
Standard Method of Test for

Distillation of Creosote and Creosote–Coal Tar Solutions

AASHTO Designation: T 62-86 (2004)

ASTM Designation: D 246-89



AASHTO T 62-86 (2004) is identical to ASTM D 246-89 except for the following provisions:

1. Add an additional Section 2.2 immediately following Section 2.1 of ASTM D 246-89 as follows:
2.2 AASHTO Standard:
M 133 Preservatives and Pressure Treatment Processes for Timber
2. Replace Section 12.1.1 of ASTM D 246-89 with the following:
12.1.1 Repeatability—Duplicate determinations by the same operator should not be considered suspect unless the reported percentages differ by more than 1.6.
3. Replace Section 12.1.2 of ASTM D 246-89 with the following:
12.1.2 Reproducibility—The results submitted by two different laboratories should not be considered suspect unless the reported percentages differ by more than 3.2.



Standard Test Method for Distillation of Creosote and Creosote-Coal Tar Solutions¹

This standard is issued under the fixed designation D 246; 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 a procedure for the distillation of creosote and creosote-coal tar solution. Test Methods D 38 covers 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 370 Test Method for Dehydration of 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

3. Summary of Test Method

3.1 A 100-g sample is distilled at a controlled rate in a 300-mL flask. The weights of distillate fractions at a series of specified temperatures and of residue at the maximum specified temperature are determined. The residue and distillates may be tested by appropriate procedures.

4. Significance and Use

4.1 Creosote quality is defined by the boiling ranges of its distillation fractions. The boiling limits of the fractions as determined by this test method must conform to the limits established by Specifications D 390 and D 391 to qualify the creosote as an acceptable preservative for its intended application.

5. Apparatus

5.1 *Flask*—A side-neck distillation flask, as shown in Fig. 1, having the following dimensions:

Diameter of bulb, outside	86.0 ± 1.5 mm
Diameter of neck, inside	22.0 ± 1.0 mm
Diameter of tubulature, inside	10.0 ± 0.5 mm
Height of flask, outside	131.0 ± 1.5 mm
Vertical distance, bottom of bulb, outside, to horizontal tangent at tubulature, inside	93.0 ± 1.5 mm
Length of tubulature	220 ± 5 mm
Angle of tubulature	75 ± 2 deg
Thickness of tubulature wall	1.0 to 1.5 mm

5.2 *Condenser Tube*—A tapered glass condenser, as shown in Figs. 5 and 6, conforming to the following dimensions:

Diameter of small end, outside	12.5 ± 1.5 mm
Diameter of large end, outside	28.5 ± 3.0 mm
Length	360 ± 4 mm
Length of tapered part	100 ± 5 mm

5.3 *Source of Heat*—A source of heat consisting of a bunsen or Meker type gas burner or an electric heater. The electric heater⁴ shall have an output variable to 600 or to 750 W and removable upper and lower refractories as illustrated in Fig. 2. The temperature of the heater shall be controlled by a variable transformer or rheostat suitable for the voltage used, and shall be fitted with a clamp for mounting on a vertical support rod.

5.4 *Flask Shield for Flame Distillation*—A stainless steel shield, fitted with mica windows and lined with 1/8-in. asbestos, with two-part cover made from 1/4-in. "Transite" board of the forms and dimensions shown in Fig. 3.

5.5 *Flask Shield for Electric-Heater Distillation*—A stainless steel shield fitted with mica windows and cover of the same construction and dimensions as those for flame distillation (5.4), except for the height of the shield. See Fig. 4.

5.6 *Gauze*—Two sheets of 16-mesh wire gauze made with 0.51-mm (0.02-in.) diameter Nichrome wire and 125 to 152 mm in diameter or square.

5.7 *Burner Chimney for Flame Distillation*—A cylindrical metal chimney approximately 100 mm high, 95 to 105 mm in diameter, and having a peephole 25 mm in diameter centered about 32 mm below the ring support, used to protect the flame from air currents. The top of the shield should be flanged to permit its being suspended from the ring support.

5.8 *Receivers*—Containers having a nominal capacity of 50 to 125 mL and tared to the nearest 0.05 g.

5.9 *Balance and Weights*, accurate to 0.05 g.

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.

Current edition approved Oct. 27, 1989. Published December 1989. Originally published as D 246 – 26 T. Last previous edition D 246 – 84.

This test method is identical in substance with the Standard Method of Distillation which is part of the American Wood-Preservers' Association Standard Methods for Analysis of Creosote and Oil-Type Preservatives (A1). 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.

⁴ The "Precision" Ful-Kontrol 750-W heater with built-in variable transformer control has been found satisfactory. This heater is available for 115 V, 50/60 Hz only.