



Designation: D4715 – 98 (Reapproved 2017)

Standard Test Method for Coking Value of Tar and Pitch (Alcan)¹

This standard is issued under the fixed designation D4715; 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 coking value of tar and pitch having an ash content not over 0.5 %, as determined by Test Method D2415.

1.2 Coking values by this test method are higher than those obtained by Test Method D2416. See the bias statement in Section 13.

1.3 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.4 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:²

D850 Test Method for Distillation of Industrial Aromatic Hydrocarbons and Related Materials

D2415 Test Method for Ash in Coal Tar and Pitch

D2416 Test Method for Coking Value of Tar and Pitch (Modified Conradson)

D4296 Practice for Sampling Pitch

E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

¹ This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products, Liquid Fuels, and Lubricants and is the direct responsibility of Subcommittee D02.05 on Properties of Fuels, Petroleum Coke and Carbon Material.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

3. Summary of Test Method

3.1 A test portion of the tar or pitch is heated for a specified time at $550\text{ }^{\circ}\text{C} \pm 10\text{ }^{\circ}\text{C}$ in an electric furnace. The percentage of residue is reported as the coking value.

4. Significance and Use

4.1 This test method is useful for indicating the relative coke-forming propensities and for evaluating and characterizing tars and pitches. The test method can also be used as one element in establishing the uniformity of shipments or sources of supply.

5. Apparatus

5.1 *Porcelain Crucible*, tall form, 30 mL capacity, height of 37 mm and diameter 43 mm, with lids of the overlapping type.

5.2 *Nickel Crucible*, 100 mL to 130 mL capacity, height of 64 mm and diameter of 60 mm, with lids.

5.3 *Wire Support*—Stainless steel wire support, fitting into the nickel crucible, used to keep the porcelain crucible (5.1) in place within the nickel crucible (5.2). This support shall allow a separation of $10\text{ mm} \pm 1\text{ mm}$ between the bases of the two crucibles (see Fig. 1).

5.4 *Crucible Tray*—A suitable crucible tray to support the nickel crucibles should be made so that there is at least 7 mm of space between the bottom of the crucible and the base of the furnace.

5.5 *Electric Furnace*, capable of being controlled at $550\text{ }^{\circ}\text{C} \pm 10\text{ }^{\circ}\text{C}$.

5.6 *Sieves*—1 mm (U.S. Standard No. 18), 300 μm (U.S. Standard No. 50) and 212 μm (U.S. Standard No. 70), conforming to Specification E11.

6. Reagents and Materials

6.1 *Calcined Petroleum Coke*—Use the fraction which passes a 1 mm mesh sieve (U.S. Standard No. 18) and is retained by a 212 μm mesh sieve (U.S. Standard No. 70).

7. Bulk Sampling

7.1 Samples from shipments shall be taken in accordance with Practice D4296, and shall be free of foreign substances. Thoroughly mix the sample immediately before removing a representative portion for the determination or for dehydration.