



Standard Test Method for Coke Residue of Creosote¹

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1. Scope

1.1 This test method covers the determination of the coke residue (fixed carbon) of creosote, coal tar, and creosote-coal tar solutions. As coal tars vary in their coke residue values, the method is therefore not a quantitative index of the percentage of coal tar in creosote-coal tar solutions. However, by specifying maximum amounts of coke residue as done in AWWA Standards P 2 and P 12, the method does serve to limit the amount of coal tar in such solutions; and by specifying a minimum as in Standard P 12 it ensures the presence of some coal tar. Formerly the test was also used as a check on the cleanliness of AWWA P1 creosote (absence of coal tar).

1.1.1 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.* See Section 6 for specific precautionary statements.

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

2.2 AWWA Standards:

P 2 Creosote–Coal Tar Solution³

P 12 Creosote–Coal Tar Solution for Treating of Marine (Coastal Waters), Piles, and Timbers³

3. Summary of Test Method

3.1 After subjecting the creosote-coal tar solution (oil) under test to the distillation method (Standard A1, Section 2), the weighed residue at 355°C in the distillation flask is thoroughly mixed and a one-gram sample transferred to a special platinum crucible with vented cover. The crucible is then placed in a furnace maintained at $950 \pm 20^\circ\text{C}$ for exactly 7 min. A final weighing gives the amount of coke of the distillation residue. The coke residue of the creosote-coal tar solution under test is calculated from (a) the percentage of distillation residue at 355°C, (b) the weight of the sample of distillation residue transferred to the platinum crucible, and (c) the weight of coke remaining in the platinum crucible after the coking operation.

4. Significance and Use

4.1 This test method is useful as an indicator of the preparation of coal tar in solution with coal tar distillate. The test method can also be used as one element in establishing uniformity of shipments and sources of supply.

5. Apparatus

5.1 *Crucible and Cover*—Platinum crucible and cover with dimensions as shown in Fig. 1. The cover shall be tightly fitting, shall have a depth of between 10.0 and 10.2 mm, and shall have a hole 2.0 mm in diameter at its center. The crucible without cover shall have a capacity of 25 to 30 mL. It shall have an outside diameter at the top of 34 to 35 mm, and outside diameter at the bottom of 19 to 21 mm, and a height of 40 to 45 mm. The weight of crucible with cover shall be 25 to 35 g.

5.2 *Crucible Holder*—The crucible holder shall be made from No. 20 Nichrome wire and a brass ring as shown in Fig. 2. The holder serves as a support for the platinum crucible during the coking operation.

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.

This test method is identical in substance with the Standard Method for the Determination of Coke Residue which is part of the American Wood-Preservers' Association Standard Methods for Analysis of Creosote and Oil-Type Preservatives (A1-78). Acknowledgment is made to the American Wood-Preservers' Association for its development of the subject matter covered in this standard.

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

³ Available from the American Wood-Preservers' Assn., P.O. Box 286, Woodstock, MD 21163-0286.