



SUBJECT: BULB CLEANING - CATHODE-RAY
 Process Specification

This specification covers the process for cleaning silicates from necks & faceplates at the Cathode-Ray Tube Factory.

SCHEDULE NO. 1 (Lancaster Only)

1. MATERIALS
- A609 Ammonium Bifluoride
 - H7 Hydrofluoric Acid
 - - Steel Wool
 - - Dupont Sponges
 - - Paper Towels

MAY 1955



AMMONIUM BIFLUORIDE SAFETY PRECAUTIONS: See S.N. 33-2-7C
 HYDROFLUORIC ACID SAFETY PRECAUTIONS: See S.N. 33-2-7A

2. PROCEDURE

- a. Neck cleaning
 - 1. For bulbs settled with potassium silicate
 - a. Wash neck with 0.5-1.0% hydrofluoric acid.
 - b. Rinse with water.
- b. Faceplate cleaning
 - 1. All silicate settled bulbs and all 5" and larger lithium hydroxide settled bulbs.
 - * a. After internal coating, carefully wipe the entire faceplate with the sponge which has been dipped into concentrated (20-25%) solution of ammonium bifluoride.
 - * b. After the above has been done, let dry, then wipe with wet (clean water) sponge.
 - c. Follow with damp sponge (clean tap water)
 - ***
 - 2. 2" and 3" lithium hydroxide settled bulbs.
 - a. Wipe faceplate with damp sponge.
 - b. Dry with towel.
 - c. Remove remaining dried settling solution by procedure a1.
 - 3. Remaining silicate - all types
 - a. Rub entire face with steel wool which has been dipped in conc. ammonium bifluoride.
 - b. Wipe face with damp sponges as in a1.
 - ** 4. Cleaning solutions.
 - a. The cleaning point for all Kinescopes is located at the loading end of the 100 foot Lehr.

3. CAUTION

- a. Rubber gloves should be worn while doing this process.
- b. One bulb at a time.
- c. The bifluoride should be rinsed off faceplate within about 15 seconds of the end of application to prevent etching.
- d. It is imperative that the entire face plate be wiped uniformly - no area to be wiped harder or longer than any other.
- e. Paper towels are expendable and should not be used for wiping after they become wet.
- f. Steel wool shall not be used after it becomes rusty.
- g. Do not allow acid to drip down side of bulb - immediately clean with wet sponge any that may drop on side or neck.
- h. Do not rub the steel wool with such force as to possibly scratch the face.

SCALE— DIMENSIONS IN UNLESS OTHERWISE SHOWN. DIMENSIONS SHOWN WITHOUT TOLERANCES ARE DESIGN CENTERS

Continued on page 2

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* CHANGE
 ** ADDITION
 *** DELETION

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SUPERSEDED DATE April 26, 1951

4. INSPECTION

- a. The lite box shall inspect for silicate in the manner precribed using the gooseneck ambient light to fullest advantage.
- b. All bulbs appearing at lite box still defective for silicate on the face shall be sent in to the settling room for a second cleaning.

SCHEDULE NO. 2 (Marion Only)

(Initially for 16GP4, A, B, C; 17CP4, A; 19AP4, A, B, D; 20CP4)

1. EQUIPMENT

- a. Rubber gloves
- b. Goggles
- c. Lead-lined box for hydrofluoric acid
- d. Safety can for acetone
- e. Sponge
- f. Rags

2. MATERIALS

- | | |
|---------|--------------------------------|
| H7 | Hydrofluoric Acid |
| ** A609 | Ammonium Bifluoride, Technical |
| W60C | Demineralized Water |
| A55 | Acetone |

DANGER

HYDROFLUORIC ACID SAFETY PRECAUTIONS: See 33-2-7C

* 3. PROCEDURE

a. Preparation of solution.

1. Dilute two parts of 53% hydrofluoric acid by volume or three parts of ammonium bifluoride (by weight) to 100 parts with water, adding acid or bifluoride into the water.

b. Cleaning procedure

1. Wipe the faceplates with a sponge soaked in one percent hydrofluoric acid or three percent ammonium bifluoride solution.

NOTE: A buffing action obtained with a flat piece of wood either "Bon Ami" or "Ajax" cleanser, which may be applied with or without the acid solution is helpful in removing certain contaminants.

2. Wipe the faceplates with a sponge which has been soaked in clean water. Sponges must be rinsed thoroughly in water after being used to wipe maximum of six faceplates.
3. Wipe the faceplates with a rag which has been wet with acetone.
4. If any foreign matter remains, repeat steps 1 through 3 until faceplate is clean

NOTE: Handling precautions given in S.N. 33-2-7A and 7C must be carefully observed. Sponges soaked in hydrofluoric acid or bifluoride must be returned to the lead-lined box immediately after use.

Continued on next page.

SCALE—
 DIMENSIONS IN

UNLESS OTHERWISE SHOWN. DIMENSIONS SHOWN WITHOUT TOLERANCES ARE DESIGN CENTERS

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SUBJECT: BULB CLEANING - CATHODE RAY
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SUPERSEDED DATE

SCHEDULE NO. 2 (Marion Only) (Cont'd)

3. PROCEDURE (Cont'd)

4. Cleaning Stations

- a. Cleaning points are located at the hand wash sinks, settling room, at the loading end of the lehrs and in packing.
- b. Cleaning all faceplates which will be placed on the glass section conveyor is done at the hand wash sinks. These include cleaning of:
 - 1. All butt spliced bulbs before they are sent to the lehr for annealing.
 - 2. All other bulbs which go to the lathes or hand wash sinks. Hand washed bulbs must have their faceplates cleaned within five minutes after removal from the hand wash machine.
 - 3. All engineering test numbers marked in any manner on the face must be removed from bulbs processed by the lathes or hand wash sinks except, all permanent tests such as #240, #001 to #099 or other special engineering tests.
- c. The settling room must remove all foreign substances from the faceplates which are caused by the settling process. Where necessary, blue china marker may be used on the faceplate for inspection approval marks or dispenser marks for identification.
- d. The lehr cleaning station must remove all marks which remain on the faceplate after coating except test numbers marked in white marking ink.
- e. All faceplates which can not be cleaned using the above process must be held for 24 hours at the cleaning point for engineering disposition.

**ENGINEERING SECTION
 STANDARDIZING**

**SCALE—
 DIMENSIONS IN**

UNLESS OTHERWISE SHOWN.

DIMENSIONS SHOWN WITHOUT TOLERANCES ARE DESIGN CENTERS

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