

# DATA SHEET

## Deveco Tri-Black 200

**Deveco Tri-Black 200** is a non-hexavalent, trivalent conversion coating, which will produce a ***glossy black conversion coating*** on zinc, zinc-iron and zinc-nickel alloy plating.

This extremely stable process consists of a one component make-up chemical (**Deveco Tri-Black 200 MU**). Control of the solution is easy; simply maintain the solution in the pH range: 2.5 to 4.5 using 10% Sulfuric Acid, and add 1 gal **Tri-Black 200 MU** per 1,000 sq.ft. of work processed to replenish.

Sealing the black finish with **Deveco Triblack Builder 200** produces a finish that will exceed 168 hours to white corrosion and 400 hrs to red corrosion in salt spray testing.

### OPERATING PARAMETERS:

<b>Deveco Tri-Black 200 MU</b>	<b>8 to 12% v/v – Use DI or RO water for make-up &amp; replenishment</b>
Temperature	150 – 170 °F (optimum 160 – 170 °F)
PH	2.5 to 4.5
Time	45 to 75 seconds

### TYPICAL OPERATING CYCLE:

**Contact Deveco, a representative would be glad to help identify the best activation cycle.**

- Zinc Plate (Acid Zinc or Alkaline Zinc)
- Rinse
- *(Optional) The key to good adhesion of the trivalent black film is a good activation. An initial dip in 2% Sulfuric Acid may be necessary if the parts were baked, or to remove organic brighteners off the surface of the zinc. With some brightener systems, a 2% Muriatic Acid may work better for this.*
- 3% **Dev-Zinc Acid Activator HC** ~ 20-40 seconds (the parts will begin to darken),
- Rinse
- 8 to 12% **Deveco Tri-Black 200**
- Rinse
- 10 to 20% **Deveco Triblack Builder 200** (75 to 90 °F) **refer to its Technical Data Sheet for operation**
- Dry – Part temperature should not exceed 160 °F.
  - *Over-drying may dehydrate the seal, reducing adhesion and corrosion resistance*

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**Deveco Tri-Black 200** also produces a black finish on Zinc-Nickel plating. There may be some slight iridescence in the finish.

A 1% addition of **Dev-Zinc Alloy Additive** will help reduce or eliminate the iridescence.

#### OPERATING NOTES

It is recommended that, while processing in the **Deveco Tri-Black 200 process**, brightener additions in the zinc plating process are kept to a minimum. Excessively bright Zinc plated parts may need a 2-step pre-dip or extended time in the pre-dip activation step to remove co-deposited organic materials.

#### EQUIPMENT REQUIREMENTS

**TANK** -Polypropylene or koroseal lined tanks.

**HEATER** - in-tank PTFE heater capable of maintaining 150 to 170 °F.

**FILTER** - filter to remove the precipitate formed during the process.

#### CONTROL AND ANALYSIS

##### PRE-DIPS

- Place a 100 ml sample of **Dev-Zinc Acid Activator HC** in an Erlenmeyer flask.
- Titrate with 0.2 N Potassium Permanganate until a permanent pink color persists for at least 15 seconds.

Calculations:

**Mls 0.2 N  $KMnO_4$  x 0.9 = % Dev-Zinc Acid Activator HC**

##### DEVECO TRI-BLACK 200

- Control the solution by pH with 10% Sulfuric Acid.
- Maintain the concentration using **1 gal Deveco Tri-Black 200 R per 1,000 sq.ft.**

Contact the Technical Sales and Service department at Deveco Corporation for further assistance if necessary.

#### **DISCLAIMER:**

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