Test Procedure for

MEASURING SPECIFIC GRAVITY USING A GAS PYCNOMETER

TxDOT Designation: Tex-891-B

*Effective Date: March 2017*

1. **SCOPE**

1.1 Use this method to measure specific gravity using a gas pycnometer.

1.2 The values given in parentheses (if provided) are not standard and may not be exact mathematical conversions. Use each system of units separately. Combining values from the two systems may result in nonconformance with the standard.

2. **APPARATUS**

2.1 *Gas pycnometer*, instrument that uses a gas such as helium or nitrogen to determine the volume of a specimen contained in a sample cell, with an accuracy of at least ±0.2% of the specimen volume.

2.2 *Analytical Balance*, Class A in accordance with Tex-901-K.

3. **SAMPLE PREPARATION**

3.1 Sample in accordance with TxDOT-specified or recommended sampling procedures.

3.2 Ensure the test sample is clean. Cut the test sample into pieces approximately 1/4-in. square, to ensure the total sample measured can meet the test volume recommended by the pycnometer manufacturer.

4. **PROCEDURE**

4.1 Weigh the clean, empty sample cell to the nearest 0.1 mg. Record the empty cell weight.

4.2 Randomly select pieces from the cut sample and place enough material into the sample cell to fill at least 3/4 of the cell total volume. Weigh and record the weight of the sample and sample cell.

4.3 Follow the manufacturer’s instructions to operate the gas pycnometer and measure the specific gravity of the test sample.
4.4 Print the test results and report as specified or recommended.