

E-Prep® B-3

For Black Phosphate Finishes on Steel

E-Prep-B3 is a black pre-dip prior to zinc phosphating steel with an **E-Phos** phosphating solution. Used in combination with hydrochloric acid to impart a black finish on the steel.

E-Prep-B3 provides a rich black color treatment on steel when applied prior to a zinc phosphate coating treatment.

The oil absorptive zinc finish is an excellent base for the retention of EPI **E-Tec** rust preventive.

Features & Benefits

- High solids liquid. Repeatable quality results.
- Low use cost. Long solution life.
- Easy to apply and use.
- Resistant to contaminants.
- Bath is easy to control and maintain.
- Coating can be removed in a strong alkaline soak bath. Equivalent to removal of the phosphate coating and acid cleaning.

Note: Do not over heat zinc phosphate bath when processing black, for best results maintain temperature at 172°F.

EQUIPMENT REQUIREMENTS

The acidic **E-Prep-B-3** working solution must be contained in rubber, poly or plastic tanks.

Finishing Procedure

1. **E-Kleen SR** Alkaline Clean
2. Rinse
3. 30-50% Hydrochloric Acid clean
4. Rinse
5. **E-Prep B-3**, 1/4-1%, 80-110°F., 1-4 min, 1 rpm or slow rotation for barrel applications. Hydrochloric acid 10-14% to maintain acidity and clarity of bath.

Note: See Operating Hints, Problems, Cause Correction Action below

6. Zinc phosphate, 600- 2,500 mg/ft., Temp 160-200°F (test per process)
7. Rinse
8. Final treatment: **E-Tec** Oil or Wax.

SOLUTION MAKE-UP

Concentration Range:	1/4-2.5% + 12-18% Hcl acid
Temperature Range:	75-110 F
Time Range:	30-120 sec
Agitation:	Preferred, very mild if needed.

SOLUTION CONTROL

1. Titration to maintain 10-14% acid. See HCL acid test below.
2. Black concentration: 1/4-1% **E-Prep B-3**.
(Bench tests must be conducted in the lab to confirm proper level as noted below)
3. Maintain temperature as noted - 80-110° F.
4. Remove parts from tank bottom

HCL ACID TEST:

1. Transfer 2 mls of acid solution into test bottle
2. Add 5-drops Methyl Orange Indicator
3. Titrate with 1.0 N caustic to color change
4. Number of mls of 1.0 N NaOH times a factor of 5 = % by volume as 32% acid

OPERATING HINTS:

PROBLEM:	CAUSE:	CORRECTIVE ACTION:
1) Cloudy bath indicates:	a) Concentration Too high of E-Prep B-3 b) OR too low of acid concentration	Dilute Bath to reduce concentration. Re-test & adjust for proper acid level. Add acid to normal range to achieve bath clarity.
2) Blotchy coating or misses - voids in black coating:	a) Oil on parts b) Acid too strong over 20%.	Improve rinsing, check cleaner. Dilute acid level with water. Adjust for proper E-Prep B-3 level after dilution).
3) Coating "rub-off":	a) Too hot b) Time too long c) Black Strength too high.	Adjust bath temperature. Adjust to desired time. Dilute bath.
4) Coating taking too long (or too light of coating)	Test Chemistry Too low!	Adjust per parameters.

PROCESS HINTS AND NOTES:

- A. It is preferred not to overheat zinc phosphate bath when processing black for best results maintain temperature < 178°F.
- B. Pre-cleaning and rinsing are critical with black conversion coatings. Maintain very clean rinses. Oils cause voids.
- C. Make very small periodic additions to the bath rather than large volume additions. (Lab confirm prior to "slug" adds)
- D. Barrel rotation at the very slowest level possible is preferred. Rotation scrubs the coating off the parts. 1/2 rpm or periodic slow rotation is best.
- E. High alloy steels can be sensitive to over acid cleaning. Avoid pickling whenever possible with black treatments and others.
- F. **SPECIAL NOTE:** Optionally, **E-Prep B-3** coated parts can go directly into the zinc phosphate bath without rinsing. This minimizes scratching and rub off.

CAUTION

The **E-Prep-B3** is strongly acidic. Avoid breathing vapors. Avoid contact with eyes, skin and clothing. Wear eye shields, rubber gloves and rubber apron while working with **E-Prep-B-3** and its solutions. Read and understand the **MATERIAL SAFETY DATA SHEET** furnished by **EPI** for **E-Prep B-3** prior to working with the product.

Do not mix **E-Prep B-3** or its solutions with alkali, oxidizers, reducers or any other chemical substances.

Waste Disposal:

Neutralize, precipitate solids in waste water treatment.
TREATMENT.

PACKAGING

Five (5) and 55 gallon non-returnable plastic containers.

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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