Designation: ~~D4422 – 13~~ D4422 – 19

Standard Test Method for Ash in Analysis of Petroleum Coke[1]

This standard is issued under the fixed designation D4422; 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 ash content of petroleum coke.

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~~ safety, health, and ~~health~~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:*[2]

D346 Practice for Collection and Preparation of Coke Samples for Laboratory Analysis

D2013 Practice for Preparing Coal Samples for Analysis

3. Summary of Test Method

3.1 A representative sample of petroleum coke is dried, ground, and ashed in a muffle furnace at ~~700~~700 °C to ~~750°C.~~750 °C. The residue or ash is expressed as a percentage of the dry petroleum coke.

4. Significance and Use

4.1 The ash content is one of the properties used to evaluate petroleum coke and indicates the amount of undesirable residue present. Acceptable ash content varies with the intended use.

5. Interferences

5.1 High sulfur content of the furnace gases, regardless of the source of the sulfur, can react with an alkaline ash to produce erratic results. The furnace must be swept with air to achieve oxidation and to decrease the sulfur content of the gases.

5.2 Preparation and testing of the analysis sample must neither remove nor add ash. Improper dividing, sieving, and crushing equipment, and some muffle furnace lining material can contaminate the sample.

6. Apparatus

6.1 *Crucibles,* low wide form glazed porcelain or platinum, ~~30 mL~~30 mL capacity.

6.2 *Muffle Furnace,* with temperature control between ~~700~~700 °C and ~~750°C~~750 °C and equipped with a means to regulate air circulation.

6.3 *Analytical Balance* capable of weighing to ~~0.1 mg.~~0.1 mg.

6.4 *Drying Oven* controlled at ~~110~~110 °C ± ~~5°C.~~5 °C.

6.5 *Desiccator.*

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[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.

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