



SUBJECT APPLICATION OF CONDUCTIVE COATING -
 TO CERAMICS - Process Specifications

SUPERSEDED DATE

Initially used to apply adherent metallic coating on ceramics to which metal parts can be brazed.

SCHEDULE I

I. EQUIPMENT

MAY 1955

- A. Moly boat
- B. Hydrogen furnace
- C. Rayon gloves
- D. 1/4 diameter wooden rod
- E. High speed motor with 3" diameter C3434 Dixon fine wire brush attachment
- F. Glass beakers
- G. Camel's hair brush
- H. Large flat ceramics (33C-2-14)

II. MATERIALS

- A. T3 Tungsten Iron paint
- B. A55 Acetone
- C. - Soap

III. PROCEDURE

A. Initial Cleaning

- 1. Inspect ceramics carefully for chips and cracks.
- 2. Rinse in clean acetone.
- 3. Rinse in clean water.
- 4. Pickle in 25% Nitric Acid for 2 minutes.
- 5. Wash several times in distilled water.
- 6. Rinse in clean acetone and dry in warm low pressure air.

B. Tungsten-Iron Coating

- 1. Have ceramic rotating approximately 1 rps.
- 2. Apply T3 tungsten-iron paint to ceramics as follows:
 - a. Large ceramics - 9/64" ±1/16" at each end.
 - b. Small ceramics - 3/32" ±1/64" at each end.
 Apply with camel's hair brush using one application of paint for each end of ceramics.

NOTE: Do not touch parts with hands.

C. High Temperature Firing

- 1. Place in moly boat, large flat ceramics.
- 2. Stand coated ceramics on end on flat ceramics.
- 3. Push boat into furnace at 800°C.
- 4. Raise temperature gradually (10-30 minutes) to 1360°C ±10°C.
- 5. Fire at 1360°C for 5 minutes (1360°C gives an off-white color) in line hydrogen.
- 6. Allow furnace and parts to cool to 800°C.

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III. PROCEDURE (Cont'd)

C. High Temperature Firing (Cont'd)

- 7. Put ceramics in cooler. Cool for 10 minutes.
- 8. Take ceramics from furnace.

NOTE: Do not touch parts with hands.

D. Tungsten-Iron Polishing

- 1. Wear rayon gloves. Do not touch parts with hands.
- 2. Put ceramics, one at a time on a 1/4" diameter wooden rod.
- 3. Using high speed motor to drive a 3" diameter C3434 Dixon fine wire brush, polish metallized surfaces of ceramics. Use this brush for tungsten-iron polishing only.
- 4. Apply only moderate pressure on ceramic and while slowly moving ceramic back and forth hold against wire brush until even, smooth surface is obtained.
- 5. Wash in soap and water.
- 6. Immerse in acetone and air dry.

NOTE: Do not touch parts with hands. Nickel plate immediately, or store in desiccator.

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