



Beginner-Friendly Guide (Brush, Swab & Bath Plating)

Purpose and Background

Aluminium is a **base metal** that forms a **strong oxide layer within minutes**. Electroplating is **not possible on this oxide layer**.

The **aluminium activator (zincate process)** removes this oxide layer **chemically** and simultaneously applies a **thin zincate layer**, preventing re-oxidation and enabling further plating.

Suitable for:

- Pure aluminium
- Many aluminium alloys

Not suitable for:

- **Aluminium–silicon alloys (AlSi)**

⚠ Safety Instructions

- **Danger: highly alkaline / corrosive**
- Contains **sodium hydroxide (NaOH)**
- Always wear:
 - Chemical-resistant gloves
 - Safety goggles
 - Protective clothing if required
- Rinse splashes immediately with water
- Work in a well-ventilated area

Surface Preparation

1. **Mechanical pretreatment**
 - Sandblasting, grinding or brushing
 - Remove thick oxide layers
2. **Polishing (recommended)**
 - Hand or machine polishing to high gloss
 - Glossy surfaces give better final appearance
3. **Degreasing**
 - Use electrocleaner / degreaser
 - **Do not touch** the surface afterwards

Application of Aluminium Activator (no current)

Method A: Immersion (bath)

1. Fully immerse the part
2. React for **1–3 minutes**
3. Remove and inspect
4. Repeat until surface turns **uniform grey to dark grey**

Method B: Brush / Swab Application

1. Soak cotton cloth or sponge
2. Rub evenly over the surface
3. Continue until a **uniform grey appearance** is achieved

→ Reaction time depends on:

- Alloy composition
- Temperature
- Surface condition

Post-treatment after Zincate

1. **Rinse immediately with distilled water**
2. Keep part submerged until next plating step
3. **Do not touch** the surface
4. Gently wipe off excess zincate with a **soft cloth**

Subsequent Plating (critical)

Recommended:

- **Alkaline copper** as first layer
- Increase voltage for thicker copper deposit
- Then **nickel plating** (approx. 4 V, min. 10 minutes)

Do not use:

- **Acid copper** → removes the zincate layer

Notes:

- Thicker copper and nickel layers improve adhesion
- Nickel layer is usually matte → **polish**
- After nickel, all decorative metals can be plated

Storage & Environmental Notes

- Store in tightly closed container
- Follow safety data sheet
- Comply with local wastewater and environmental regulations