



## Standard Test Method for Toluene-Insoluble (TI) Content of Tar and Pitch (Short Method)<sup>1</sup>

This standard is issued under the fixed designation D 4312; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

<sup>e1</sup> NOTE—Paragraph 1.3 was added editorially in November 2000.

### 1. Scope

1.1 This test method covers the determination of toluene-insoluble matter (TI) 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 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 and health practices and determine the applicability of regulatory limitations prior to use. Specific hazard statements are given in Section 7.*

### 2. Referenced Documents

#### 2.1 ASTM Standards:

**D 95** Test Method for Water in Petroleum Products and Bituminous Materials by Distillation<sup>2</sup>

**D 329** Specification for Acetone<sup>3</sup>

**D 362** Specification for Industrial Grade Toluene<sup>4</sup>

**D 370** Test Method for Dehydration of Oil-Type Preservatives<sup>5</sup>

**D 850** Test Method for Distillation of Industrial Aromatic Hydrocarbons and Related Materials<sup>2</sup>

**D 4072** Test Method for Toluene-Insoluble (TI) Content of Tar and Pitch<sup>6</sup>

**D 4296** Practice for Sampling Pitch<sup>6</sup>

**E 11** Specification for Wire-Cloth Sieves for Testing Purposes<sup>7</sup>

### 3. Summary of Test Method

3.1 The sample is digested, then extracted with hot toluene in an alundum thimble. The insoluble matter is dried and weighed.

### 4. Significance and Use

4.1 This test method is useful for evaluating and characterizing tars and pitches and is one element in establishing the uniformity of shipment or sources of supply.

### 5. Apparatus

5.1 *Extraction Apparatus*, flask with metal cap condenser as shown in Fig. 1.

5.2 *Extraction Thimbles*, Alundum AN 485 coarse (formerly RA 98), 30 mm in diameter by 80 mm in height with flat bottom.

5.3 *Sieves*, U.S. Standard 600- $\mu\text{m}$  (No. 30) and 250- $\mu\text{m}$  (No. 60), conforming to Specification E 11.

5.4 *Heater*, having a minimum capacity of 300 W per unit. A hot plate or other heaters that maintain the proper reflux rate are acceptable.

### 6. Reagents

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

6.2 *Acetone*, meeting the requirements of Specification D 329.

### 7. Hazards

7.1 Since toluene is a toxic and flammable substance, all working areas should be efficiently hooded and kept free of sparks and flames.

### 8. Bulk Sampling

8.1 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.

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.05.0F on Industrial Pitches.

Current edition approved Sept. 10, 1995. Published November 1995. Originally published as D 4312 – 83. Last previous edition D 4312 – 95.

<sup>2</sup> *Annual Book of ASTM Standards*, Vol 05.01.

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 06.04.

<sup>4</sup> *Annual Book of ASTM Standards*, Vol 06.03.

<sup>5</sup> *Annual Book of ASTM Standards*, Vol 04.10.

<sup>6</sup> *Annual Book of ASTM Standards*, Vol 05.02.

<sup>7</sup> *Annual Book of ASTM Standards*, Vol 14.02.