



K-TECH TRI HI COR 250

ALTERNATIVE COATING FOR ZINC - HEAVY-FILM TRIVALENT

- ✚ This heavy film trivalent is a high performance alternative coating for electroplated zinc. It is a simple one part structure that does not necessitate multiple starter, adjuster and replenisher form additives.
- ✚ It provides over 500 hours to white corrosion when top coated with K-Tech Tri-H Hi Top that would be perfect for barrel and rack installation utilizing cyanide, alkaline cyanide-free or acid-chloride zinc plating electrolytes.
- ✚ Unlike the traditional trivalent chromates, to achieve desired performance, a controlled pH of 2.0 to 2.9, temperature of 80° to 90° F and 60 seconds dip time should be performed.
- ✚ It has a slight shimmer, distinctive multicolor finish (rainbow hues) amongst high corrosion trivalent chromate processes. Also produced with waste treatment friendly technology.
- ✚ When utilized appropriately, the coating provides a finish that constantly exceeds 250 hours of neutral salt spray to white corrosion products without top coats.
- ✚ K-TECH TRI HI COR 250 baths can be managed for a longer period of months without being discarded as it has a longer operating period compared to numerous other trivalent chromates. Alternatively, instead of discarding, the chromate baths can be transferred and “energized” once every few weeks.
- ✚ Waste management can be decreased as the effluent consists of Trivalent Chromium.

COMMON OPERATING INFORMATION

	RANGE	RECOMMENDED
SOLUTION MAKEUP	6% to 10% by volume	8% by volume
TEMPERATURE	65° F to 95° F (18° C to 35° C)	80° F to 90° F (27° to 32° C)
DIP TIME	45 to 120 seconds	60 seconds
pH	2.0 to 2.9	2.2 to 2.7

Note: Depending on the concentration and the maturity of the chromate, the dip duration can fluctuate.

TITRATION PROCEDURE

1. Pipette a 10 ml chromate sample into a 100ml volumetric flask. Dilute to 100ml with distilled water and mix well.
2. Pipette 10ml of the above diluted solution into a 250ml Erlenmeyer flask and dilute to 100ml with distilled water.
3. Add 5ml 20% Sodium Hydroxide and 1ml 35% Hydrogen Peroxide.
4. Boil solution approximately 5 minutes.
5. Add 1ml 10% Nickel Chloride Solution and continue boiling for an additional 2 minutes.
6. Cool solution to room temperature.
7. With mixing, add 1ml Concentrated Hydrochloric Acid, 1g Ammonium Bifluoride, 10ml 10% Potassium Iodide and 2ml Starch Indicator Solution.
8. Titrate the solution to a clear/green endpoint using 0.010 N Sodium Thiosulfate.

‡ CALCULATION: **MLS. 0.01N SODIUM THIOSULFATE X 0.332 = % BY VOLUME OF K-TECH TRI HI COR 250** ‡

MAINTENANCE AND CONTROL

To produce and ensure correct concentration, sporadic titrations can be utilized. A minuscule addition of 50% by volume of Nitric or Sulfuric Acid (preferred) can be used to regulate the pH level when the accurate amount of K-TECH TRI HI COR 250 is used but the report shows a high pH.

The operating life of the chromate can be lengthened if it is given a pre-dip of 0.5% Nitric Acid by volume (preferably 1.0% Sulfuric Acid by volume, which will extend bath life and increase salt spray protection) followed by a fine, fresh water rinse directly in front of the K-TECH TRI HI COR 250 tank. With the mentioned process, it will give the chromate an easier control and longer lasting operating period. The hot water rinse in the final stage should range between 100° to 130° (37° to 55° C). Discoloration on the chromate will occur if the water is too hot (not within the mentioned range) during the final rinse.

SALT SPRAY TESTING

- ❖ To cure between 48 to 72 hours for optimum performance.
- ❖ Zinc deposits must be .0003 which is equivalent to 7.6um.
- ❖ Limited amounts of handling to prevent scratching, oil, salts or other harmful contaminates prior to testing.
- ❖ Salt spray to be done per ASTM B117.

USUAL PROCESS FOR K-TECH TRI HI COR 250

1. Plate
2. Rinse
3. Nitric Acid (0.5% by volume) or preferably Sulfuric Acid (1% by volume) pre-dip
4. Rinse
5. K-Tech Tri Hi Cor 250
6. Cold Water Rinse
7. Hot Water Rinse
8. Dry

HELPFUL HINTS

- It is essential that sufficient rinsing is sustained where as the nitric or sulfuric pre-dips are discarded regularly to eliminate drag-in or iron contamination. Product is very sensitive to iron contamination.
- Before proceeding to the chromate solution, it is important to ensure that tubular parts are completely depleted.
- For a vast majority of the elevated performance trivalent passivity technologies, iron contamination is a concern as it generates staining, yellowing, reduce corrosion protection and discoloration on the parts.
- To refrain iron from the working K-TECH TRI HI COR 250 chromate solution, acute care must be performed.
- To eliminate the possibility of fallen parts dissolving into the solution, it is beneficial to have the tank cleaned at a minimum of once or twice every eight hours. When solution reaches 250 parts per million of iron, bath will need to be dumped and a replacement of complete new make up is necessary.
- When using trivalent chromate based conversion coating, to prevent losing the “healing power” like the traditional hexavalent product, it is best to prevent excess scratch on the parts (with finished trivalent coating). If process or application will provide excess scratching, the K-Tech Topcoat Sealer or K-Tech Tri-H Hi Top (Yellow Sealer) can be used.
- When measuring pH, ensure the usage of a calibrated pH meter with a 1.0 standard. Do note that in general, pH paper will give a reading of 0.5 units higher than the actual reading.

STORAGE AND HANDLING

K-TECH TRI HI COR 250 contains chromium composites and robust minerals acids that are corrosive. Preventive care should be cautiously carried out to avoid contact with eyes or skin. When handling the product, goggles or face masks and rubber gloves should be worn. Contaminated garments should be removed immediately. In the event of contact, do flush with an ample amount of water. Please refer to the MSDS for more extensive information on storage and handling.

Additional Information:

FREEZABILITY: If freezing is required, it should take place during the period of the storage or transportation. However, like most chemical products, it would be best to avoid freezing.

- If K-TECH TRI HI COR 250 is frozen, before usage, do warm the product to 95° to 105°F (35° to 41°C) in warm water bath. The product should be mix thoroughly until precipitates are totally liquefied.

EQUIPMENT

Stainless steel, Koroseal, PVC or rubber lined steel, or polypropylene should be used for assembling the chromate tanks.

NON-WARRANTY

Keane Chemical LLC believes that all the information listed on this sheet is complete, factual and precise. However, there will be no guarantee that the outcome acquired by the customer will be as listed in this sheet given that the ultimate process of usage will be fully utilized by the customer and out of our authority. Therefore, we will not claim any liability on the handling of this product by the customer in any case which may violate the patents of the third parties.