



## Chicago White Metal Casting

*High-Tech Al, Mg, & Zn Die Casting and  
Miniature 4-Slide Zn & ZA-8 Die Cast Parts*

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## CWM Surface Finishing Option Meets New Commercial Specs and U.S. & European Mandates

# Corrosion-Resistant Trivalent Chromate Coating for Al, Mg & Zn Die Cast Parts Offers OEMs RoHS\* Compliance

**Environmentally friendly trivalent chromium is now a proven, economical alternative to hexavalent chromium coatings, offering high corrosion resistance for Al, Mg and Zn die cast components in a wide range of applications. With a bright, cosmetically pleasing finish, it meets stricter EPA regulations and new European Union mandates, avoiding the concerns with using soon-to-be-prohibited toxic hexavalent chromates. ASTM test results demonstrate salt-spray protection up to 168 hours on Al 380.**

For a superior combined conversion-functional coating, CWM offers a corrosion resistant RoHS-compliant trivalent chromate conversion coating for aluminum\*\*, magnesium and zinc die castings.

(\*\*per MIL-C-5541 requirements)

### Development of U.S. Navy Research

This coating was originally developed by the U.S. Department of the Navy and licensed to several manufacturers. CWM's finishing supplier has worked with the Navy and their licensees in further testing of the product for suitability in meeting commercial and industrial specifications as well as corporate and global directives and mandates to eliminate toxic hexavalent chrome usage.

### Clear-Blue Aesthetic Appearance

The conversion coating has a clear-blue finish similar to a standard clear chromate. The finish offers high corrosion resistance, meeting the 168-hour neutral salt spray requirement of MIL-C-5541 for aluminum castings as tested per ASTM B117.

### Superior to Conventional Chromate

In side-by-side neutral salt spray testing of conventional hexavalent chromate conversion coatings and the new trivalent chrome conversion coating, wrought 2024 and 6061 panels showed no difference in corrosion resistance. The same testing using Al 380 alloy die cast panels showed the trivalent chrome conversion coating outperformed the conventional hexavalent chromate conversion coating. All of these die cast panels were tested for 168 hours as specified by MIL-C-5541 and ASTM B117.

The aluminum die cast panels coated with the trivalent conversion coating were also painted and subjected to cross-hatch adhesion testing. The panels showed excellent bonding capability with no compromise of the bond strength as compared to conventional hexavalent chromate.

### Eliminates Environmental Concerns

This trivalent chrome conversion coating eliminates the environmental concerns associated with the use of toxic hexavalent chromates in the automotive and electronic industries, while meeting European Union

environmental mandates to eliminate hexavalent chromium.

These directives are expected to move to the medical sector, with other manufacturing groups to follow. An expanding number of manufactured products will be prohibited from shipment into the European Union countries if they are finished with hexavalent chromates.

In addition to its environmental advantages, trivalent chromate coatings are not affected by baking or exposure to heats associated with curing processes.

### Coating Survival at 400° F

Trivalent chromates can be baked at temperatures up to 400° Fahrenheit with minimal degradation of their corrosion resistance, making them an excellent base for painting and rubber bonding and superior to hexavalent finishes.

### Clear Choice for Corrosion Resistance

With a more uniform and aesthetically pleasing blue-bright appearance, compared to the non-uniform and yellow or olive drab appearance of traditional hexavalent chromates, this new conversion-functional coating is a clear choice. ■

*For further information on Trivalent Chromate Coating for Aluminum, Magnesium or Zinc die cast parts, contact the CWM Sales Dept.*

\* RoHS: Restriction of Hazardous Substances — Directive of the European Union