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American Association State
Highway Transportation Officials Standard
AASHTO No. T 86

Standard Test Method for Specific Gravity of Creosote and Oil-Type Preservatives[1]

This standard is issued under the fixed designation D 368; 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. Scope

1.1 This test method covers the determination of the specific gravity of oil-type preservatives by means of the hydrometer. Test Methods D 38 covers the sampling of wood preservatives prior to testing. To determine the specific gravity of distillation fractions of such preservatives use Test Method D 369.

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 Testing[2]

D 347 Test Method for Volume and Specific Gravity Correction Tables for Creosote and Coal Tar[2]

D 369 Test Method for Specific Gravity of Creosote Fractions and Residue[2]

D 390 Specification for Coal-Tar Creosote for the Preservative Treatment of Piles, Poles, and Timbers for Marine, Land, and Fresh Water Use[2]

D 391 Specification for Creosote-Coal Tar Solution[2]

E 1 Specification for ASTM Thermometers[3]

E 100 Specification for ASTM Hydrometers[3]

3. Summary of Test Method

3.1 A hydrometer is floated in a totally liquid sample of the preservative solution. The specific gravity is read at the meniscus of the stem and corrected to the desired temperature.

4. Significance and Use

4.1 This is a test method to determine the specific gravity of creosote and creosote-coal tar solutions for conformance to Specifications D 390 and D 391. It may also be used with other oil-type preservatives.

5. Apparatus

5.1 *Hydrometers*—A set of three hydrometers covering the range 1.000 to 1.150 and conforming to the requirements for hydrometers 125H (range 1.000 to 1.050), 126H (range 1.050 to 1.100), and 127H (range 1.100 to 1.150) is prescribed in Specification E 100. If not available, hydrometers (60/60°F) in the range 1.000 to 1.150 of similar accuracy and having a scale length not less than 9.5 mm/0.010 units of specific gravity, may be used.

5.2 *Hydrometer Cylinder*—A glass cylinder having the following approximate dimensions:

Length	approximately 300 mm
Diameter	not less than 32 mm

5.3 *Thermometer*—An ASTM Low Softening Point Thermometer having a range from −2 to 80°C (30 to 180°F), conforming to the requirements for Thermometer 15C (15F) as described in Specification E 1, or other thermometer of suitable range and precision.

6. Procedure

6.1 Place the oil in the cylinder to a depth sufficient to float the hydrometer, and with thorough stirring to ensure uniformity, adjust the temperature to 38°C (100°F), or if not entirely liquid at that temperature, to the lowest temperature at which the oil is completely liquid (Note 1). Insert the hydrometer and allow the instrument to settle until it is in floating equilibrium. Then read the height of the meniscus on the stem of the hydrometer and the temperature to the nearest 0.1°C (0.2°F). Add to the hydrometer reading an increment of specific gravity equivalent to 1 mm on the scale. Then correct this observed specific gravity at the observed temperature to the specific gravity at 38/15.5°C using Table 2 of Test Method D 347.

NOTE 1—It is advantageous to have the cylinder immersed in a bath maintained at the temperature of test.

NOTE 2—See Table 1.

[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 test method is identical in substance with the Standard Method for the Determination of the Specific Gravity of Oil-Type Preservatives which is part of the American Wood-Preservers' Association Standard Methods for Analysis of Creosote and Oil-Type Preservatives (A1 – 62). Acknowledgment is made to the American Wood-Preservers' Association for its development of the subject matter covered in this test method.

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

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

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