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American Association State
Highway Transportation Officials Standard
AASHTO No. T74

Standard Test Method for Specific Gravity of Creosote Fractions and Residue¹

This standard is issued under the fixed designation D 369; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

^{€1} NOTE—Section 13 was added editorially in July 1995.

1. Scope

1.1 This test method covers a convenient and accurate means of determining the specific gravity of (1) creosote fractions entirely liquid at 38°C, (2) creosote fractions containing solids at 38°C, and (3) distillation residues. It is also suitable for determining the specific gravity of oil-type preservatives when the quantity available is too small for the hydrometer method as given in Test Method D 368. Test Methods D 38 cover the sampling of wood preservatives prior to testing.

1.2 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

- D 38 Test Methods for Sampling Wood Preservatives Prior to Testing²
- D 246 Test Method for Distillation of Creosote and Creosote-Coal Tar Solutions²
- D 368 Test Method for Specific Gravity of Creosote and Oil-Type Preservatives²
- D 390 Specification for Coal-Tar Creosote for the Preservative Treatment of Piles, Poles, and Timbers for Marine, Land, and Fresh Water Use²
- D 391 Specification for Creosote-Coal Tar Solution²
- E 1 Specification for ASTM Thermometers³

¹ This test method is under the jurisdiction of ASTM Committee D-7 on Wood and is the direct responsibility of Subcommittee D07.06 on Treatments for Wood Products.

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This method is identical in substance with the Standard Method for the Determination of the Specific Gravity of Distillation Fractions which is part of the American Wood-Preservers' Association Standard Methods for Analysis of Creosote and Oil-Type Preservatives (A1). Acknowledgement is made to the American Wood-Preservers' Association for its development of the subject matter covered in this standard.

² *Annual Book of ASTM Standards*, Vol 04.10.

³ *Annual Book of ASTM Standards*, Vol 14.03.

3. Summary of Test Method

3.1 This is a test method for the determination of specific gravity of fractions from the distillation of creosote and creosote-coal tar solutions as measured by means of pycnometer.

4. Significance and Use

4.1 This is a test method to determine the conformance of specified fractions of creosote and creosote-coal tar solutions to Specifications D 390 and D 391.

5. Apparatus

5.1 *Pycnometers*, of the Gay-Lussac type, 10-mL or 25-mL capacity, and of the Hubbard-Carmick type, 25-mL capacity. The Hubbard-Carmick type pycnometer shall be used for determining the specific gravity of distillation residue.

5.2 *Water Bath*, consisting of a vessel filled with sufficient water to permit maintaining a temperature of $38.0 \pm 0.1^\circ\text{C}$.

5.3 *Thermometer*—An ASTM Low Softening Point Thermometer having a range from -2 to $+80^\circ\text{C}$, and conforming to the requirements for Thermometer 15C as prescribed in Specification E 1.

5.4 *Balance and Weights*—An analytical balance and weights accurate to 0.5 mg.

6. Calibration of Pycnometers

6.1 Before calibration, grind the stopper into the neck of the pycnometer by partially filling the pycnometer with water, inserting the stopper into the neck, and rotating the stopper by hand with very light pressure. During this operation, keep the ground surfaces wet and occasionally flush with water. When the wet stopper can be rotated freely with no tendency for the ground surfaces to stick together, using no more pressure than the weight of the stopper, the pycnometer is in condition for calibration.

6.2 Thoroughly clean the pycnometer with hot chromic acid cleaning solution. Empty the acid from the pycnometer, flush thoroughly with distilled water, dry in an oven at about 110°C , cool in a desiccator for 15 to 30 min, and weigh to the nearest 0.001 g. Designate this weight P .

6.3 Fill the pycnometer with freshly boiled distilled water at