INDIANA DEPARTMENT OF TRANSPORTATION
DIVISION OF MATERIALS AND TESTS

MACROTEXTURE OF MILLED PAVEMENT
ITM No. 812-17

1.0 SCOPE.

1.1 This test method covers the procedure to evaluate the macrotexture of a milled pavement surface.

1.2 This ITM may involve hazardous materials, operations, and equipment and may not address all of the safety problems associated with the use of the test method. The user of the ITM is responsible for establishing appropriate safety and health practices and determining the applicability of regulatory limitations prior to use.

2.0 REFERENCE.

2.1 AASHTO Standards.

M 247 Glass Beads Used In Traffic Paints

2.2 ASTM Standards.

E272 Standard Specification for Laboratory Glass Graduated Cylinders

2.3 ITM Standards.

802 Random Sampling

3.0 TERMINOLOGY. Terms and abbreviations shall be in accordance with the Department's Standard Specifications, Section 101.

4.0 SIGNIFICANCE AND USE. This ITM is used to determine the macrotexture of a pavement surface to meet the requirements of the texture of a milled surface prior to an overlay.

5.0 APPARATUS.

5.1 Filler. Type 1 glass beads in accordance with AASHTO M 247

5.2 Spreader. A flat, stiff hard disk made from methyl methacrylate (Plexiglas) with a thickness of 0.5 ± 0.1 in., diameter of 8 ± 2 in. and a round handle affixed in the center used to spread the filler.

5.3 Graduated Cylinder. A class B or better, style III, 250 mL capacity graduated cylinder in accordance with ASTM E1272, used to measure the volume of filler for the test

5.4 Brushes. A stiff wire brush and a soft bristle brush used to clean the pavement

5.5 Container. A small container with a secure and easily removable cover used to store 200 mL of filler

5.6 Screen. A shield used to protect the test area from air turbulence by the wind or traffic

6.0 LABORATORY PREPARATION.

6.1 Prepare one container with 200 mL of filler for each sample location

6.2 Fill the graduated cylinder to the specified volume

6.3 Gently tap the side of the graduated cylinder to level the surface of the filler

6.4 Place the measured volume of filler in the container

6.5 Label the container with the type and quantity of filler

7.0 PROCEDURE.

7.1 Randomly determine a sample location on the milled pavement surface in accordance with ITM 802

7.2 Inspect the sample location and ensure the location is a dry, homogeneous site, free of unique or localized features such as cracks, joints, stripping and patching

7.3 If localized features are present, move up-station at the same transverse offset until a suitable site is located

7.4 Clean the sample location using the brushes to remove any residue, debris or loosely bonded material

7.5 Place the screen on the milled pavement surface to protect the sample location from air turbulence

7.6 Hold the container with filler above the pavement at the sample location at a height not greater than 4 in.

7.7 Pour the measured volume of filler from the container onto the milled

pavement surface into a conical pile

7.8 Place the spreader lightly on top of the conical pile of filler being careful not to compact the filler

7.9 Move the spreader in a slow, circular motion to disperse the filler in a circular area and to create a defined crest around the perimeter

7.10 Continue spreading the filler until the filler is well dispersed and the spreader rides on top of the high points of the milled pavement surface

7.11 Measure and record the diameter of the circular area four times, at intervals of 45º and to the nearest 5 mm, as shown in Figure 1

7.12 Measure the diameter of the circular area from the crest of the slope on one side, through the center, and to the crest of the slope on the other side of the circular area

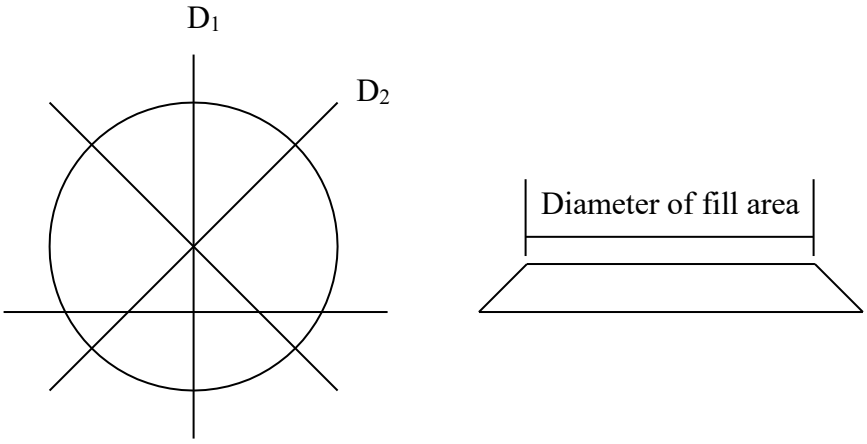

Figure 1

8.0 CALCULATIONS.

8.1 Calculate the average diameter of the circular area covered by the filler as follows:

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

where:

Da = average diameter of the filler area, mm
D_1, D_2, D_3, D_4 = diameters of the filler area, mm

8.2 Calculate the Macrotexture Ratio from the following table using the average diameter of the area covered by the filler.

MACROTEXTURE RATIO based on 200 mL of GLASS BEADS and AVERAGE DIAMETER

Average Diameter	Macrotexture Ratio	Average Diameter	Macrotexture Ratio	Average Diameter	Macrotexture Ratio
190	1.42	260	2.65	340	4.54
195	1.49	265	2.76	345	4.67
200	1.57	270	2.86	350	4.81
205	1.65	275	2.97	355	4.95
210	1.73	280	3.08	357	5.00
214	1.80	285	3.19	360	5.09
215	1.81	290	3.30	365	5.23
220	1.90	295	3.42	370	5.38
225	1.99	300	3.53	375	5.52
230	2.08	305	3.65	380	5.67
235	2.17	310	3.77	385	5.82
237	2.20	315	3.90	390	5.97
240	2.26	320	4.02	395	6.13
245	2.36	325	4.15	400	6.28
250	2.45	330	4.28	405	6.44
255	2.55	335	4.41	410	6.60

9.0 REPORT. The following information is reported on the form in Appendix A.

9.1 Date of test

9.2 Contract number

9.3 Station of sample location

9.4 Offset of sample location

9.5 Name of Milling Contractor and representative

9.6 Name of Prime Contractor and representative

9.7 Diameter measurements of filler area, D_1, D_2, D_3, D_4

9.8 Average diameter of filler area, mm

9.9 Macrotexture ratio

< < The remainder of this page is intentionally blank > >

MACROTEXTURE REPORT

Contract No.: _____ Road: _____

Milling Contractor: _____

Milling Representative: _____

Prime Contractor: _____

Prime Representative: _____

Station	Offset	D_1 (mm)	D_2 (mm)	D_3 (mm)	D_4 (mm)	D_a mm	Macrotexture Ratio