



SUBJECT ELECTROPOLISHING
 Process Specification

SUPERSEDED DATE 8/25/49

Initially used in laboratory for electrolytically polishing monel anode cylinders, such as T125 used in 912. This process is applicable for reducing or effacing minute projections, scratch marks, etc., on parts such as anodes, deflection plates and apertures, which, during tube operation, are subjected to high voltages. Highly polished surfaces on such parts prevent high voltage gradients causing arcing and cold emission.

1. EQUIPMENT

- Glass beakers - 1 liter size or larger depending upon production.
- Cathode - Lead cooling pipes 1/4" O.D. for cooling polishing solution, maintained as cathode in solution.
- HOLDERS - Of sizes and shapes depending on parts to be polished. The use of copper in the herein specified solution not being harmful, holders may be made of 6" length 3/8" brass pipe with a small battery clip attached.
- Ammeter and rheostat connected in series on anode side of circuit. 20A. D.C. supply.
- Air oven (110°C)
- Timing clock

2. MATERIALS

- S22 Sulfuric Acid, Reagent
- Tap Water
- *W60 Deionized Water



SULFURIC ACID SAFETY PRECAUTIONS: See 33-2-7C.

3. PREPARATION OF BATHS

Polishing Bath - Solution of 50% deionized water and 50% sulfuric acid by volume.

4. PROCEDURE

- a. Clamp part in holder, placing part so that gas can rise and leave freely as part is treated electrolytically.
 - b. Lower part (used as anode) into deplating bath, immersing as much of part as must be polished.
 - c. Apply current of 20 amp.
 - d. Polish or deplate from 1 to 2 minutes to produce a highly polished surface free of most visible scratches, pits and burrs.
 - e. At expiration of polishing time, cut off current and inspect parts. Continue deplating if surface is not satisfactory. Keep a check on temperature of bath so that it does not rise above 30°C.
 - f. Rinse parts in hot tap water and follow with hot deionized water rinse, at no time allowing the parts to dry until after final rinse.
- CAUTION: After parts have been cleaned do not touch them with bare hands.
- g. Oven dry parts.
 - h. Place dried parts into a clean container such as a cardboard box with cover.

ENGINEERING SECTION
 STANDARDIZING

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