

# DATA SHEET

## Deveco Tri 106

### High corrosion trivalent chromate coating

**Deveco TRI 106 is a mid-corrosion chromate at 2%.** It has a pleasing **blue-bright** coating on electroplated zinc that delivers up to **48 hours** protection to white corrosion in salt fog testing.

**Deveco TRI 106 is a high-corrosion chromate at 5%.** It imparts a clear, colorless coating on electroplated zinc and zinc alloys that exceeds **144 hours** protection on zinc plating to white corrosion in salt fog testing. When used in conjunction with our Tri-color concentrates, (i.e. Deveco TRI-GOLD Conc. as a yellow chromate), the corrosion protection is further enhanced.

**Deveco TRI 106 is a ultra high-corrosion chromate at 10%.** It imparts a clear, colorless coating on electroplated zinc and zinc alloys that exceeds **250 hours** protection on zinc plating to white corrosion in salt fog testing. When used in conjunction with any of our Tri-color concentrates, the corrosion protection is further enhanced.

**Deveco TRI 106 is an easy to use** one-part liquid product, which is applied by conventional immersion techniques.

#### OPERATING PARAMETERS

Blue-bright, Mid-corrosion	Recommended	Range
<b>Deveco TRI 106</b>	2% by volume	1.5 to 3 % by volume
<b>Temperature</b>	70 °F	70 to 90 °F
<b>Time</b>	40 seconds	30 to 45 seconds
<b>PH</b>	2.0	1.8 to 2.6

Clear, High-corrosion	Recommended	Range
<b>Deveco TRI 106</b>	5% by volume	3 to 6 % by volume
<b>Temperature</b>	80 °F	75 to 85 °F
<b>Time</b>	40 seconds	30 to 45 seconds
<b>PH</b>	2.0	1.8 – 2.6
<b>Max Zinc cont. limit</b>	10 g/l (10,000 PPM)	
<b>Max Iron cont. limit</b>	250 PPM	

Clear, Ultra High-corrosion	Recommended	Range
<b>Deveco TRI 106</b>	10.5% by volume	9 to 12 % by volume
<b>Temperature</b>	80 °F	75 to 85 °F
<b>Time</b>	40 seconds	30 to 45 seconds
<b>PH</b>	2.0	1.8 – 2.6
<b>Max Zinc cont. limit</b>	25 g/l (25,000 PPM)	
<b>Max Iron cont. limit</b>	500 PPM	

To lower the pH, use concentrated Nitric Acid.  
 To raise the pH, use 50% Caustic Soda.

## Deveco TRI 106

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#### TYPICAL CYCLE

1. Zinc Plate
2. Rinse
3. Nitric Acid Predip (0.5 – 1.0% by volume)
4. Rinse
5. **Deveco TRI 106**
6. Cold Water Rinse
7. Hot Water Rinse
8. Dry (or apply a subsequent post-dip)

- As with any chromate, the plating bath must be in good operating order, within proper parameters and without excessive trace metals and/or organic contamination to get satisfactory corrosion protection from the trivalent chromate film.
  - Decant or dump the bath to maintain the Zinc and Iron concentrations below the recommended limits when the chromate film must meet salt spray requirements.
- In the normal new make-up of **Deveco TRI 106**, the pH will usually be below the operating norm.
- A Nitric Acid pre-dip is recommended for zinc plating, to increase the life of the chromate, particularly when plated in an alkaline zinc electrolyte.

#### ANALYSIS of TRI 106 Chromate Solution:

1. Add a 20 ml sample of the chromating solution into a flask.
2. Add 50 to 100 mls DI or distilled water.
3. Add 1 to 2 mls of phenolphthalein indicator.
4. Titrate with 1.0 N Sodium Hydroxide to a violet-blue end-point. (pH 8.2)

**NOTE:** The sample will become cloudy before the end-point is reached.

**Calculation:**  $\text{Mls } 1.0 \text{ N Sodium Hydroxide} \times 2.8 = \% \text{ by volume of Deveco TRI 106.}$

Analyze the chromate solution for **Zinc** and **Iron** by AA analysis

#### CAUTION:

**Deveco TRI 106 is a corrosive liquid and should be handled with caution.**

**Please refer to the MSDS before using the product.**

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# Deveco TRI 106 Analysis (Alternative Method)

- Pipette 10 mls of sample into a 250 ml flask
- Add about 50 mls DI water
- Add 2 to 3 grams Ammonium Persulfate ( $(\text{NH}_4)_2\text{S}_2\text{O}_8$ )
  - (Also known as Ammonium Peroxydisulfate)
- Heat to boiling for 1 hour, adding DI water as needed
- Remove from heat and cool to near room temp.
- Add about 2 grams Ammonium Bifluoride ( $\text{NH}_4\text{HF}_2$ )
- Add about 30 mls of 50% HCl Hydrochloric Acid
- Add about 10 mls of 10% KI Potassium Iodide
- Titrate with 0.1 N Sodium Thiosulfate until solution begins to lighten
- Add about 5 mls Starch Indicator solution
- Continue to Titrate with 0.1 N Sodium Thiosulfate – end pt: blue → clear

**Mls 0.1 N Sodium Thiosulfate x 1.22 = % Deveco TRI 106**