusting. Person protected with full face shield and proper respirator for acid gases and dust/mist/fume. Crystals and solution may be dissolved and/or neutralized in an aqueous solution of sodium or potassium hydroxide (approximately 20 to 25% weight volume) return neutralized solution for reclamation of osmium metal.*

Waste Disposal: *.Place in a sealed container and return for reclamation of osmium.*

Handling Procedures and equipment: *..store sealed vials in a dry cool area (refrigerator) with sufficient packaging to avoid accidental breakage*

Storage Requirements: *as above*

Special Shipping Information: *n/d*

Section 8: First Aid Measures.

Specific Measures:

EYE: *Flush thoroughly with plenty of water. If discomfort occurs or persists, contact a physician.*

SKIN: *Flush area with plenty of water and wash with soap and water. If discomfort occurs or persists, contact a physician. remove contaminated clothing and shoes and wash before reuse.*

INHALATION: *Remove to fresh air. If discomfort occurs or persists, contact a physician. If breathing has stopped, perform artificial respiration. Get medical attention as soon as possible.*

INGESTION: *If swallowed give large quantities of water and induce vomiting unless person is unconscious. Get medical attention immediately.*

Section 9: Preparation Date of MSDS.

Prepared by: *Canemco Inc and Marivac Inc./MSDS Coordinator. Phone Number:450-562-1451 Date: September, 2011*