



Designation: D2415 – 20

## Standard Test Method for Ash in Coal Tar and Pitch<sup>1</sup>

This standard is issued under the fixed designation D2415; 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 reappraisal. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reappraisal.

### 1. Scope\*

1.1 This test method covers the determination of the ash content of tar and pitch.

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

1.3 *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.*

1.4 *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:*<sup>2</sup>

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

**D4296 Practice for Sampling Pitch**

**E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves**

### 3. Summary of Test Method

3.1 The sample is carefully volatilized and burned in a muffle furnace or by other suitable means, after which the carbonaceous residue is completely oxidized and the remaining ash stabilized at  $900\text{ }^{\circ}\text{C} \pm 10\text{ }^{\circ}\text{C}$  in the muffle furnace.

### 4. Significance and Use

4.1 This test method determines the amount of inorganic matter in the sample.

<sup>1</sup> 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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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

### 5. Apparatus

5.1 *Muffle Furnace*—A muffle furnace with good air circulation and capable of having its temperature regulated at  $900\text{ }^{\circ}\text{C} \pm 10\text{ }^{\circ}\text{C}$ .

5.2 *Dish or Crucible*, porcelain, silica, or platinum, having a capacity of 35 mL to 45 mL and a diameter at the top of 55 mm to 60 mm.

5.3 *Sieve*, U.S. Standard 600  $\mu\text{m}$  (No. 30), conforming to Specification E11.

### 6. Bulk Sampling

6.1 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.

### 7. Dehydration of Sample

7.1 *Hard Pitch*—If the solid bulk sample contains free water, air-dry a representative portion in a forced draft oven at  $50\text{ }^{\circ}\text{C}$ .

7.2 *Soft Pitch*—If the presence of water is indicated by surface foam on heating, maintain a representative portion of the bulk sample at a temperature between  $125\text{ }^{\circ}\text{C}$  and  $150\text{ }^{\circ}\text{C}$  in an open container until the surface is free of foam. Take care not to overheat, and remove heat source immediately when foam subsides.

7.3 *Tar*—Dehydrate a representative portion of the bulk sample in accordance with Test Method D850, but stop the distillation when the temperature reaches  $170\text{ }^{\circ}\text{C}$ . Separate any oil from the water which has distilled over (if crystals are present, warm sufficiently to ensure their solution), and thoroughly mix the oil with the residual tar in the still after the latter has cooled to a moderate temperature.

### 8. Preparation of Working Sample

8.1 *Hard Pitch*—If the pitch can be crushed at room temperature, prepare a 20 g working sample by suitable crushing, mixing, and quartering of a representative portion of the dry sample. The crushing can be done with a small jaw crusher and a mullite mortar and pestle. No particle in the representative sample shall be larger than 5 mm in any dimension. Crush this sample so that all of it will pass the 600  $\mu\text{m}$  (No. 30) sieve.

\*A Summary of Changes section appears at the end of this standard