

## Material Safety Data Sheet

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Section 1 - Material Identification and Use	
<b>Chemical Name</b> zinc anode	<b>Product Use</b> marine zinc anode
<b>Manufacturer's Name</b> Harbor Island Supply	<b>Supplier's Name</b> Harbor Island Supply
<b>Address</b> 230 So Chicago St Seattle, Wa 98001	<b>Emergency Phone Number</b> 206-762-1900

Section 2 - Hazardous Ingredients				
Hazardous Ingredients	%	CAS/PIN	LD <sub>50</sub> (Species/route)	LD <sub>50</sub> (Species)
Zinc 1	99.3 - 99.8	7440-66-6	not available	not available
Aluminum 1	0.1 - 0.4	7429-90-5	not available	not available
Cadmium 2	0.03 - 0.07	7440-43-9	225 mg/kg (rat/oral)	not available
<small>1 Do not appear on ingredient disclosure list of HPA 2 Concentration above 1% considered hazardous according to HPA</small>				

Section 3 - Physical Data			
<b>Physical State</b> solid	<b>Odor and Appearance</b> odorless blueish-white metal	<b>Odor Threshold (ppm)</b> nil	<b>pH</b> not applicable
<b>Specific Gravity (Water=1)</b> 7.13	<b>Evaporation Rate</b> not applicable	<b>Vapor Density (Air=1)</b> not applicable	<b>Vapor Pressure</b> Imm Hg @ 487 °C
<b>Boiling Point</b> 907 °C	<b>Melting Point</b> 419 °C	<b>Coefficient of Water/Oil Dist.</b> not available	

Section 4 - Fire and Explosion Data			
<b>Flammability</b> Bulk metal is not flammable, however dust or powder form may be flammable or explosive when mixed with air			
<b>Means of Extinction</b> Do not use water on molten material. Use dry chemical suitable for metal fires			
<b>Special Procedures</b> Use caution when immersing solid zinc into a molten zinc bath. Moisture/condensation can cause molten zinc to bubble, splash or explode. Fire fighters should be equipped with NIOSH approved self-contained breathing apparatus.			
<b>Flash Point and Method</b> not applicable	<b>Auto-Ignition Temperature</b> not applicable	<b>Lower Explosion Limit</b> not applicable	<b>Upper Explosion Limit</b> not applicable
<b>Explosion Data - Sensitivity to Mechanical Impact</b>		none	
<b>Explosion Data - Sensitivity to Mechanical Discharge</b>		none	

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Section 5 - Reactivity Data			
<b>Conditions of reactivity</b> Contact with acids and alkalis will generate hydrogen gas. A dust air mixture will burn	<b>Chemical incompatibility</b> Acids and alkalis and halogens		
<b>Chemical Stability</b> stable	<b>Hazardous Decomposition Products</b> none		

Section 6 - Toxicological Properties of Product					
<b>Exposure Limits TVL (mg/m<sup>3</sup>)</b>	<b>Routes of Entry :</b> Skin contact [ ] Skin absorption [ ] Eye contact [ x ] Inhalation [ x ] Ingestion [ x ]				
Zinc 5	<b>Effects of Acute exposure:</b> Eye contact with fume of dust may cause local eye irritation. Inhalation of fume may cause zinc fume fever resulting in flu-like symptoms. <b>Effects of Chronic Exposure:</b> May cause gastrointestinal disturbances				
Aluminum 5					
Cadmium 0.01					
<b>Carcinogenicity</b> see additional information below					
<b>Reproductive Toxicity</b> unknown	<b>Teratogenicity</b> unknown	<b>Sensitisation</b> unknown	<b>Irritancy</b> slight	<b>Synergistic Material</b> none known	<b>Mutagenicity</b> unknown

Section 7 - Preventive Measures	
<b>Personal Protective Equipment</b> Wear gloves and clothing to protect against physical hazard or hot metal splash. Goggles and/or faceshield with molten metal. If ventilation is not adequate, a NIOSH approved fume/dust respirator	<b>Engineering Controls</b> Local exhaust ventilation may be needed to control fume/dust below the safe exposure limits.
<b>Handling Procedures</b> Exposure to this material can be controlled in many ways. The measures appropriate for a particular worksite depend on how this material is used and on the extent of exposure. Use this general information to help develop specific control measures. Avoid contact with skin, eyes or clothing. Avoid breathing dust or fume.	
<b>Storage Requirements</b> Store products away from incompatible materials	<b>Special Shipping Information</b> Shipping Name: not regulated Class: Packing Group: PIN#:
<b>Leak/Spill Procedures</b> Collect spilled material and return to the process. Shovel rather than sweep to avoid dusting conditions	
<b>Waste Disposal</b> If material cannot be returned to process or salvaged, dispose of in accordance with applicable regulations	

Section 8 - First Aid Measures
<b>First Aid Measures:</b> Skin: Wash with soap and water Eyes: Treat as a foreign body. Immediately flush with water. Seek medical attention Inhalation: Remove to fresh air. Apply artificial respiration if victim is not breathing. Seek medical attention Ingestion: Rare in industry. Seek medical attention

Section 9 - Preparation Data	
<b>Prepared by</b> Hudson Bay Mining & Smelting Co.	<b>Additional information</b> Cadmium: IARC reports that the evidence for carcinogenicity to humans is "limited". Practice good hygiene. If clothes are contaminated, remove and launder before using them again
<b>Date of Preparation</b> February 2002	
<b>Telephone Number</b> 204-687-2691	
<b>Sources Used</b> Canadian Center for Occupation Health and Safety. ACGIH <i>Threshold Limits for Chemical Substances and Physical Agents and Biological Exposure 1998</i> . Merck & Co: <i>The Merck Index, 11th ed Rahway NJ 1989</i> . Sax, Irving N <i>Dangerous Properties of Industrial Materials 4th ed Toronto, On 1975</i>	