

# VERZINKSHOP PATINA MANUAL

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## Short description

Patina is a chemical conversion layer that discolours the surface of copper, brass or bronze in a controlled manner. Color and uniformity depend on alloy, preparation, concentration and treatment time. For color stability and protection, a sealer or varnish is always applied after patination.

## What Each Patina Does

- **Black Brown Patina:** from bronze/statuary shades to black-brown and black on copper, brass and bronze
- **Brown Patina:** light to dark brown antique tones on copper, brass and bronze
- **Gunmetal Patina:** on copper alloys from grey/purple haze via gunmetal to black; on white metal, silver and tin/lead mainly brown

Can be used on:

- **Black Brown Patina:** copper, brass, bronze
- **Brown Patina:** copper, brass, bronze
- **Gunmetal Patina:** copper, brass, bronze, white metal, silver, tin/lead

## Required equipment

- Chemically resistant trays and hangings made of PP, PE or PVC, or plastic-lined tanks.
- A separate sink with clean water.

## Preparation (applies to all patinas)

Degrease the workpiece completely with an alkaline degreaser and rinse cold. Remove oxides, discoloration and contamination mechanically or chemically until a uniform clean metal surface is achieved; rinse cold.

If necessary, activate for a very uniform clean metal surface:

- citric acid 50–100 g/L at room temperature for 30–60 seconds
- Galvanizing shop Metal Activator according to instructions

Rinse immediately cold. Do not touch the metal with bare hands after preparation.

Do not allow parts to dry between steps; Work wet-on-wet. This prevents new oxide.

## Step-by-step plan

Light movement or swirling during dipping will help to break up air bubbles and form an even film.

### Black Brown Patina

- Works on: copper, bronze, brass.
- Colors: from bronze/statuary to black-brown and black, depending on concentration and time.
- Mixing ratio:
  - 5–10% v/v for bronze/statuary.
  - 15–20% v/v for dark brown to black.
- Working time: 1–3 minutes.
- Method: rinse wet-on-wet, dip in Black Brown Patina until the desired color is reached.
- rinse cold.
- Dry evenly.
- Seal with wax or clear varnish.

### Brown Patina

- Works on: copper, bronze, brass.
- Colors: light to deep brown, antique effect.
- Mixing ratio:
  - 10% v/v for light brown to normal brown.
  - Up to 20% v/v for deeper tan.
- Working time: 1–3 minutes.
- Method: rinse wet-on-wet, dip in Brown Patina until the desired color is achieved.
- rinse cold.
- Dry evenly.
- Seal with wax or clear varnish.

### Gunmetal Patina

- Works on: copper, bronze, brass, white metal, silver, tin/lead.
- Color:
  - on copper alloys from grey/purple haze to gunmetal and black.
  - brown on white metal, silver and tin/lead.
- Mixing ratio: 10–20% v/v; practical start 1:4 (≈20%).
- Working time: 30 seconds to 5 minutes.
- Method: rinse wet-on-wet, dip in Gunmetal until the desired color is reached.
- rinse cold.
- Dry evenly.
- Seal with wax or clear varnish.

## Finishing and sealing

After patination, rinse cold, dry completely and evenly and seal immediately to prevent stains and further discoloration.

- For deep, maintainable shine: apply an oil/wax sealer such as Verzinkshop DeepSeal thinly, let it soak in briefly, rub off excess material; Repeat in thin layers if necessary.
- For a hard, dry layer: Galvanizing Acrylic Sealer in very thin layers on dry and dust-free metal; Dry layers in between.
- Wax (microcrystalline/beeswax) can be used for interior work; For outdoor or humid environments, lacquer is more durable.

Avoid silicone if later repainting or resealing is desired.

Allow the final layer to cure for  $\pm 24$  hours before packaging or use.

## Technical characteristics

Property	Black-brown patina	Brown Patina	Gunmetal Patina
Type	Cold patina for Cu alloys	Cold patina (light→dark brown)	Cold patina with wide color gamut
Works on	Copper, bronze, brass	Copper, bronze, brass	Copper, bronze, brass; white metal; silver; tin/lead
Mixing ratio (v/v)	5–10% for light bronze tones; 15–20% for black/black-brown; 1–3 mins	10% for light/medium brown; 20% for dark/chocolate brown; 1–3 mins	Start 1:4 (±20%); range 10–20%; 0:30–5:00 min
Temperature	Room temperature (±18–24 °C)	Room temperature (±18–24 °C)	Room temperature (±18–29 °C)
Process window (time)	1–3 min to desired color	1–3 min to desired color	0:30–5:00 min to desired color
Color range (indicative)	Light bronze → statuary → black/black-brown	Light → dark/chocolate brown	Cu alloys: purple/gray haze → black/gunmetal blue; White metal/silver/tin lead: Brown
Substrate preparation	Oxide-free, clean; Working wet-on-wet	Ditto	Clean/activate; Working wet-on-wet
Rinse	Cold rinse (e.g. demi/DI)	Cold rinse (e.g. demi/DI)	Rinse cold or hot; then forced dry
ph	Mild acid (approx. pH 3–5)	Mild acid (approx. pH 3–5)	Mild acid (approx. pH 3–5)
Equipment	Acid-resistant trays/racks (plastic/lined)	Ditto	Plastic/lined/glass/stoneware

## Problems and solutions

Problem	Probable cause	Solution
Spotty/non-uniform	Insufficient cleaning; oxide skin; drying between steps	Tighter degreasing/activation; wet-on-wet work; Better rinsing
Too light/too grey	Too low concentration or too short a time; Passive Alloy	Increase concentration/time within window; oxide removal/activation
Release/smut on rub	Solution that is too weak or contaminated; for too long; poor rinsing/drying	Bath conditioning/refreshing; time limit; rinse thoroughly; even drying; then seal
Streaks/Watermarks	Uneven drainage; hard water; insufficient drying	Demi/DI rinsing; let it run evenly; Warm air drying
Color fades due to over-treatment	Walked on too long	Stop once target color is reached; stay within time window
Slow/uneven response to plated work	Alkaline introduction; passivity	Short mild acid-pre-dip and cold rinse; direct patination
Color wears/dulls quickly	No or too thin topcoat	Seal with lacquer or wax/oil until full coverage; only then put it into use

## Warning!

The patina products are 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 Galvanizing 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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