

Determination of Texture Depth by the Sand Patch Method

Lab Test Reference 602
British Standard Reference
BS598 : Part 105 : 1990

Principal Apparatus

1. Sand Patch Test Kit comprising:-
 - i) Plastic/Brass cylinder of 50ml volume
 - ii) Flat Wooden Disc 63-67 dia with hard rubber disc
1.5mm thick struck on one face
 - iii) Dry Sand complying with Table 1
(-300 + 150 micron)
2. Measuring tape or ruler

1. Preliminaries

1.0 Dry the surface to be measured and if necessary sweep clean using a brush.

1.1 Measure the texture depth as soon as possible after the surface has been laid and before opening to traffic. The track to be tested shall be free from frost, dust, dirt, loose chippings or other debris. Do not take measurements when free water partially fills the texture or when beads of water are standing on the surface.

2. Standard Test Method

2.0 Fill the cylinder with sand and, taking care not to compact it by any unnecessary vibration, strike off the sand level with the top of the cylinder.

2.1 Pour the sand into heap on the surface to be tested and spread the sand over the surface working the disc with its face kept flat, in a circular motion so that the sand is spread into a circular patch with the surface depressions filled with sand to the level of the peaks. The procedure is complete when no further distribution of sand outwards is achieved.

2.2 Measure the diameter of the sand patch to the nearest 1mm at 4 diameter positions 45° apart ie N-S, E-W, NW-SE, NE-SW.

3. Calculation

3.0 Calculate the mean diameter D, to the nearest 1mm.

3.1 Calculate the texture depth from the following formula;

$$\text{Texture Depth (mm)} = \frac{63660}{D^2}$$

- 3.2 Determine the average texture depth for each section of carriageway lane tested and the average of each set of 10 individual measurements to the nearest 0.1mm.
4. Site Testing
- 4.0 The texture depth should be measured as soon as possible after the surfacing has been laid and before the surfacing has been opened to traffic.
- 4.1 Measure the texture depth over one or more sections of carriageway lane each 1000mm in length or the complete carriageway lane where this is less than 1000m.
- 4.2 Make measurements on 50m lane lengths regularly spaced along the section and covering not less than one third of the section tested.
- 4.3 On each 50m lane length, take 10 individual measurements of the texture depth of 5m spacing along a diagonal line across the carriageway lane width. Do not take measurements within 300mm of the longitudinal edge of the carriageway.
- 4.4 Where the determination of average texture depth for a section of carriageway lane based on measurements taken over part of the section is less than specified, extend the measurements to cover the complete length of the section and recalculate the average texture depth.

Results

- 4.5 Determine and report the average texture depth for each section of carriageway lane tested and the average of each set of 10 individual measurements.

Notes

- 4.6 To reduce variability, base determinations of average texture depth on a sufficient number of measurements. For small schemes it may be practicable to carry out measurements over all the wearing course of over alternate 50m lengths covering 50% of the work. Where this cannot be reasonably done make test measurements over regularly spaced 50m lengths of carriageway lane covering not less than one third of the surfacing laid in a lane.
- 4.7 On larger schemes exceeding 1km in length test selected sections of carriageway lane 1000m long in the same way. In all cases base, the determination of the average texture depth of a test section on not less than six sets of 10 individual measurements.
- 4.8 The extent of testing depends on resources and compliance with the specification but make at least one determination per lane for every 5km or less of carriageway surfacing.
- 4.9 For concrete repair contracts where bay replacement is being carried out, the extent of testing shall be determined by the Resident Engineer.

Compliance with the Specification

- 4.10 Unless the contract says otherwise the criteria for compliance is usually as follows:

Bituminous Wearing Course

The average texture depth determined by the sand patch method for each 1km, section of carriageway lane tested shall not be less than 1.5mm, and the average of each set of 10 individual measurements shall be not less than 1.2mm.

Concrete Roads

Texture depths shall be not less than the minimum required where measurements are taken at the times given below.

Time of Test	Min T.D.
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|-----|---|---|
| i) | Between 24 hours and 7 days after slab construction | 0.75mm for an average of 10 measurements with no one measurement less than 0.65mm |
| ii) | Not later than 6 weeks before the road is opened to traffic | 0.65mm for an average of 10 measurements with no one measurement less than 0.6mm |