

TriCOL™ Decorative Trivalent Chromium Plating Processes

Regulations on Hexavalent Chromium electroplating aren't the only reason to convert to TriCOL™ decorative plating processes. The performance benefits of trivalent chromium electroplating and waste treatment cost reductions are also significant drivers to switch.

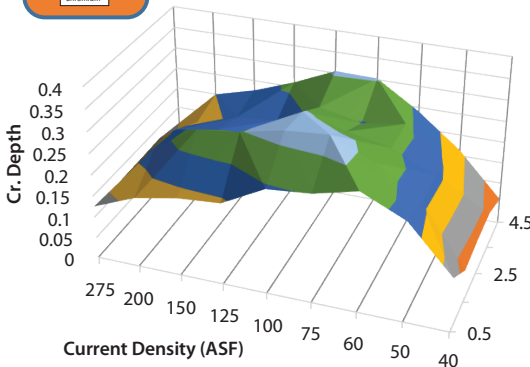
Key Performance Benefit: Our Tricol processes provide a burn-free, high current density plating range -- so no more worrying about burning the edges of your parts if you need to crank up the current. Now you can get excellent chrome coverage in recesses or other challenging low current density areas without high current density burning.

Trivalent Chromium Plated Deposit



Cross Section of Deposit on a square bar

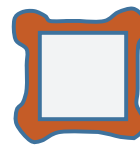
Thickness versus Current Density



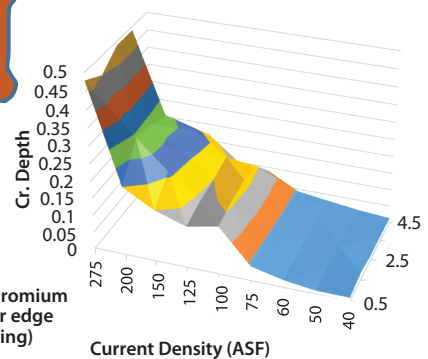
Hexavalent Chromium Plated Deposit

Cross Section of Deposit on a square bar

Thickness versus Current Density



Build up of chromium thickness near edge of parts (Burning)



Reduced Waste Treatment Time & Cost: Waste treatment of a TriCOL trivalent chromium plating solution can be done in one step rather than the 3 steps typical of a hexavalent chromium plating solution. This saves a significant amount of time and money and generates a small fraction of waste sludge compared to hexavalent solutions.

Trivalent Chromium Plating

Contains 2.8 opg Chromium

ONE STEP

Chromium 62 lbs

Calcium Hydroxide \$53

F006 Waste Sludge 334 lbs

Total Cost \$53

\$2,756
Cost Per Year

Hexavalent Chromium Plating

Contains 21 opg Chromium

THREE STEPS

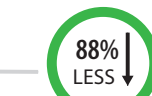
Chromium 500 lbs

Sodium Bisulfite \$627
 Sulfuric Acid \$131
 Calcium Hydroxide \$440

F006 Waste Sludge 3,036 lbs

Total Cost \$1,243

\$64,636
Cost Per Year



*Per Week based on 85% Recovery

* Values based on 2,200 gallon decorative chromium plating solutions