



1.0 SCOPE

This Standard Test Method describes the procedures for measuring in-place density of bituminous pavement by nuclear density gauge.

2.0 REFERENCE STANDARDS

ASTM Standards

- D2041 Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
- D2726 Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures.
- D2950 Standard Test Method for Density of Bituminous Concrete in Place by Nuclear Method

MEB Standard

- P049 Nuclear Density Gauge Standard Count Calibration
- P052 Density of Material in Place by Control Strip Method

Acts and Regulations

- Transportation of Dangerous Goods Act
- Transportation of Dangerous Good Regulations

3.0 GENERAL

3.1 Gauge Calibration and License

The nuclear density gauge shall be calibrated every 12 months against the certified density reference blocks by either the manufacturer of the gauge or qualified personal.

The registered owner of the gauge shall maintain a valid *Nuclear Substances and Radiation Devices License* issued for portable gauges (Use Type 811) and ensure the *Transportation of Dangerous Goods Act and Regulations* are followed.

3.2 Weather Limitations

The nuclear density gauge shall not be operated when:

- the surface is frozen
- the surface is wet
- temperature below -5°C
- the weather conditions are unfavourable, or are likely to become unfavourable

4.0 PROCEDURE

Complete standard count as per *MEB-P049 Nuclear Density Gauge Standard Count Calibration*.

Follow ASTM D2950 Density of Bituminous Concrete In Place by Nuclear Methods, Backscatter Method.

Record four (4) one-minute density and moisture readings, rotating the gauge 90 degrees after each reading.

Correct the gauge-derived density using density values determined in accordance with *ASTM D2726 Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures*.

5.0 CALCULATIONS

Calculate the percent compaction of each test location as follows:

$$\% \text{ Compaction} = \frac{\text{Wet Density}_{\text{Corrected}}}{\text{MTD}} * 100$$

Where MTD is determined as per *ASTM D2041 Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures*.

6.0 REPORT

Document values and calculations on forms provided by the Contract Administrator.