K-TECH TRI BLUE 12

SINGLE DIP TRIVALENT CHROMATE - CONCENTRATED LIQUID

- K-TECH TRI BLUE 12 chromate 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.
- The rejected parts rate will be reduced with the exceptionally tolerance to organics.
- Parts are easily protected from staining, oxidization and finger print marks with some buffing work.
- The chloride zinc plating, alkaline cyanide-free zinc, cyanide zinc processes generates a steady blue chromate layer on the zinc deposits.
- Waste management can be decreased as the effluent consists of Trivalent Chromium.
- Similar to hexavalent chromate, trivalent chromate works the same way.

COMMON OPERATING INFORMATION

	RANGE	RECOMMENDED
SOLUTION MAKEUP	1.0% to 3% by volume	2% by volume
TEMPERATURE	70° F to 90° F (21° to 33° C)	80° F (27° C)
AGITATION	Air or mechanical agitation recommended	
DIP TIME	10 to 40 seconds	30 seconds
pH	1.5 to 2.5	2.0

TITRATION METHOD

1. Pipette a 10 ml sample of the working chromate solution into a 250 ml Erlenmeyer flask.
2. Add 25 ml of distilled water.
3. Add 4-5 drops of phenolphthalein indicator.
4. Titrate with 0.1N Sodium Hydroxide solution to a pink end point.

FACTOR: **MLS. 0.1N SODIUM HYDROXIDE X 0.25 = % BY VOLUME OF K-TECH TRI BLUE 12**

MAINTENANCE AND CONTROL

The management in solutions used in K-TECH TRI BLUE 12 is extremely simple. The simplest and most efficient approach to examine this chromate is through visual observation. An addition of K-TECH TRI BLUE 12 ought to be added to the operating solution when the color of the chromate finish is nearing a clear white (with a bright appearance). When making the addition of the solution, it should be made in an increment of 0.25% to 0.5% by volume; to the point where the preferred color is acquired.

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 BLUE 12 tank. With the mentioned process, it will give the chromate an easier control and longer lasting operating period. To ensure that best blue color is produced, 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.

K-TECH TRI BLUE 12 CYANIDE ZINC AND ALKALINE CYANIDE-FREE ZINC DEPOSITS

Generally, most of the cyanide and alkaline cyanide-free zincs used today require simple rinse procedure. However, due to the variation in scathing concentration, the rinse process plays an important function and role. The K-TECH TRI BLUE 12 functions very well on deposits from Chloride zinc baths, cyanide zinc baths and alkaline cyanide-free zinc baths but superior modification may be needed on some applications.

Chromating can be complicated as some final deposit structures occlude a significant quantity of organic. The following are some proposals on how to achieve the most sought-after chromate finishes:

- Sufficient water (meaning ample of fresh water washing the work with the correct timing in final rinse procedure) rinsing must be ensured after the zinc plating procedure.

- Pre-dip located subsequent to the water rinses and preceding to the chromate could be necessary. Typically, to eliminate the brightener layer from the exterior, a pre-dip of Nitric Acid of 0.25% to 0.5% by volume can be performed. Prior to chromating, a thorough fresh water rinse should pursue after a pre-dip. Due to the low pH provided by the solution interface, failure to performed the thorough rinse will cause yellowing of the chromate deposit.

- Keane's recommended process for more efficiency on the K-Tech Tri Blue 12 is to use a pre-dip made up of 3% by volume Hydrogen Peroxide (35%) and 0.5% by volume Sulfuric Acid for organic film elimination, as opposed to a Nitric Acid pre-dip. Once again, prior to chromating, a thorough fresh water rinse should pursue after a pre-dip.

- To avoid premature white corrosion and establish the necessary engagement time to create the accurate chromate layer, vigilant testing of the completed product should be carried out. Normally, an engagement time between 15 to 45 seconds for cyanide zincs and 30 to 40 seconds for alkaline cyanide-free zincs will results a satisfactory chromate coat.

- During the drying process and to produce a yellow-free chromate coats, ensuring that the hot water dips for final rinse do not surpass 130°F (55° C) can be extremely accommodating. The hot water rinsing process can help in producing a much bluer chromate coatings. Reminder: It is a necessity to discard the rinse regularly, predominantly on barrel lines.

- Discoloration will occur in the event of extreme heat during the drying procedure or/and the final hot water rinse. The temperatures in the drying process ought to be held in reserve at a minimum level, which is just hot enough to confirm dry parts.

- 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 can be used.

Important Notes:

It is essential that sufficient water rinsing is performed as the majority clear chromate failures related with cyanide zinc or alkaline cyanide-free zinc happen due to the lack of adequate water rinsing. After the plating process, it is beneficial to discard the first rinse on a regular basis and also the first rinse after the chromating process. The reasoning behind discarding the first rinse is due to the relationship between the rinse and chromating. The pH of the surface prior to chromating could be highly alkaline if the rinse after plating turns out to be highly alkaline. Therefore, such circumstances could cause inferior polishing and a horrible blotchy yellow deposit. Chromate layer can be too thick which results in a yellowish appearance (particularly around holes in the product/part) if the post-rinse chromate is clogged with chromate. 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.

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.

STORAGE AND HANDLING

K-TECH TRI BLUE 12 contains strong mineral acids, oxidizers and trivalent chrome. It is a necessity to store the product in a cool dry area far from combustibles. When handling the product, goggles or face masks and rubber gloves should be worn. Preventive care should be carried out as well to avoid contact with eyes or skin.

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.