Test Procedure for

VISCOSITY OF BURNER FUEL

TxDOT Designation: Tex-534-C

Effective Date: August 1999

1. SCOPE

1.1 Use this method to determine the viscosity of burner fuel at the mix plant.

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 *Viscometer,* with a number 1 EZ Viscosity cup, as manufactured by the Paul N. Gardner Company, Inc.

2.2 *Timer or timing device,* graduated in a 0.2 sec. or better, accurate to within ± 0.2 sec. for a 60-sec. interval.

2.3 *Container,* with sufficient depth to immerse the cup completely. A friction-top 1-L or 4-L (1-qt. or 1-gal.) can is satisfactory.

2.4 *Thermometer,* with subdivisions of at least 0.5°C (1°F). A common thermometer with a range of -18–110°C (0–230°F) is satisfactory.

3. MATERIAL

3.1 Material being tested should be visibly homogeneous and free from foreign matter or air bubbles.

4. PROCEDURE

4.1 Obtain a representative sample of burner fuel of sufficient volume to immerse the cup portion of the viscometer completely in the fuel sample.

4.2 Stir the fuel well to give a uniform temperature.

4.3 Allow the cup to remain immersed for 1–2 min. and then lift the cup vertically out of the fuel in a quick, steady motion.

4.4 As the lip of the cup breaks the surface, start the timer.

4.5 During the time of flow, hold the cup vertically no more than 152 mm (6 in.) above the level of the liquid.

4.6 Stop the timer at the first definite break in the stream at the base of the cup.

4.7 Record the efflux time to the nearest ± 0.2 sec. and the temperature to the nearest °C (°F).

4.8 A single measurement may be made, but for greater accuracy, take the average of two or three measurements.

4.9 If the viscosity of a fuel is too high, increasing the fuel temperature may lower the viscosity below the maximum viscosity allowed.

4.10 Do not under any circumstances heat the fuel to a temperature higher than the fuel supplier's maximum recommended storage temperature.

4.11 If there is a question concerning the viscosity of the material, submit a sample to the Construction Division's Materials and Pavements (CST/M&P) laboratory for testing.

4.12 Burner manufacturers typically state the maximum fuel viscosity a burner can handle efficiently in Saybolt Seconds Universal (SSU).

4.13 Table 1 shows the viscosity in SSU and the corresponding EZ Viscosity Cup efflux time in seconds.

Table 1—Viscosity Table

Viscosity, SSU	EZ Viscosity Cup, sec.
80	44.0
85	45.3
90	46.5
95	47.8
100	49.0
105	50.3
110	51.5