AQUABOND
Chemistry for Tomorrow

023 Rev.2 – 11.2021

CBX™ 22

CBX™ 22 is a cold-process verdigris patina for copper and brass.

1. Product description

CBX™ 22 is a water-based copper salt system designed to simulate natural atmospheric verdigris on copper alloys under ambient conditions. Colour and texture are controlled by concentration, application method, dwell time, and humidity.
Type: Cold-applied aqueous patina solution.
Use: Creation of natural-looking green, turquoise, and blue-green verdigris finishes on copper and brass substrates.

2. Typical composition (as supplied)

There are optional modifiers (table salt and vinegar) that can be added to the product which we will discuss later for those artisans that wish to experiment for different verdigris patina colours.

3. Recommended working concentrations

Standard green verdigris (default):
CBX™ 22: Use as supplied (≈6% w/v copper salt)

Lighter, more matte antique greens:
Dilution: 1 part CBX™ 22 + 1 part DI water (≈3% w/v)

Richer turquoise / blue-green:
CBX™ 22: Use as supplied
Optional: Add 1–2 g/L NaCl (Table Salt) and ensure higher humidity (mist cycles)

4. Substrate compatibility

Recommended:

Copper sheet, plate, and architectural copper
Brass (cast, sheet, hardware, decorative items)

Not recommended:

Lacquered, clear-coated, or heavily oiled surfaces (unless fully stripped)
Zinc-rich alloys, aluminum, or stainless steel (without special pretreatment)

The data and statements contained in this bulletin are based on testing information and are believed to be accurate and reliable. This bulletin is not a Guarantee or Warranty, express or implied regarding the products use. The product is sold on the condition that the purchaser will do their own tests to determine the suitability of the product in a particular application.

PLEASE READ THE SDS BEFORE USING THIS PRODUCT

CBX™ 22

5. Surface preparation

Goal: Clean, active metal surface free of oils, oxides, and fingerprints.

Mechanical cleaning

Abrasive: Scotch-Brite™ pad or 320–600 grit abrasive.

Action: Uniformly abrade surface to remove oxides and create a consistent texture.

Degreasing

Cleaner: Mild alkaline cleaner or detergent in warm water.
Rinse: Thorough DI water rinse.
Check: Water break-free surface (continuous water film, no beading).

Final activation (optional but recommended)
Quick wipe with 5–10% acetic acid or household vinegar, which is typically 4-8%.

Rinse lightly with DI water and allow to drain; do not touch with bare hands.

6. Application methods

You can describe CBX™ 22 as supporting three main application modes:

6.1 Brush-on application

Use for: Controlled, slightly variegated antique greens and blue-greens.
Tools: Natural bristle or foam brush, plastic tray.

Process:
Apply a thin, even coat of CBX™ 22 to the prepared metal.
Allow to air dry at ambient temperature (15–30°C) for 30–90 minutes.

Repeat 2–6 coats, depending on desired depth of color.
Optional: Lightly mist with DI water between coats to encourage carbonate formation and softer transitions.

Typical results:
2–3 coats: light, patchy green, more metal showing.
4–6 coats: deeper, more continuous verdigris with moderate variation.

The data and statements contained in this bulletin are based on testing information and are believed to be accurate and reliable. This bulletin is not a Guarantee or Warranty, express or implied regarding the products use. The product is sold on the condition that the purchaser will do their own tests to determine the suitability of the product in a particular application.

PLEASE READ THE SDS BEFORE USING THIS PRODUCT

CBX™ 22

6.2 Mist-spray application

Use for: More natural, atmospheric, mottled verdigris and turquoise.
Tools: Chemical-resistant spray bottle or HVLP detail gun (low pressure; ≤10 PSI).

Process:
Set up the piece vertically or slightly inclined to allow runs and drips.
Apply a fine mist of CBX™ 22 over the surface—avoid heavy puddling.

Allow to react and dry for 30–60 minutes.
Repeat misting cycles 3–10 times.

For stronger turquoise/blue-green, alternate:
Cycle A: Mist CBX™ 22
Cycle B: Light mist of DI water or very dilute CBX™ 22 (1:3 with water)

Typical results:
Soft gradients, drip marks, and natural-looking streaks.
Higher humidity and more cycles → more intense blue-green.

6.3 Immersion / soak (for small parts)

Use for: More uniform coverage on small hardware.
Process:
Immerse parts in CBX™ 22 (full-strength or 1:1 diluted).

Dwell time: 5–20 minutes per cycle.

Remove, drain, and air dry completely.
Repeat 2–4 cycles as needed.

Optional: Light DI water mist between cycles to soften and “age” the surface.

The data and statements contained in this bulletin are based on testing information and are believed to be accurate and reliable. This bulletin is not a Guarantee or Warranty, express or implied regarding the products use. The product is sold on the condition that the purchaser will do their own tests to determine the suitability of the product in a particular application.

PLEASE READ THE SDS BEFORE USING THIS PRODUCT

AQUABOND
Chemistry for Tomorrow

CBX™ 22

7. Colour tuning guide

Base assumption: Clean brass or copper, 20–25°C, moderate humidity.

Target colour family	CBX™ 22 conc.	Method	Cycles	Extras / notes
Pale antique green	1:1 diluted	Brush or mist	2–4	Minimal misting; longer dry times
Classic green verdigris	As supplied (6%)	Brush or mist	4–6	Light DI water mist between coats
Deep antique green	As supplied	Brush	6–8	Shorter intervals, slightly thicker coats
Turquoise / blue-green	As supplied	Mist	6–10	Add 1–2 g/L NaCl; frequent fine misting
Variegated blue-green	As supplied	Mist + brush	4–8	Alternate brush coats and mist cycles

Time to full colour development:
Initial colour: within 30–60 minutes of first application.
Matured, stabilized tone: 24–72 hours after final application (before sealing).

8. Drying, curing, and sealing

Drying between coats:
Minimum 30 minutes or until surface is visibly dry and matte.

Final cure before sealing:
Allow 24–72 hours at ambient conditions for the patina to stabilize.

Sealing options (strongly recommended for handling or exterior use):

Matte or satin clear lacquer (solvent or water-based, non-yellowing).
Aqua Bond has a very good water based lacquer, Guardcoat™ TCP especially for copper and brass.
Microcrystalline wax for a softer, more reversible protection.

Apply sealers in very light coats to avoid darkening or dissolving the patina.

9. Performance characteristics (typical)

Appearance: Green to blue-green patina layer, matte to low-satin.

Adhesion: Good on properly prepared copper and brass; patina is integral corrosion layer, not a paint film.

Durability:
Interior: Stable with minimal change over years when sealed.
Exterior: Will continue to evolve slowly; sealing slows but does not fully stop change.

The data and statements contained in this bulletin are based on testing information and are believed to be accurate and reliable. This bulletin is not a Guarantee or Warranty, express or implied regarding the products use. The product is sold on the condition that the purchaser will do their own tests to determine the suitability of the product in a particular application.

PLEASE READ THE SDS BEFORE USING THIS PRODUCT

CBX™ 22

Coverage:
Approx. 8–12 m²/L per coat (brush or mist), depending on texture and absorption. In ft^2 the range is 86.11 ft^2 – 129.17 ft^2 per liter.

Recoatability:
Can be recoated at any time before sealing; after sealing, mechanical abrasion or stripping is required.

10. Troubleshooting guide

10.1 Blotchy or uneven patina
Symptoms: Dark spots, bare metal patches, sharp edges between colours.

Likely causes & corrections:
Insufficient cleaning / residual oils
Cause: Fingerprints, machining oils, silicone residues.

Fix:
Re-strip affected area (abrasive + degreaser).
Use a water-break test before reapplying CBX™ 22.

Avoid touching with bare hands after prep.
Uneven surface profile
Cause: Mixed finishes (polished + brushed) on same piece.

Fix:
Standardize finish (e.g., all Scotch-Brite or all 400 grit).
Reapply CBX™ 22 in thin, multiple coats.

Over-application / puddling

Cause: Heavy brush loading or pooling at low points.
Fix:
Use thinner coats; tip off excess with a nearly dry brush.

For misting, adjust nozzle to finer spray and increase distance.

10.2 Patina too dark or muddy

Cause: Excessive cycles without misting, or contamination from previous finishes.
Fix:
Lightly abrade with fine Scotch-Brite to open the surface.
Switch to diluted CBX™ 22 (1:1) for subsequent coats.

The data and statements contained in this bulletin are based on testing information and are believed to be accurate and reliable. This bulletin is not a Guarantee or Warranty, express or implied regarding the products use. The product is sold on the condition that the purchaser will do their own tests to determine the suitability of the product in a particular application.

PLEASE READ THE SDS BEFORE USING THIS PRODUCT

CBX™ 22

Introduce DI water mist between coats to encourage lighter carbonate phases.

10.3 Color too light / not developing
Cause: Too few cycles, low concentration, or very low humidity.
Fix:
Increase number of coats or use CBX™ 22 at full strength.
Lightly mist with DI water after each coat.
Extend dwell time between coats to 60–90 minutes.

10.4 Patina flaking or powdering off
Cause: Very thick, crusty deposits or poor adhesion due to contamination.
Fix:
Brush off loose material with a soft brush.
Reapply CBX™ 22 in thin, controlled coats.
Ensure proper cleaning and avoid heavy puddling.

11. Safety and handling

Personal protection:
Wear **gloves**, **safety glasses**, and **protective clothing**.
Ventilation:
Use in a well-ventilated area; avoid inhaling mist.
Storage:
Store in tightly closed, labeled containers.
Protect from freezing and direct sunlight.
Spills & disposal:
Contain with absorbent material.
Dispose of in accordance with local regulations for copper-containing solutions.

12. Notes for end users

Always run **small test panels** on the same alloy and finish before treating critical pieces.
Keep a simple **process log**: dilution, number of coats, method, ambient temperature, and humidity.
For production use, standardize:
Surface prep sequence
CBX™ 22 concentration
Application method (brush vs. mist)
Dry times and number of cycles

The data and statements contained in this bulletin are based on testing information and are believed to be accurate and reliable. This bulletin is not a Guarantee or Warranty, express or implied regarding the products use. The product is sold on the condition that the purchaser will do their own tests to determine the suitability of the product in a particular application.

PLEASE READ THE SDS BEFORE USING THIS PRODUCT