
Test Procedure for**PLASTICITY INDEX OF SOILS AND BASE MATERIALS**TxDOT Designation: **Tex-106-E****Effective Date: October 2024**

1. SCOPE

- 1.1 Use this test procedure to determine the plasticity index (PI) of embankment (soils), flexible base, and treated materials. PI is a moisture content for when a material remains in a plastic state while passing from a semisolid state to a liquid state.
- 1.2 *This test procedure does not claim to address the safety concerns associated with its use. It is the responsibility of the user of this test procedure to establish the appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations before use.*

2. PROCEDURE

- 2.1 Determine the liquid limit (LL) in accordance with [Tex-104-E](#).
- 2.1.1 Prepare material in accordance with [Tex-101-E](#), Part I, Dry Preparation, Method A for referee testing to resolve disputes.
- 2.1.2 Part I, Multi-Point method is the required method to determine the LL for referee testing to resolve disputes.
- 2.1.3 When it is not possible to produce a groove closure after 20 blows, such as for non-plastic, sand material having a low plasticity index (PI), determine the linear bar shrinkage of the material in accordance with [Tex-107-E](#). Proceed to Section 2.3.1.
- 2.2 Determine the plastic limit (PL) in accordance with [Tex-105-E](#).
- 2.2.1 Prepare material in accordance with [Tex-101-E](#), Part I, Dry Preparation, Method A for referee testing to resolve disputes.
- 2.3 Use the equation from Section 3.1 to determine the PI.
- 2.3.1 Use the equation from Section 3.2 to determine the PI when it is not possible to determine the LL.

3. CALCULATION

- 3.1 Use the following equation to determine the plasticity index (PI) when the liquid limit (LL) and plastic limit (PL) are measured.

$$PI = LL - PL$$

3.2 Use the following equation to determine the PI when it is not possible to produce a groove closure **after** 20 blows when measuring the liquid limit.

3.2.1 Determine the linear bar shrinkage in accordance with [Tex-107-E](#).

$$PI = 1.6 \times \text{Linear Bar Shrinkage}$$

4. REPORTING

4.1 Report results to the nearest whole number.

5. ARCHIVE VERSION

5.1 Archive version is available.