

Specific gravity of tall oil

Scope

This method describes a method for determining the specific gravity of tall oil by use of a hydrometer. Knowledge of this property is important in process engineering studies, especially those related to pipelines and tanks. Although this method only describes the use of a hydrometer, other instruments such as density meters can be used.

Apparatus

1. Hydrometer - The hydrometers to be used shall fall in the following nominal specific gravity ranges:
0.850 to 0.900
0.900 to 0.950
0.950 to 1.000
 2. Hydrometer Cylinder - The vessel in which the sample for the gravity test is confined shall be made of clear glass and shall be cylindrical in shape. The inside diameter shall be at least 1.0 inch greater than the outside diameter of the hydrometer to be used in it. The height of the cylinder shall be such that after equilibrium has been reached, the lowest point of the hydrometer will be at least 1.0 inch off the bottom of the cylinder.
 3. Thermometer, range 20 to 102°C graduated in 0.1°C.
 4. Waterbath or oven, capable of maintaining a temperature of 15.6°C (60°F) \pm 0.1 °C during the test.
3. Place the cylinder vertically in the waterbath and let the temperature of the sample rise towards 15.6 \pm 0.1°C. When the temperature of the sample reaches 15.3°C, slowly and carefully lower the hydrometer into the sample to a level two smallest scale divisions below that at which it will float and then release the hydrometer. Allow the equipment to equilibrate.
 4. When the temperature reaches 15.6 \pm 0.1 °C, read the specific gravity, to the nearest 0.001 unit, as the point at which the surface of the sample apparently cuts the hydrometer scale.

Procedure

1. Cool the sample in the original container to about 14°C.
2. Rinse each piece of equipment with a portion of the sample and discard the rinse liquid. Pour the sample into the clean hydrometer cylinder so as to avoid the formation of air bubbles. Remove any air bubbles adhering to the surface.