



1.0 SCOPE

This Test Method describes the procedures to determine the nuclear density gauge Standard Count.

2.0 REFERENCE STANDARDS

ASTM Standards

- D7013 Guide for Calibration Facility Setup for Nuclear Surface Gauges
- D7759 Guide for Nuclear Surface Moisture and Density Gauge Calibration

MEB Standards

- P034 Density of Soils in Place by Nuclear Method
- P050 Density of Bituminous Pavement in Place by Nuclear Method
- P051 Density of Granular Base Course in Place by Nuclear Method
- 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 APPARATUS AND MATERIALS

Nuclear Density Gauge: an electronic counting instrument equipped with a gamma and neutron source which is licensed in accordance with applicable federal regulations

Reference Standard Block: used to obtain repeatable standard counts to ensure day to day gauge performance

4.0 GENERAL

4.1 Standard Count

The Standard Count is required to offset the aging of the radioactive source, detectors, and electronic systems that occurs within the nuclear gauge.

A new Standard Count is required under the following conditions:



Standard Test Method For: **Nuclear Density Gauge Standard Count**

- Four (4) or more hours of gauge inactivity
- Change in weather conditions
- Change in construction project

The Standard Count will be conducted in the vicinity of the testing location.

4.2 Gauge Calibration and License

The nuclear density gauge shall be calibrated every 12 months with 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 Device License* issued for portable gauges (Use Type 811) and ensure the *Transportation of Dangerous Goods Act and Regulations* are followed.

5.0 WEATHER LIMITATIONS

The nuclear density gauge shall not be operated when:

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

6.0 PROCEDURE

Follow the manufacture's procedure to determine the Standard Count.

The Standard Count values for density must be within the range of the projected density at the time of the test. These ranges are determined from the annual calibration and shall be included in the nuclear gauge's calibration report.

7.0 REPORT



MATERIALS ENGINEERING BRANCH

Standard No.: **MEB-P049**

Effective Date
Current: **March 2020**
Previous: N/A

Page 3 of 3

Standard Test Method For: **Nuclear Density Gauge Standard Count**

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