



Standard Test Method for Ash in Coal Tar and Pitch¹

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

2. Referenced Documents

2.1 *ASTM Standards:*²

D 370 Test Method for Dehydration of Oil-Type Preservatives

D 4296 Practice for Sampling Pitch

E 11 Specification for Wire Cloth and Sieves for Testing Purposes

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°C in the muffle furnace.

4. Significance and Use

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

5. Apparatus

5.1 *Muffle Furnace*—A muffle furnace with good air circulation and capable of having its temperature regulated at 900 \pm 10°C.

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.

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

5.3 *Sieve*, U.S. Standard 600- μ m (No. 30), conforming to Specification **E 11**.

6. Bulk Sampling

6.1 Samples from shipments shall be taken in accordance with Practice **D 4296** 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°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 and 150°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 **D 370**, but stop the distillation when the temperature reaches 170°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- μ m (No. 30) sieve.

8.2 *Soft Pitch*—If the pitch is too soft to grind and too sticky to mix, heat a representative portion of the dry sample to the lowest temperature that will permit passage through the 600- μ m (No. 30) sieve, taking care to avoid excessive loss of