

## **E-Chrome™ Ultra Blue**

### **High Corrosion Resistant Trivalent Blue Bright Chromate**

**E-Chrome Ultra Blue** is a two component, single dip blue bright trivalent chromate that offers high salt spray resistance of up to 150 hours to white rust versus only 16-24 hours with hexavalent per ASTM B-117. Resistance to red rust is typically 240 hours, depending on zinc plate thickness. No additional top coat is required to obtain this high degree of corrosion resistance.

For the highest corrosion protection, a separate component called **E-Chrome Ultra Blue HP** is added at 2% by volume. Without **HP**, the resistance to white rust is typically less than 24 hours.

It produces a true blue conversion coating without yellowing problems on alkaline non-cyanide and chloride zinc plated deposits and galvanized zinc surfaces. It is also used as a conversion coating on zinc die-cast surfaces prior to powder coating.

E-Chrome Ultra Blue also can replace a hexavalent sealer used for nickel plated surfaces. If you are looking to improve your barrel nickel process so that it gets more polish, a brighter finish and a color that is almost chrome like finish, E-Chrome Ultra Blue is your choice.

It is simple to control and is operator friendly. It can be utilized with automatic feeder equipment.

It produces a beautiful blue bright trivalent chromate to meet automotive and all other industrial standards.

**E-Chrome Ultra Blue** is a stable bath with long life.

Tank conditioning prior to **E-Chrome Ultra Blue** is essential when transitioning from a hexavalent to a trivalent chromate - - see page 3.

## E-Chrome™ Ultra Blue

### Solution Make-Up and Operating Parameters for Zinc and Nickel Substrates

	<b>Range Zinc</b>	<b>Range Nickel</b>	<b>Optimum Zinc</b>	<b>Optimum Nickel</b>
<b>E-Chrome Ultra Blue</b>	By Volume: - 1-3%	By Volume: - 1-3%	By Volume: - 2.0%	By Volume: - 2.0%
<b>E-Chrome Ultra Blue HP</b>	- 1-3%	- 0%	- 2.0%	- 0%
Tap water	- 96-98%	- 97-99%	- 96%	- 98%
Temperature	65-90°F (18-32°C)	65-90°F (18-32°C)	75°F (24°C)	75°F (24°C)
pH (*)	1.65 – 2.0	1.65 – 2.0	1.8	1.8
Time	15-40 sec.	5-30 sec.	20 sec.	10 sec.
Agitation	Air agitation may be helpful in rack situations			
* Raise pH with concentrated Ammonium Hydroxide; Lower pH with 50% Nitric Acid				

**When a new bath is made-up, the pH will typically be 1.3. Raise the pH to 1.8 with ammonium hydroxide.**

**E-PASSivate pHa** can be used to raise the pH of **E-Chrome Ultra Blue** on initial make up and additional required pH increases instead of ammonium hydroxide. Add **E-PASSivate pHa** approximately 0.2% by volume (0.2 gallons/100 gallons of batch solution) or (2ml per liter of solution) to raise the pH to 1.8.

#### **NOTE:**

Carbon dioxide is given off when making **E-PASSivate pHa** additions to the passivations. Use with ventilation/air make up.

### **Processing Procedure**

1. Zinc Plate: The brightness of the final finish will be directly related to the brightness of the zinc plated surfaces. A minimum of 0.0002 inches of zinc plate is required for optimum resistance to red rust.
2. Rinse: Cold water.
3. Neutralize: 1% by volume Sulfuric Acid or Nitric Acid rinse to neutralize residual plating solution.
4. Rinse: Cold water.
5. Chromate: **E-Chrome Ultra Blue** solution. The length of time required to produce the desired finish may vary.
6. Rinse: Cold water.
7. Dry: Hot Air -150°F

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### Solution Control:

The pH and chrome concentration are typically maintained by simple addition of **Ultra Blue** concentrate and observing and maintaining the color. Control can also be accomplished by pH measurement utilizing a pH meter and chrome concentration by titration. pH should be maintained within the 1.65-2.0 range. If it becomes necessary to lower the pH use 50% nitric acid.

### Chrome Concentration

1. Pipette 5 ml sample of working solution.
2. Add 100 ml of D.I. water.
3. Add 2 ml of 50% by wt. NaOH.
4. Slowly add 7.5 ml 30% H<sub>2</sub>O<sub>2</sub> while stirring.
5. Boil for 40 minutes.
6. Cool to room temperature (75 - 85°F). Please note: there will be precipitation.
7. Add 25 ml of concentrated Hydrochloric Acid.
8. Add 2 grams of Potassium Iodide (KI). Color will be yellow.
9. Keep in a dark area for 15 minutes.
10. Add 1 ml of freshly prepared 1% stabilized starch solution. Color will become blue-black. Titrate with 0.1N Sodium Thiosulfate until blue color disappears.

ml of 0.1N Sodium Thiosulfate x 2.3 = % **E-Chrome Ultra Blue**.

### Treating Hexavalent Chrome Tanks Prior To Using E-Chrome Ultra Blue

Tank conditioning prior to **E-Chrome Ultra Blue** is essential when transitioning from a hexavalent to a trivalent chromate.

Recommended Procedure:

The tank must be purged of the hexavalent chromate by removal of the solution and debris, scrubbed, then flushed out with water (including airlines). Next, fill the tank with fresh water and perform one of the following decontamination procedures depending on the type of reducing agent available:

1. Sodium Metabisulfite or Sodium Bisulfite;

Lower the pH of the water in the tank with nitric or sulfuric acid to 2.0 – 2.5 range. With low air agitation, slowly sift in the sodium metabisulfite/sodium bisulfite, watching for a solution color change (to a faint bluish-green) or the smell of excess sulfite (sulfur dioxide/"Rotten Eggs").

NOTE: The amount of sodium metabisulfite/sodium bisulfite used will depend on the level of hexavalent chromium present.

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Fill the remainder of the tank to near overflowing so that all of the tank has contact with the solution. Swab the top edges of the tank with the solution also. Allow the solution to agitate for twenty (20) minutes, drain tank and flush entire tank, including airlines, with fresh water.

Make up **E-Chrome Ultra Blue** according to the technical data sheet and check and adjust pH on initial start up.

### 2. Sodium Hydrosulfite;

No pH adjustment of solution is necessary! With low air agitation, slowly sift in the sodium hydrosulfite, watching for a solution color change (to a faint bluish-green) or the smell of excess sulfite (sulfur dioxide/"Rotten Eggs").

NOTE: The amount of sodium hydrosulfite used will depend on the level of hexavalent chromium present.

Fill the remainder of the tank to near overflowing so that all of the tank has contact with the solution. Swab the top edges of the tank with the solution also. Allow the solution to agitate for twenty (20) minutes, drain tank and flush entire tank, including airlines, with fresh water.

Make up **E-Chrome Ultra Blue** according to the technical data sheet and check and adjust pH on initial start up.

**Caution:** There must be adequate tank ventilation while performing this treatment to insure the safe removal of sulfur dioxide fumes.

### **Caution**

**E-Chrome Ultra Blue** contains nitric acid. The Material Safety Data Sheet for **E-Chrome Ultra Blue** must be read and understood before working with this product.

### **Equipment Requirements**

**Tanks:** 304 or 316 stainless steel, Koroseal lined steel, polyethylene or PVC. Hooks, racks and baskets require the same materials. The working solution should be exhausted.

**Heaters:** If needed, should be 304 or 316 stainless steel.

### **Packaging**

5 gallon and 55 gallon non-returnable containers.

## E-Chrome™ Ultra Blue

### **IMPORTANT NOTICE! For Industrial Use Only**

The following is made in lieu of all warranties, expressed or implied, including the implied warranties of merchantability and fitness for purpose: seller's and manufacturer's only obligation shall be to replace such quantity of the product as proved to be defective. Before using, user shall determine the suitability of the product for its intended use, and user assumes all risk and liability whatsoever in connection therewith. **Neither seller nor manufacturer shall be liable either in tort or in contract for any loss or damage, direct, incidental or consequential arising out of the use or the inability to use the product.**

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