Hexavalent Chrome
Current Uses

- Hard Chrome
- Decorative Chrome
- Chromic Acid Anodize
- Passivation of Stainless Steels
- Etching of Base Materials
- Passivation of…
  - Zinc Plate
  - Zinc Die cast
  - Cadmium Plate
  - Aluminum
- Phosphate Seals

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Hard Chrome

- Used to rebuild machine parts
- Increase life of molds and dies
- Hydraulic cylinders are plated with this to increase life and reduce wear
- Anywhere, wear needs to be reduced

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Decorative Chrome

Exterior Automotive	Shiny, Durable, Color
Interior Automotive	Shiny, Durable, Color
Plumbing	Shiny, Durable, Color
Hardware	Shiny, Durable, Color
Appliances	Shiny, Durable, Color
Furniture	Shiny, Durable, Color

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Decorative Chrome

- Original bright finish was nickel – sometimes buffed
- Nickel would tarnish easily
- Chrome prevented tarnish and maintained a light color
- Chrome is harder than nickel, shine stayed brighter longer

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Chromic Acid Anodizing

- Aircraft requirement
- On military specification

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Chromic Acid Passivation

- On Mil Spec
- Used for 400 series Stainless Steel

Hexavalent Chromates

- Used to extend the corrosion resistance of different substrates, plated steel (zinc, zinc alloys or cadmium), aluminum and ZDC
- Used for color identification (yellow, black, olive drab, blue, green, etc).
- Required by Mil Spec (Mil 5541 Type 1)
- Used as paint base (Painting aluminum airplane bodies)

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Chromic Acid Seals

- Sealing of anodized coatings
- Sealing of phosphated metals

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Chromic Acid Etch

- Plating on Plastics – makes plastic hydrophyllic (water loving)
- Deburring of metals – dissolves burrs
- Polishing of metals – even removal of surface defects polishing surface

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