

# CASWELL CONDUCTIVE COPPER PAINT MANUAL

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Caswell conductive copper paint is a water-based copper paint with silver-coated copper powder.

Makes non-conductive objects conductive for electroforming/copper-plating.

- Low resistance: faster, more even copper build-up than graphite coatings.
- Copper tint (not black) - beautiful with transparent materials (glass/stones).

The heavy copper sinks to the bottom. Shake very well before each use or stir. After standing still for a long time, a lump may form.

## Surfaces & preparation

Non-porous (plastic, resin, ceramic, metal, glass):

- Degrease. Light matting (p400–600) or adhesion primer. Dust removal.

Porous/organic (wood, cardboard, dried flowers, leaves, textiles):

- First seal (electroforming sealer / clear varnish). Allow to cure completely.

Glass/gemstones:

- Light sanding or primer for better adhesion.

## Apply (always shake / stir very well first)

Brush/brush

- 1–2 thin layers. Smooth out stripes. Dry completely between coats.

Dipping

- Dipping
- slow sweeping
- shaking off drops
- Let it dry hanging.
- Remove drip immediately (smooth layer = better conductivity).

Spraying/airbrush

- Apply diluted in several mist layers (2–4).
- Nozzle  $\geq 0.5$  mm is preferable.

## Thinning (affects conductivity & layer build-up)

- Thinner: clean/distilled water or other water-based paint thinner.
- Start for airbrush: 2 : 1 (paint : water).
- Thinning can (spray): up to approx. 1 : 6 (paint : water) → more layers needed.
- Note: diluting too much = lower solids per layer ⇒ higher resistance per layer.
- Always shake/stir very well again after diluting.

## Drying & control

- Air-dry: ± 1 hour per layer (20 °c, good ventilation).
- Fully finger dry/cured for next layer or bath.
- Check with multimeter: low ohmic value between random points.
- High value? Add another thin layer and let it dry completely.

The drier the layer, the lower the resistance.

## Storage & maintenance of the paint

- Heavy copper filling will sag → shake/stir vigorously before each use.
- Thickened by evaporation? add distilled water; mix again.
- Too much water increases resistance and can reduce adhesion.
- Close the jar tightly; store cool/dry, out of sunlight; avoid frost.

## WASTE & DISPOSAL

Never pour anything down the sink. Collect all process fluids and rinse water as chemical waste.

### **Save**

Use closed HDPE canisters or screw-top bottles (chemical resistant), preferably un-approved.

Always label: content, date, contact.

Place bottles or jerry cans in a drip tray/tub.

Cool, dry, out of sunlight; out of reach of children/pets.

### **Don't save**

No beverage bottles, glass jars without protection, open buckets or metal cans.

No fragile PET/PP bottles of consumer products.

### **Solid residues**

Drain used filters, stirrers, cloths and gloves, then collect separately in a sturdy, sealable bag/bucket and dispose of as chemical waste.

### **Drain**

Take everything to the municipal RCA collection or an approved processor. Do not mix waste streams to "dilute".

### **What to avoid at all costs**

Do not mix with bleach or ammonia (dangerous reactions).

No compressed air in waste containers; don't build up pressure.

## Technical characteristics

Property	Specification
Basis	Water-based (acrylic/latex)
Conduction	< 1 $\Omega/\square$ (ohms per square) at approx. 25 $\mu\text{m}$ dry layer
Color	Copper
Dry	~ 1 h/layer (20 °C, RH ~50 %)
Dilute	Water; 2:1 (paint:water) to 1:6 (paint:water) for spraying
Fix	Brush, dipping, spraying/airbrush
Consumption (indicative)	~ <b>0.015 m<sup>2</sup>/ml</b> per layer @ ~25 $\mu\text{m}$ ( $\approx$ <b>15 m<sup>2</sup>/l</b> )
Temperature resistance (dry film)	Up to approx. 120 °C
Storage	Cool, dry, tightly sealed; frost-free

## Warning!

The conductive paint is toxic if used incorrectly. 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 work with the 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. They will fall over!
  - 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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