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DATA SHEET
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BELMONT ZINC PLATING ANODES

The electroplating process consists of immersion of the object to be coated in a bath containing an anode. The object itself functions as the cathode. The bath is usually an aqueous solution of salts of the metal to be deposited. An electrolytic cell is produced when voltage is applied to the anode. The cathode being negative. Metal ions formed in the solution are attracted to the cathode where they gain electrons and deposit out of the solution onto the cathode surface as pure metal. Zinc is deposited in this way from both acid and alkaline electrolytes.

TYPICAL ZINC PLATING SPECIFICATIONS:

MIL-F-14072	Cadmium and Zinc plating, ground signal equipment (steel and copper)
QQ-Z-325	Zinc plating on steel
FF-H-106a	Zinc plating on steel (lock & door trim)
FF-H-111a	Zinc plating on steel
FF-H-116a	Zinc plating on steel
ASTM-AES A164-55	Zinc on steel

Zinc coatings provide better protection on Iron and steel at lower cost than any other corrosion resistant coatings. Electroplating is just one of several ways Zinc coating can be applied. However, the electrodeposited coatings differ in several ways from other coatings. For example, plated Zinc coatings are pure as compared to hot dipped and sherardized coatings, which consist of Iron Zinc alloys layers. Plated coatings are thinner and more uniform (down to 0.1 mil). These are more ductile, and can be made brighter and more lustrous.

Zinc in contact with most metals is anodic, and will sacrifice itself to protect them. This galvanic protection is provided by Zinc whether plated, hot dipped or sherardized.

Plated Zinc deposited from Cyanide Zinc baths yields coatings ranging from dull matte to mirror bright finishes. These baths have higher throwing power than acid baths and thus are useful for plating irregularly shaped objects.

Acid electrolyte baths are used for plating Iron and Steel mill wrought forms such as, strip, wire, rod and strap. Coarse-grained deposits are produced by acid Zinc baths, but this is not detrimental on Steel as the cathodic action offered by Zinc protects even when the coating is porous or scratched.

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In general Zinc anodes should be of high purity as metallic impurities such as Lead, Cadmium, Nickel, Copper, Chromium and others can lead to staining, pitting, poor adhesion, darkness, and even no plate.

The inclusion of impurities in the plate can interfere with subsequent post treatment such as Chromate, anodizing and Black-Ox. Bright Zinc plating that is obtained from Cyanide baths is also badly affected by impurities.

Under some condition the addition of controlled amounts of other metals to Zinc anodes that do not affect the bath have proved beneficial. The principal addition being Aluminum for Cyanide solution plating, which prevents chemical attack on the anodes and Zinc saturation of the solution when the electrolyte bath is idle. Thus making it unnecessary to remove the anodes from the bath overnight or during shutdowns.

Small amounts of Magnesium and Calcium are added to Zinc anodes for acid electrolytes to prevent chemical attack on the anodes when the bath is not in use.