

MEAN MACROTEXTURE DEPTH OF MILLED PAVEMENT

(A Modification of Indiana Test Method 812-03T and ASTM E 965)

1. SCOPE

(a) This test method describes the procedure to determine the Mean Macrot texture Depth of a milled pavement surface.

(b) This test method may involve hazardous material, operations, or equipment. This test method does not purport to address all of the safety concerns associated with its use. It is the responsibility of the user to consult and establish appropriate safety and health practices and determine the applicability of any regulatory limitations prior to use.

(c) See Appendix A1 of the Materials Testing Manual for information regarding the procedure to be used for rounding numbers to the required degree of accuracy.

2. APPARATUS

(a) The apparatus shall consist of the following:

(1) Filler - Type 1 glass beads conforming to the requirements of AASHTO M 247.

(2) Spreader Disk - A flat, stiff, hard disk made from Plexiglas or other similar material with a thickness of 0.5 ± 0.1 inch, and a diameter of 8 inches $\pm 1/4$ inch, with a handle attached to the top of the disk.

(3) Graduated Cylinder - Class B or better, Style III, 250 mL capacity graduated cylinder conforming to the requirements of ASTM E 1272, used to measure the amount of filler required for the test.

(4) Brushes - A stiff wire brush and a soft bristle brush, used to clean the pavement.

(5) Container - Small container, with a secure and easily removable cover, used to store 200 mL of filler.

(6) Wind Screen - A shield used to protect the test area from air turbulence created from wind or traffic

(7) Measuring device - A tape measure or ruler at least 12 inches long.

3. PREPARATION OF FILLER MATERIAL

(a) For each test location, one container with 200 mL of filler is prepared as follows:

(1) Fill the graduated cylinder to the 200 mL mark and gently tap the base of the cylinder several times on a rigid surface. Add more material to fill the graduated cylinder to the 200 mL mark. Gently tap the side of the cylinder to level the material. As necessary, add additional material, tap, and level until the filler is at the 200 mL mark.

(2) Place the measured amount of filler in the container.

4. PROCEDURE

(a) Randomly select a test location.

(b) Inspect the selected test location and ensure that it is dry, uniform, and free of unique or localized features such as cracks, joints, stripping, and patching. Clean the test location using the brushes to remove any residue, debris, or loosely bonded material. Position the wind screen around the test location.

(c) Holding the container above the test location at a height not greater than 4 inches from the pavement surface, pour the measured amount of filler into a conical pile on the test area.

(d) Lightly place the spreader on top of the conical pile, being careful not to compact the filler.

(e) Using the spreader disk, carefully spread the material into a circular patch filling the surface voids flush with the top of the milled pavement.

(f) Measure and record the diameter (Inches) of the circular patch at four locations (intervals of 45°).

5. CALCULATIONS

(a) Calculate the average diameter of the circular patch as follows:

$$D_a = \frac{D_1 + D_2 + D_3 + D_4}{4}$$

Where:

D_a = Average diameter of the circular patch, Inches

D_1, D_2, D_3, D_4 = Individual diameters of the circular patch, Inches

(B) Using the average diameter of the circular patch, determine the Mean Macrotecture Depth by referencing Figure 1. The values for Mean Macrotecture Depth, shown in Figure 1, have been determined using the equation for Mean Macrotecture Depth shown below. When necessary, use the equation to determine the Mean Macrotecture Depth for average diameters outside the range of values given in Figure 1.

Since: Volume = (Area) x (Depth)

Therefore: Depth = Volume/Area

So: Mean Macrotecture Depth, inches =

$$\frac{V}{(\pi) \times \left(\frac{D_a}{2}\right)^2}$$

Where: V = Volume of glass beads, 12.20 in³ (200 mL)

D_a = Average diameter of the circular patch, inch

FIGURE 1 MEAN MACROTEXTURE DEPTH (Based on 200 mL of Glass Beads and Average Diameter)					
Average Diameter (in)	Mean Macrotecture Depth (in)	Average Diameter (in)	Mean Macrotecture Depth (in)	Average Diameter (in)	Mean Macrotecture Depth (in)
7.00	0.31	9.50	0.17	12.00	0.11
7.125	0.30	9.625	0.17	12.125	0.10
7.25	0.29	9.75	0.16	12.25	0.10
7.375	0.28	9.875	0.16	12.375	0.10
7.50	0.27	10.00	0.15	12.50	0.10
7.625	0.26	10.125	0.15	12.625	0.10
7.75	0.26	10.25	0.15	12.75	0.09
7.875	0.25	10.375	0.14	12.875	0.09
8.00	0.24	10.50	0.14	13.00	0.09
8.125	0.23	10.625	0.14	13.125	0.09
8.25	0.23	10.75	0.13	13.25	0.09
8.375	0.22	10.875	0.13	13.375	0.09
8.50	0.21	11.00	0.13	13.50	0.08
8.625	0.21	11.125	0.12	13.625	0.08
8.75	0.20	11.25	0.12	13.75	0.08
8.875	0.19	11.375	0.12	13.875	0.08
9.00	0.19	11.50	0.12	14.00	0.08
9.125	0.18	11.625	0.11	14.125	0.08
9.25	0.18	11.75	0.11	14.25	0.08
9.375	0.17	11.875	0.11	14.375	0.07