

# VERZINKSHOP ZINC BLUE PASSIVATION INSTRUCTION MANUAL

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## Important information

Verzinkshop Blue Passivation is a trivalent blue conversion layer for zinc. It gives a clear to slightly iridescent blue appearance and increases corrosion resistance.

This ready-to-use solution can be used immediately. The quality of the result depends partly on the gloss and thickness of the zinc layer; therefore, work on a clean, grease-free and oxide-free zinc finish. Do not touch parts with bare hands after cleaning.

## Corrosion resistance

Tested against white rust (ASTM B117) for up to approximately 150 hours, provided that the zinc coating itself is of good quality and the process is carried out properly.

## Required equipment

Tanks and suspension devices from

- 304/316 stainless steel
- Koroseal-lined steel, polyethylene or PVC.

Heating is usually not necessary: works at ambient temperature.

Use demi/DI water for rinsing.

## Preparation

The zinc layer must be clean, degreased and free of oxides. In the case of old zinc, first clean mechanically or chemically until a uniform, fresh zinc layer is visible, then rinse well. After an acidic pre-treatment, always neutralize briefly and rinse again. Do not let it dry between steps; continue working immediately.

## Step-by-step plan

### Prepare

- Zinc coating ready, clean and grease-free.
- Do not touch with bare hands after cleaning.

### Rinse

- Rinse cold with clean demi/DI water.
- Do not allow to dry between steps.

### Neutralize (optional)

- Neutralizing (recommended after fresh galvanizing): briefly dip in  $\pm 1\%$  v/v acid to remove plating residues.
- Use for this:
  - 10 ml of concentrated sulfuric acid ( ~96%) to 990 ml of water.
  - 10 ml nitric acid ( ~65%) to 990 ml of water.
- Then rinse immediately cold.

**Note: always pour acid into water, never the other way around.**

### Passivation

- Immerse in the ready-to-use blue passivation solution.
- Process time: 15–40 seconds; guide value ~20 seconds.
- Move lightly or gently swirl for an even film.

### Rinsing

- Rinse thoroughly cold with clean water.
- Drain the workpiece briefly over the bath.

### Drying & curing

- Dry with warm air at around 65 °C or let it air-dry; do not use contaminated compressed air.

Preferably let it harden for 24 hours before loading or packaging parts.

## Working conditions

Working temperature 18–32 °C

Optimal working temperature around 24 °C.

Process time 15–40 seconds with a practical target time of around 20 seconds.

## Maintenance, storage and refreshment

Keep rinsing baths clean and prevent dragging in. Cover the working solution when stationary. Store in a sealable, chemical-resistant container; cool, dry and ventilated. Label content and date. Replace when color, time or uniformity visibly fade away despite clean preparation and correct working conditions.

## Technical characteristics

System	Trivalent blue-clear passivation for zinc
Substrates	Galvanized steel/zinc, zinc die-casting, galvanized
Operating Range Temperature	18–32 °C (guideline value ~24 °C)
Immersion time	15–40 s (guideline value ~20 s)
Rinse	Cold water before and after passivation
Neutralize	Short acid neutralization between rinses before passivation
Dry	Warm air ~65 °C or in the air; Allow to cure for 24 hours
Corrosion resistance	Up to ~150 hours of white rust (ASTM B117), depending on zinc coating quality
Equipment	Tanks/suspension: 304/316 stainless steel, Koroseal-lined steel, PE or PVC

## Problems and solutions

Problem	Probable cause	Solution
Yellow cast or uneven blue	Time too long or too short; Pollution/introduction	Keep time within 15–40 s; additional coils; resume neutralize step
Low corrosion resistance	Poor preparation; zinc layer too thin or corroded	Improve pre-treatment; work on fresh, even zinc; Execute process within working conditions
Spots or streaks	Poor rinsing; Uneven drying	Rinse thoroughly with clean water; Dry evenly with warm air
Dull finish	Zinc surface too rough/matt	Pre-treat zinc to an even, clean shine; then passivate
Poor adhesion	Oxides/fat; Neutralize skipped	Thoroughly degrease and rinse; neutralize; Re-passivation

## Warning!

The passivating agent is acidic. Avoid contact with eyes, skin and clothing. Wear eye protection (goggles, goggles, or face shield), protective rubber gloves, and aprons when preparing solutions and while working with the solutions. Do not mix the product with cyanide or alkaline materials, or other chemical substances. The product is toxic when used internally.

- Do not work with Verzinkshop products without first reading and understanding the safety information.
- The safety data sheet can be found on the product page or can be requested from verzinkshop.nl by e-mail: [info@verzinkshop.nl](mailto:info@verzinkshop.nl)
  - Do you have any questions? Contact us via:
    - Mail: [info@verzinkshop.nl](mailto:info@verzinkshop.nl)
    - Whatsapp or call: +31 6 28090022
    - [Www.verzinkshop.nl](http://www.verzinkshop.nl)

## Safety

- Always wear a dust mask, respirator, gloves, and apron when necessary.
  - Always treat any chemical as if it could kill you.
- Always label buckets and storage containers with a permanent marker so that you and others know what's inside.
- Never pour water into acid; it can heat up and explode. Always pour acid into water.
- Never leave electroplating baths or other systems that use power unattended. These products may cause a short circuit and cause a fire.
- Never come into direct contact with chemicals. They can cause serious burns or other damage and are very dangerous substances if not treated with respect.
- Never think you can get away without taking safety precautions! That is not possible!
  - Never leave the lids off the tanks when not in use.
  - Always work safely and ensure good protection and ventilation.
- The safety data sheet can be found on the product page or can be requested from verzinkshop.nl by e-mail: [info@verzinkshop.nl](mailto:info@verzinkshop.nl)

## **Disclaimer**

Did you find an error or something unclear in the manual? Please let us know via [info@verzinkshop.nl](mailto:info@verzinkshop.nl)

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