



Standard Test Method for Quinoline-Insoluble (QI) Content of Tar and Pitch¹

This standard is issued under the fixed designation D 2318; 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 quinoline-insoluble matter (QI) in tar and pitch.

1.2 Since this test method is empirical, strict adherence to all details of the procedure is necessary.

1.3 The values stated in SI units are to be regarded as the 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 and health practices and determine the applicability of regulatory limitations prior to use.* See Section 7.

2. Referenced Documents

2.1 *ASTM Standards:*²

D 71 Test Method for Relative Density of Solid Pitch and Asphalt (Displacement Method)

D 95 Test Method for Water in Petroleum Products and Bituminous Materials by Distillation

D 329 Specification for Acetone

D 362 Specification for Industrial Grade Toluene³

D 850 Test Method for Distillation of Industrial Aromatic Hydrocarbons and Related Materials

D 4296 Practice for Sampling Pitch

E 1 Specification for ASTM Thermometers

E 11 Specification for Wire Cloth and Sieves for Testing Purposes

3. Summary of Test Method

3.1 The sample is digested in hot quinoline and filtered. The insoluble material is washed, dried, and weighed.

¹ This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products 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³ Withdrawn.

4. Significance and Use

4.1 This test method is useful in evaluating and characterizing tar and pitch, and as one element in establishing the uniformity of shipments and sources of supply.

5. Apparatus

5.1 *Filtering Crucibles*, porcelain, with fine-porosity bottom, 25 to 40-mL capacity, high-form, maximum pore diameter, 7 μ m.

5.2 *Filter Apparatus*—Filter flask and tube with crucible adapter.

5.3 *Sieves*—U. S. Standard 600- μ m (No. 30) and 250- μ m (No. 60), conforming to Specification **E 11**.

5.4 *Electric Hot Plate or Water Bath*, maintained at $75 \pm 5^\circ\text{C}$.

6. Reagents and Materials

6.1 *Quinoline, Refined*, meeting the following requirements:

6.1.1 The quinoline shall distill from 5 to 95 % within a range of 2°C that shall include the temperature of 237.4°C after corrections for barometric pressure and emergent stem have been applied. The distillation shall be carried out in accordance with Test Method **D 850** using a total immersion thermometer with a range from 195 to 305°C , graduated in 0.5°C , and conforming to the requirements for Thermometer 69C as described in Specification **E 1**.

6.1.2 The quinoline shall have a specific gravity at $15.5/15.5^\circ\text{C}$ of 1.092 to 1.098, as determined by Test Method **D 71**, or other method of equivalent accuracy.

6.1.3 The quinoline shall be clear and light in color and shall contain less than 0.5 volume % of water as determined by Test Method **D 95**. If not, redistill the quinoline in all-glass apparatus, discarding the first 5 % and collecting the next 90 %. If the quinoline contains suspended matter but is clear, light in color, and contains less than 0.5 % water, filter the quinoline through a crucible containing 5 g of Celite Filter Aid.

6.1.4 Store the quinoline in a tightly closed, dark bottle.

6.2 *Toluene, Industrial Pure*, meeting Specification **D 362**.

6.3 *Acetone*, meeting Specification **D 329**.

6.4 *Concentrated Hydrochloric Acid*.