

# TRICHROME HB 2202 T

**A** newly developed Trivalent Chrome based thick film passivation for zinc and zinc alloys. The passivated zinc plated components provide high corrosion resistance and is unaffected by thermal shock. Single component stable system, hence easier to handle. The chromating solution and chromate film are entirely free from hexavalent chrome and hence confirms to the new ELV, ROHS & WEEE norms imposed by the European Union.

## SALIENT FEATURES :

- Produces thick yellowish green iridescent coating on zinc and zinc alloys.
- The intensity of colour tone is much more denser vis-a-vis its other contemporaries.
- Passivated film confirms the technical requirements for trivalent chrome based yellow chromates (DIN 50021 SS).
- Fluoride-free process ~ thus increases the bath life.

## Solution make-up :

Parameters	Unit	Range	Optimum
Trichrome HB 2202 T	ml/l	100 – 150	125
pH	Electrometric	1.7 – 2.2	1.8
*Temperature	°C	25 - 60	60
Dipping Time	sec.	30-90	60
Solution Movement	Mild Air / Mechanical Movement.		

\*Components processed at room temperature would have 'pinkish yellow' shade whereas operation at higher temperature 'greenish yellow' appearance can be observed.

**N.B.:** Generally Nitric Acid @ 0.5 - 1ml/l is required for reducing the pH and 10% sodium bicarbonate solution is helpful for increasing the pH of the working bath.

## MAKE UP PROCEDURE :

1. Fill the passivate tank three quarter full with soft water.
2. Add required quantity of Trichrome HB 2202 T while stirring.
3. Fill the tank to the operating level with water.
4. Check the pH using electrometric pH electrode properly calibrated at working temperature and adjust using Nitric Acid and / or Sodium Bicarbonate solution.

## PROCESS SEQUENCE :

1. Zinc plating process
2. Water Rinse – Twice
3. Activation in 0.1% HNO<sub>3</sub>
4. Water Rinse
5. Trichrome HB 2202 T
6. Cascade Rinsing
7. Water rinse
8. Hot water rinse (40 – 50°C) / Dipping in 2% v/v solution of Trichrome HB 2203 Stabiliser.
9. Optional sealing in Zincaseal 605 or 601 or Galvanoseal
10. Air Spray
11. Hot Air dry (70-85°C)



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## BATH REPLENISHMENT :

Maintenance of the process may be accomplished through regular addition of Trichrome HB 2202 T. As a guideline, the consumption of Trichrome HB 2202 T would be 15 - 30 ml/Sq. m. Addition may be based on drag out losses and observation of the work. The pH should be checked regularly using a pH meter and corrected. If necessary the concentration of Trichrome HB 2202 T should be corrected on the basis of analysis. Apart from the concentration it is very much essential to maintain the bath more closely for optimum performance. The user must make provision to maintain the usual bath parameters, e.g pH, temperature, immersion time etc. For desired corrosion resistance of the passivated film it is necessary to maintain the level of metallic impurities within the specific limits. As a reference, the limits of inorganic impurities are given below :

Sr. No.	Metallic Impurities	Maximum Tolerance	Remedies
1	Iron	50 ppm	By selective ion exchange system and / or high pH (up to 3.7) treatment
2	Zinc	15 g/l	By precipitation using Trichrome HB 2203 ZS and followed by filtration
3	Copper	5 ppm	By selective ion exchange system
4	Lead	5 ppm	By selective ion exchange system

## POST TREATMENT :

After passivation and thorough washing, the component should undergo a hot water rinse (40-50°C) followed by removal of residual water through normal air spray and subsequent drying (80-100°C) for 10-15 minutes using either centrifugal drier or hot air oven. High drying temperature may improve corrosion resistance because optimum drying temperature minimizes the mechanical damage of fresh passivate film. Especially for barrel installations, final rinse in Trichrome HB 2203 Stabilizer is highly recommended to fix the passivation film.

## SOME KEY POINTS :

- For barrel operation, the barrel should be double immersed, first for 20 sec. and then removed and reimmersed for 40 sec.
- For rack installations, the passivations and / or immediate rinsing tank can have spray rinsing system.
- Higher iron content in the working bath would lead to the colour change and subsequently, reduce the corrosion resistance.
- Zinc build-up would induce 'patchy' or 'dull' deposit. This can be removed by incorporating Trichrome HB 2203 ZS and followed by filtration. Usually, for removing 1gm/lit. zinc the requirement of Trichrome HB 2203 ZS would be desired. Addition of higher amount of Trichrome HB 2203 ZS would reduce the Cobalt content in the bath. To maintain the desired quantity of Cobalt in the working bath (approx. 1 gm/lit.) addition of Trichrome HB 2203 CR should be added. Addition of 10ml/lit. Trichrome HB 2203 CR would constitute 1gm/lit. of Cobalt in the working solution.

## EQUIPMENTS :

PVC or polypropylene or coated steel tanks and porcelain or pyrex glass heater.

## WASTE WATER TREATMENT :

All rinses and solution are treated as it is being used for trivalent chrome containing waste water. For more details refer MSDS.



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