

Yellow Chromating / Yellow Passivation for Zinc

1. INSTRUCTIONS FOR USE & APPLICATIONS

Betzmann Galvanik Yellow Chromating (Yellow Passivation) is used to reliably protect freshly electroplated or existing zinc layers against zinc oxidation (white rust). In addition to corrosion protection, it provides workpieces with a high-quality, visually appealing finish. The yellow-gold tone resembles classic Hexavalent Chromium / Chromate (Cr VI) processes, offering a modern, user-friendly, and compliant alternative.

Important Note: Passivation provides preventive protection against corrosion; however, it cannot remove existing white rust or oxidation.

2. PROCESS PARAMETERS

Parameter	Specification / Value
pH Value	1.0 – 2.0
Operating Temperature	Room temperature (20 °C – 30 °C / 68 °F – 86 °F)
Immersion Time	30 seconds to 5 minutes (depending on desired intensity)
Application Method	Immersion / Dipping process

3. APPLICATION & PROCESSING

Step 1: Surface Preparation & Degreasing (Crucial for Optimal Results)

1. Submerge parts for a few minutes in a chemical or electrochemical degreasing bath (e.g., electro-cleaner / degreaser).
2. Manually wipe off heavy soil/grease or utilize an ultrasonic bath.
3. Important: Rinse degreased workpieces thoroughly with distilled or deionized (DI) water before placing them into the passivation bath.

Step 2: Passivation Process

4. Pour the yellow chromating solution into a suitable acid-resistant container.
5. Immerse the zinc-plated object completely in the solution.
6. Process Control: The recommended immersion time ranges from 30 seconds to 5 minutes depending on the zinc condition and bath temperature. Inspect progress regularly.

7. The process can be interrupted at any time by removing and rinsing the part, or intensified by re-dipping.
8. Rinse thoroughly with water immediately after passivation and dry promptly (e.g., using warm air).

4. RESULTS COMPARISON & PRACTICAL EXAMPLES

- **Brightener Effect:** When zinc plating using Betzmann Galvanik Zinc Electrolyte, brighteners in the bath create a subtle yellowish base hue.
- **Exposure Time vs. Appearance:** Immersion duration directly influences color intensity, depth, and layer thickness.
- **Comparison to Industrial Standards:** Compared to traditional industrial Hexavalent Chrome (Cr VI) treatments, this passivation yields an elegant, slightly matte golden finish. A uniform layer structure is achieved even on fine threads and steel screws.

(Image Overview: a) Hex key immersed for 3 min, b/c) Industrial Chromate (Cr VI), d) Blue passivated + partially yellow passivated, e) Industrial Chromate (Cr VI), f/g) Threaded parts & nuts)

5. SAFETY INSTRUCTIONS & DISPOSAL

Safety Instructions (GHS / CLP) – Warning: Contains Hydrochloric Acid 3%

- Causes skin irritation.
- Causes serious eye irritation.
- May cause respiratory irritation.
- P102: Keep out of reach of children.
- P262: Do not get in eyes, on skin, or on clothing.
- P405: Store locked up.
- Always wear suitable protective clothing, protective gloves, and eye/face protection when working.

Disposal

Product residues and rinsing water must not be discharged into the public sewage system. Please consult your local waste management company or hazardous waste collection facility for proper disposal of chemical waste.