

CONSTRUCTION DIVISION, MATERIALS & PAVEMENTS SECTION (CST/M&P)
ASPHALT IN-HOUSE CALIBRATION PROCEDURE # 14
ROLLING THIN-FILM OVEN

EQUIPMENT CHECKED: ROLLING THIN-FILM OVEN (AASHTO T 240) (ASTM D 2872)

1. SCOPE

- 1.1 This procedure provides instructions for checking the critical components of a rolling thin-film oven (carriage and bottles).
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2. APPARATUS

Inspection Equipment Required:

1. Carriage:
 - a. Ruler, readable to 1/8 in.
 - b. Timer, readable to 0.1 sec.
 - c. Thermometer, readable to 0.5 C

2. Bottles:
 - a. Caliper, readable to 0.001 inch.
 - b. Rigid piece of metal approx. 6 x 2 cm.

Tolerance:

Equipment shall meet the tolerances specified in test methods T240 and D 2872.

3. CARRIAGE PROCEDURE

- 3.1 Open the oven door (caution should be used oven surfaces may be hot).
- 3.2 Measure and record the distance from the thermometer and the right side of the oven.
- 3.3 Measure and record the distance between the thermometer bulb and the horizontal axis running through the center of the carriage.
- 3.4 Perform the test according to T 240 or D 2872. After placing the samples in the oven, record the time needed for the oven to recover to test temperature.
- 3.5 Set the oven's carriage in motion and record the number of rotations in one minute.
- 3.6 Record the oven temperature at half-hour intervals until the test is completed.

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4. **BOTTLE PROCEDURE:**

This procedure gives instructions for checking the critical dimensions of a rolling thin-film oven bottle used to perform the rolling thin-film oven test. After the initial check on new bottles, an annual (12-month) check should be conducted to verify critical dimensions.

- 4.1 Refer to the illustration on the following page (the same illustration is also referenced in procedure T 240 and D 2872). Use a caliper to measure the distance between the bottom of the bottle and the top and record the results.
- 4.2 Measure and record the outer diameter of the bottle.
- 4.3 Measure and record the diameter of the opening located atop the bottle.
- 4.4 Measure and record the wall thickness.
- 4.5 Using a caliper and a rigid piece of metal across the top of the bottle, measure the depth of the concavity at its deepest point and record the results.

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