

DATA SHEET

Deveco Fusion Black

A TOTALLY NON-CHROME BLACK CONVERSION COATING

Deveco Fusion Black is a **NON-CHROME** conversion coating, which will produce a **glossy black conversion coating** on zinc, zinc-iron and zinc-nickel alloy plating. It completely eliminates all chrome chemicals from plating process.

This extremely stable process consists of a make-up chemical (**Deveco Fusion Black MU**) and a replenisher (**Deveco Fusion Black R**). 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. **Fusion Black R** per 1,000 sq.ft. to replenish.

Sealing the black finish with **Dev-Seal Poly-Armor 1** produces a finish that will exceed 168 hours to white corrosion and 400 hrs to red corrosion in salt spray testing.

OPERATING PARAMETERS:

Deveco Fusion Black MU	8 to 12% v/v – Use DI or RO water for make-up & replenishment
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).
- 8 to 12% **Deveco Fusion Black**
- Rinse
- 40 to 50% **Dev-Seal Poly-Armor 1** (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 Fusion Black 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 Fusion Black 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

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

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

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