TEXTURE – SAND PATCH

General Description

This test method is suitable for field tests to determine the average macrotexture depth of a pavement surface. The knowledge of pavement macrotexture depth serves as a tool in characterizing the pavement surface texture. It uses a volumetric approach of measuring pavement macrotexture. In this study a known volume of glass beads is spread evenly over the pavement surface to form a circle, thus filling the surface voids with glass beads. The diameter of the circle is measured on four axes and the value averaged. This value is then used to calculate the mean texture depth (MTD).

COLLECTION FREQUENCY

The sand patch test is performed on test cells twice yearly, in March and August.

Procedure

MATERIALS

- 1 cylinder of known volume
- 1 hard rubber faced spreader disc
- 1 ruler
- Soft Brush
- Glass beads meeting the requirements of ASTM E 965
- 1 carrying case

The glass beads are solid glass spheres having 90% roundness in accordance with ASTM D 1155. The spheres shall be graded to have a minimum of 90% by weight passing a No. 60 sieve and retained on a No. 80 sieve.

PROCESS

1. Ensure the pavement surface is clear of debris by sweeping the surface with a small brush. Test area is to be clear of cracking and the pavement area must be dry.
2. A known volume of sand, is measured and then poured onto the road surface to form a cone, using the measuring cylinder.
3. Spread the sand with the spreading disc to form a circular patch. Apply horizontal forces to the spreading tool and work outwards in a circular pattern until the surface depressions are filled to the level of the peaks. Sand is to be used only once.
4. Measure the diameter at four different angles, rotating 45° between each measurement.

Specifications

ASTM E 965

Calibrations/Formulas

$$Texture\ depth(mm) = \frac{4V}{\pi d^2}$$

where :

d	=	average diameter of sand patch circle (mm)
V	=	volume of sand used (mm^3)

Database Tables

TABLE – DISTRESS_SAND_PATCH

CELL	53	Number (3.0)	MnROAD Cell number
LANE	Outside	VarChar(30)	Lane {Driving, Passing, Inside, Outside}
DATE	3/23/2010	Date	Date
TIME	10:00	Time	Time (24HR-MM-SS)
STA	21167.5	Number (7.1)	Station number according to field markers
OFFSET	10	Number(2.0)	Offset from centerline
MEASURED_BY	Tom Hanauska	VarChar(30)	Operator testing
METHOD	E-965	VarChar(6)	Applied method of measurement
FIELD_ID	53X2	VarChar(6)	MnROAD Field ID number
X1_MM	273.1	Number(4.1)	Diameter measured across sand circle during testing in mm
X2_MM	279.4	Number(4.1)	Diameter measured across sand circle during testing in mm
X3_MM	298.5	Number(4.1)	Diameter measured across sand circle during testing in mm
X4_MM	260.4	Number(4.1)	Diameter measured across sand circle during testing in mm
X_AVG_MM	277.8	Number(4.1)	Average diameter measured across sand circle during testing in mm
VOLUME_MM^3	68300	Number(6.0)	Volume of sand used
TEXTURE_MM	1.126	Number(2.3)	Calculated Texture value
COMMENTS	Transverse Broom	VarChar(30)	Any comments
ID	3682287	Number(8.0)	Unique ID for database organization

For more information:

For more information about MnROAD and the Road Research program at Mn/DOT:

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