Designation: D4072 – 98 (Reapproved 2018)

Standard Test Method for Toluene-Insoluble (TI) Content of Tar and Pitch[1]

This standard is issued under the fixed designation D4072; 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 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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.* For specific hazard information, see Section 7.

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]

D95 Test Method for Water in Petroleum Products and Bituminous Materials by Distillation

D362 Specification for Industrial Grade Toluene (Withdrawn 1989)[3]

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 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 as one element in establishing the uniformity of shipments or sources of supply.

5. Apparatus

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

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

5.3 *Thimble Cover,* Paper cone, made by wetting with water a 70 mm filter paper normally folded in a small glass funnel, and drying the funnel in an oven with the paper cone in place.

5.4 *Sieves,* U.S. Standard 600 µm (No. 30) and 250 µm (No. 60), conforming to Specification E11.

5.5 *Heater,* having a minimum capacity of 300 W per unit.

6. Reagents

6.1 *Toluene, Industrial Pure,* meeting Specification D362. (**Warning—**Flammable.)

6.2 *Concentrated Hydrochloric Acid.* (**Warning—** Corrosive.)

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.

7.2 Observe proper laboratory procedures for handling and diluting hydrochloric acid.

8. Bulk Sampling

8.1 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.

[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] The last approved version of this historical standard is referenced on www.astm.org.