

Method of Test for
**MEASURING TEXTURE DEPTH OF PORTLAND
CEMENT CONCRETE WITH METAL TINE FINISH**
DOTD Designation: TR 229M/229-97

I. Scope

This method describes the procedure for measuring texture depth of plastic or hardened concrete surfaces.

II. Apparatus

- A. **Depth measuring gauge** - having 1 mm (1/32 in.) graduations (Figure 1).
- B. **Wire brush**
- C. **Tool** - capable of removing hardened laitance from the surface of hardened concrete.
- D. **Field book**
- E. **Worksheet** - Portland Cement Concrete Pavement Report, DOTD Form No. 03-22-4035 (Figure 2).



Figure 1
Depth Measuring Gauge

III. Calibration

Zero the depth gauge by placing it in an upright position with guides and plunger in full contact with a flat solid surface. A useable gauge will read zero.

IV. Procedure

Note 1: *The depth of texture shall be measured from the original concrete surface.*

A. Plastic Concrete

1. Preset the plunger of the tire tread depth gauge to 3 mm {4/32 in. (1/8 in.)}.
2. Randomly select the testing location.
3. Place the depth gauge over the groove with the guides just touching the original concrete surface. Care must be exercised not to press the surface down nor to measure the groove depth from projections above the surface. If the plunger leaves a mark in the concrete, the depth is insufficient and does not meet specification requirements.
4. If the plunger does not leave a mark in step 3, reset the plunger of the depth gauge to 5 mm {6/32 in. (3/16 in.)} and recheck the same location. If the plunger does not leave a mark at 5 mm {6/32 in. (3/16 in.)}, the groove is too deep and does not meet specification requirements.
5. Repeat steps 1 - 4 until measurements indicate that the required texture depth is being obtained.

B. Hardened Concrete

1. Randomly select the location within a lot to be tested. At each location, take measurements at five randomly selected points across the pavement at an angle approximating 45°.
2. Clean the surface of the concrete with a wire brush.
3. Remove any projections above the original surface.
4. With the depth gauge guides in contact with the original concrete surface,

depress the plunger until it contacts the bottom of the groove.

5. Remove the gauge from the surface, being careful not to disturb the plunger.
6. Read the texture depth to the nearest mm (1/32 in.).
7. Record depth on the worksheet or field book.
8. Repeat steps 2 - 6 for each measurement.
9. Average the results to the nearest mm (1/32 in.) and report on the worksheet or field book.

V. Calculations

Calculate the average texture depth (D_n) to the nearest 1 mm (1/32 in.) using the following formula:

$$D_n = \frac{D_1 + D_2 + D_3 + D_4 + D_5}{n}$$

where:

$D_1 \dots D_5$ = texture depth at each location in the lot, mm (in.)

n = number of depths for the lot

example:

$$D_1 = 3$$

$$D_2 = 5$$

$$D_3 = 4$$

$$D_4 = 4$$

$$D_5 = 5$$

$$\begin{aligned} D_n &= \frac{3 + 5 + 4 + 4 + 5}{5} \\ &= \frac{21}{5} \\ &= 4.20 \\ D_n &= 4 \end{aligned}$$

VI. Report

- A. Measurements for plastic concrete are taken for control by contractor personnel. Any measurements taken on plastic concrete by DOTD personnel shall be entered in a field book.
- B. For hardened concrete, each individual measurement and the average of the five measurements at each location shall be recorded to the nearest 1 mm (1/32 in.) on the Portland Cement Concrete Pavement Report for pavement and in the concrete pour record for bridge decks and approach slabs.

VII. Normal Test Reporting Time

The normal test reporting time is 1 hour.

MATT MENU SELECTION - 11

Department of Transportation and Development
PORTLAND CEMENT CONCRETE PAVEMENT REPORT

DOTD 03-22-4035
 Metric/English
 Rev. 7/97

Metric/English (Located on MATT Menu)
 Project No. 222-221-2222 Material Code 451 Lot No. 15
 Submitter 0310 Plant Code C307 Mix Design No. 042 Spec Code 1 Purp. Code 3
 Const. Method 1 = Slip Form 2 = Form 3 = Split Slab 4 = Contin. Reinforced 5 = Other Joints: Spacing 20 Configuration 1 = Transverse 2 = Skewed
 Date 07-25-97 Item No. 6014 Lot Complete Y = Yes N = No

Sta: <input type="text"/>	To Sta: <input type="text"/>	Sta: <input type="text"/>	To Sta: <input type="text"/>
Location <input type="text"/>	Width <input type="text"/> m (ft)	Location <input type="text"/>	Width <input type="text"/> m (ft)
Thick. <input type="text"/> mm (in)	<input type="text"/> m ² (yd ²)	Thick. <input type="text"/> mm (in)	<input type="text"/> m ² (yd ²)

PREVIOUS m² (yd²) + CURRENT, m² (yd²) = Total to Date m² (yd²)
 CURRENT m³ (yd³) Theoret. Yield m²/m³ (yd²/yd³) Actual Yield m²/m³ (yd²/yd³)
 % Air Slump, mm (in)

Joint Materials

Load Transfer Device: Materials Source
 Adhesive Lubricant: Materials Source
 Filler: Materials Source
 Sealer: Materials Source

Curing

Curing Method: 1 = Burlap 2 = Paper 3 = Poly Sheeting 4 = Burlap & Poly Sheeting 5 = Curing Membrane Curing Membrane Rate m²/L (ft²/gal)

Surface Texture

Applied By: 2 1 = Manual 2 = Mechanical [Record Measurement to Nearest mm (1/32 in)]
 Station: 25+000 Location: RRL4 Station: 26+013 Location: RRL4
 1. 3 2. 5 3. 4 4. 4 5. 5 1. 4 2. 4 3. 5 4. 5 5. 3
 Average: 4 mm (1/32 in) Average: 4 mm (1/32 in)

Surface Tolerance

Test Method: (Codes listed on back) Pavement Code: (Codes listed on back)
 Measured in m (lin ft) IRI Std mm/km (in/mi) Avg. Prof. Ind. mm/km (in/mi)

Remarks
 % Pay

 Laboratory Authorized Evaluator Department's Certified Inspector

 District Laboratory Engineer Project Engineer

Figure 2
 Portland Cement Concrete Pavement Report - 03-22-4035