

## MATERIAL SAFETY DATA SHEET

### Section 1 - IDENTIFICATION OF SUBSTANCE AND COMPANY

<b>Product detail:</b>	Zinc anode for use in cathodic protection of reinforced concrete structures
<b>Trade Name:</b>	Durozinc CP 250, CP 400, CP 800, CP 1600
<b>Manufacturer / Supplier:</b>	Doromac Deutschland GmbH / Durocon Technologies

### Section 2 - COMPOSITION / DATA ON COMPONENTS

<b>Chemical Characterization</b>															
<b>Chemical Name:</b>	Zinc Alloy														
<b>Description:</b>	<p>Alloy composition by weight (percentage):</p> <p>≥99% Zinc</p> <table border="1" style="width: 100%;"> <tr> <td>Cu</td> <td>≤0.005%</td> </tr> <tr> <td>Al</td> <td>0.1 - 0.5%</td> </tr> <tr> <td>Fe</td> <td>≤0.005%</td> </tr> <tr> <td>Cd</td> <td>0.025 - 0.07%</td> </tr> <tr> <td>Pb</td> <td>≤0.006%</td> </tr> <tr> <td>Others (total)</td> <td>≤0.1%</td> </tr> <tr> <td>Zn</td> <td>Remainder</td> </tr> </table>	Cu	≤0.005%	Al	0.1 - 0.5%	Fe	≤0.005%	Cd	0.025 - 0.07%	Pb	≤0.006%	Others (total)	≤0.1%	Zn	Remainder
Cu	≤0.005%														
Al	0.1 - 0.5%														
Fe	≤0.005%														
Cd	0.025 - 0.07%														
Pb	≤0.006%														
Others (total)	≤0.1%														
Zn	Remainder														
<b>CAS#:</b>	7440-66-6														

### Section 3 - HAZARDS IDENTIFICATION

Information pertaining to particular dangers for man and environment Classification systems:

<b>Toxicological Data on Ingredients:</b>	Zinc Metal LD50: Not available. LC50: Not available
<b>Potential Acute Health Effects:</b>	Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.
<b>Potential Chronic Health Effects:</b>	<p>CARCINOGENIC EFFECTS: Not available.</p> <p>MUTAGENIC EFFECTS: Not available.</p> <p>TERATOGENIC EFFECTS: Not available.</p> <p>DEVELOPMENTAL TOXICITY: Not available.</p> <p>Repeated or prolonged exposure is not known to aggravate medical condition.</p>

**Section 4 - FIRST AID MEASURES**

<b>Eye Contact:</b>	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15minutes. Get medical attention if irritation occurs.
<b>Skin Contact:</b>	Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.
<b>Serious Skin Contact:</b>	CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. Repeated or prolonged exposure is not known to aggravate medical condition. Not available.
<b>Inhalation:</b>	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
<b>Serious Inhalation:</b>	Not applicable in solid form.
<b>Ingestion:</b>	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.
<b>Serious Ingestion:</b>	Not available.

**Section 5 - FIRE FIGHTING MEASURES**

<b>Flammability of the Product:</b>	Flammable.
<b>Auto-Ignition Temperature:</b>	480°C (896°F)
<b>Flash Points:</b>	Not applicable.
<b>Flammable Limits:</b>	Not applicable.
<b>Products of Combustion:</b>	Not applicable.
<b>Fire Hazards in Presence of Various Substances:</b>	Slightly flammable to flammable in presence of open flames and sparks, of heat, of oxidizing materials, of acids, of alkalis, of moisture. Non-flammable in presence of shocks.
<b>Explosion Hazards in Presence of Various Substances:</b>	Risks of explosion of the product in presence of mechanical impact: Not applicable. Risks of explosion of the product in presence of static discharge: Not applicable.
<b>Fire Fighting Media and Instructions</b>	Flammable solid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.
<b>Special Remarks on Fire Hazards:</b>	<ul style="list-style-type: none"> <li>- Zinc + NaOH causes ignition.</li> <li>- Oxidation of zinc by potassium proceeds with incandescence.</li> <li>- Residues from zinc dust /acetic acid reduction operations may ignite after long delay if discarded into waste bins with paper.</li> <li>- Incandescent reaction when Zinc and Arsenic or Tellurium, or Selenium are combined.</li> <li>- When hydrazine mononitrate is heated in contact with zinc, a flaming decomposition occurs at temperatures a little above its melting point.</li> <li>- Contact with acids and alkali hydroxides (sodium hydroxide, potassium hydroxide, calcium hydroxide, etc.) results in evolution of hydrogen with sufficient heat of reaction to ignite the hydrogen gas.</li> <li>- Zinc foil ignites if traces of moisture are present. It is water reactive and produces</li> </ul>

	flammable gases on contact with water. It may ignite on contact with water or moist air.
<b>Special Remarks on Explosion Hazards:</b>	Not applicable.

**Section 6 - ACCIDENTAL RELEASE MEASURES**

<b>Small Spill:</b>	Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
<b>Large Spill:</b>	Flammable solid that, in contact with water, emits flammable gases. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Cover with dry earth, sand or other non-combustible material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

**Section 7 - HANDLING AND STORAGE**

<b>Precautions:</b>	Keep away from heat. Keep away from sources of ignition. Earth all equipment containing material. Do not breathe dust. Keep away from incompatibles such as oxidizing agents, acids, alkalis, moisture.
<b>Storage:</b>	Keep container tightly closed. Keep container in a cool, well-ventilated area. Keep from any possible contact with water. Do not allow water to get into container because of violent reaction.

**Section 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION**

<b>Engineering Controls:</b>	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
<b>Personal Protection:</b>	Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.
<b>Personal Protection in Case of a Large Spill:</b>	Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
<b>Exposure Limits:</b>	Not applicable.

**Section 9 - PHYSICAL AND CHEMICAL PROPERTIES**

<b>Physical State and Appearance:</b>	Solid. (Lustrous solid. Metal solid.)
<b>Odor:</b>	Not available.
<b>Taste:</b>	Not available.
<b>Molecular Weight:</b>	65.39 g/mole (zinc).
<b>Color:</b>	Bluish-grey
<b>pH (1% soln/water):</b>	Not applicable.
<b>Boiling Point:</b>	907°C (1664.6°F)
<b>Melting Point:</b>	419°C (786.2°F)
<b>Critical Temperature:</b>	Not available.
<b>Specific Gravity:</b>	7.13
<b>Vapor Pressure:</b>	Not applicable.
<b>Vapor Density:</b>	Not available.
<b>Volatility:</b>	Not available.
<b>Odor Threshold:</b>	Not available.
<b>Water/Oil Dist. Coeff.:</b>	Not available.
<b>Ionicity (in Water):</b>	Not available.
<b>Dispersion Properties:</b>	Not available.
<b>Solubility:</b>	Insoluble in cold water, hot water, methanol, diethyl ether, n-octanol, acetone.

**Section 10 - STABILITY AND REACTIVITY**

<b>Stability:</b>	The product is stable.
<b>Instability Temperature:</b>	Not available.
<b>Conditions of Instability:</b>	Excess heat, incompatible materials, moisture.
<b>Incompatibility with various substances:</b>	Reactive with oxidizing agents, acids, alkalis. Slightly reactive to reactive with moisture. The product may react violently with water to emit flammable but non toxic gases.
<b>Corrosivity:</b>	Non-corrosive in presence of glass.
<b>Special Remarks on Reactivity:</b>	Incompatible with acids, halogenated hydrocarbons, NH <sub>4</sub> NO <sub>3</sub> , barium oxide, Ba(NO <sub>3</sub> ) <sub>2</sub> , Cadmium, CS <sub>2</sub> , chlorates, Cl <sub>2</sub> , CrO <sub>3</sub> , F <sub>2</sub> , Hydroxylamine, Pb(N <sub>3</sub> ) <sub>2</sub> , MnCl <sub>2</sub> , HNO <sub>3</sub> , performic acid, KClO <sub>3</sub> , KNO <sub>3</sub> , N <sub>2</sub> O <sub>2</sub> , Selenium, NaClO <sub>3</sub> , Na <sub>2</sub> O <sub>2</sub> , Sulfur, Te, water, (NH <sub>4</sub> ) <sub>2</sub> S, As <sub>2</sub> O <sub>3</sub> , CS <sub>2</sub> , CaCl <sub>2</sub> , chlorinated rubber, catalytic metals, halocarbons, o-nitroanisole, nitrobenzene, nonmetals, oxidants, paint primer base, pentacarbonyliron, transition metal halides, seleninyl bromide, HCl, H <sub>2</sub> SO <sub>4</sub> , (Mg+Ba(NO <sub>3</sub> ) <sub>2</sub> +BaO <sub>2</sub> ), (ethyl acetoacetate+tribromoneopentyl alcohol. Contact with Alkali Hydroxides(Sodium Hydroxide, Potassium Hydroxide, Calcium Hydroxide, etc) results in evolution of hydrogen. Ammonium nitrate + zinc + water causes a violent reaction with evolution of steam and zinc oxide. May react with water.
<b>Special Remarks on Corrosivity:</b>	Not available.
<b>Polymerization:</b>	Will not polymerized.

**Section 11 - TOXICOLOGICAL INFORMATION**

<b>Routes of Entry:</b>	Inhalation. Ingestion.
<b>Toxicity to Animals:</b>	LD50: Not available. LC50: Not available.
<b>Chronic Effects on Humans:</b>	Not available.
<b>Other Toxic Effects on Humans:</b>	Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.
<b>Special Remarks on Toxicity to Animals:</b>	Not available
<b>Special Remarks on Chronic Effects on Humans:</b>	Not available
<b>Special Remarks on other Toxic Effects on Humans:</b>	Acute Potential Health Effects: - Skin: May cause skin irritation. Dermal exposure to zinc may produce leg pains, fatigue, anorexia and weight loss. - Eyes: May cause eye irritation. - Ingestion: May be harmful if swallowed. May cause digestive tract irritation with tightness in throat, nausea, vomiting, diarrhea, loss of appetite, malaise, abdominal pain, fever, and chills. May affect behaviour/central nervous system and autonomic nervous system with ataxia, lethargy, staggering gait, mild derangement in cerebellar function, lightheadness, dizziness, irritability, muscular stiffness, and pain. May also affect blood. - Inhalation: Inhalation of zinc dust or fumes may cause respiratory tract and mucous membrane irritation with cough and chest pain. It can also cause "metal fume fever", a flu-like condition characterized appearance of chills, headached fever, malaise, fatigue, sweating, extreme thirst, aches in the legs and chest, and difficulty in breathing. A sweet taste may also be present in metal fume fever, as well as a dry throat, aches, nausea, and vomiting, and pale grey cyanosis. The toxicological properties of this substance have not been fully investigated.

**Section 12 - ECOLOGICAL INFORMATION**

<b>Ecotoxicity:</b>	Not available.
<b>BOD5 and COD:</b>	Not available.
<b>Products of Biodegradation:</b>	Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
<b>Other Toxic Effects on Humans:</b>	Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.
<b>Toxicity of the Products of Biodegradation:</b>	Not available
<b>Toxicity of the Products of Biodegradation:</b>	Not available

**Section 13 - DISPOSAL CONSIDERATIONS**

<b>Waste Disposal:</b>	Waste must be disposed of in accordance with federal, state and local environmental control regulations.
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**Section 14 - TRANSPORT INFORMATION**

<b>DOT Classification:</b>	Not a DOT controlled material (United States).
<b>Identification:</b>	Not applicable.
<b>Special Provisions for Transport:</b>	Not applicable.

**Section 15 - REGULATORY INFORMATION**

**Designation according to EC guidelines:**  
**Code letter and hazard designation of product:**  
**Hazard- determining components of labeling:**  
**Risk phrases:**  
**Safety phrases:**

**Section 16 - OTHER INFORMATION**

<b>References:</b>	Not available.
<b>Other Special Considerations:</b>	Not available.
<b>Created:</b>	21st October 2011
<b>Last Updated:</b>	15th June 2012

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Contact:  
JB Jackson  
barry.jackson@trencrom.com  
+97155 602 4745

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DUROMAC DEUTSCHLAND GMBH  
Ziegelhütte 22  
D-74196 NEUENSTADT A.K.  
Germany

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