Acid Copper (Bright Copper) Plating Guide for Beginners
Brush / Tampon and Bath Plating
This guide is easy to understand, beginner-friendly, and aligned with common industry practice. It applies equally to brush/tampon plating and bath plating using an acid copper / bright copper electrolyte (e.g. BMG-095M).

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1. What Is Acid Copper Plating?

Acid copper plating is an electrochemical process that deposits a very smooth, bright copper layer onto a conductive surface.
Acid copper is mainly used for:

- **decorative high-gloss copper finishes**
- **metallization of conductive paints**
- **copper plating on aluminum (alloy-dependent)**
- **leveling fine surface defects**
- **preparation for nickel, silver, or gold when high smoothness is required**

➡️ **Acid copper is not intended as corrosion protection for steel.**

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2. Acid vs. Alkaline Copper (simple explanation)

Acid copper:

- **very bright and smooth**
- **decorative and leveling**
- **lower adhesion on steel**

Alkaline copper:

- **excellent adhesion**
- **ideal for steel and iron**
- **strong build-up and corrosion protection**

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3. Suitable Materials

Directly suitable:

- **Copper**
- **Brass**
- **Bronze**
- **Nickel**
- **Silver**
- **Conductive coatings**

Conditionally suitable:

- **Aluminum (depending on alloy and activation)**

Not recommended:

- **Steel or iron without alkaline copper undercoat**

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4. Safety

Acid copper electrolytes may cause irritation:

- **Wear protective gloves**
- **Wear safety goggles**
- **Avoid skin and eye contact**
- **Work in a well-ventilated area**

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5. Surface Preparation

5.1 Sanding & Polishing

- **Prepare surface matte to high-gloss, as desired**
- **Acid copper reproduces surface texture exactly**

5.2 Cleaning & Activation

- **Remove oil, grease, and oxides completely**
- **Degrease thoroughly with electro cleaner**
- **Lightly activate surface (acidic)**
- **Handle only with gloves afterward**

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6. Electrical Connections

- **Negative (–): workpiece (cathode)**
- **Positive (+): electrode or anode pad**

Electrodes:

- **Copper or graphite electrode (bath)**
- **Fabric/cotton pad (brush plating)**

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7. Technical Parameters (Beginner Guidelines)

- **Voltage: approx. 1.5–4 V**
- **Temperature: room temperature up to ~30–35 °C**
- **Deposition: fast and very smooth**

➡️ **Excess voltage causes dark or rough deposits.**

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8. Acid Copper Bath Plating

Additional notes:

- **Place workpiece centrally**
- **Distribute anodes evenly**
- **Never use steel anodes**
- **Gentle agitation improves brightness**

Procedure:

1. **Slightly warm electrolyte if needed**
2. **Connect workpiece (negative)**
3. **Connect anode (positive)**
4. **Slowly raise voltage**
5. **Plate evenly**
6. **Remove and rinse**

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9. Brush / Tampon Acid Copper Plating

Typical uses: decorative work, repairs, metallization

Additional notes:

- **Keep pad clean and well soaked**
- **Use smooth, continuous movement**
- **Do not stay in one spot**

Procedure:

1. **Soak pad with copper electrolyte**
2. **Workpiece to negative, electrode to positive**
3. **Move evenly across the surface**
4. **Build a bright copper layer**

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10. Post-Treatment & Further Plating

- **Rinse immediately with water**
- **Dry gently**
- **Copper can be:**
  - **polished**
  - **nickel plated**
  - **silver plated**
  - **gold plated**

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11. Common Beginner Issues

Dark or dull deposit: voltage too high, poor cleaning
Poor adhesion: unsuitable substrate, missing alkaline copper undercoat
Staining: uneven movement or touching with bare fingers