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.

Designation: D5236 – 18a

Standard Test Method for Distillation of Heavy Hydrocarbon Mixtures (Vacuum Potstill Method)[1]

This standard is issued under the fixed designation D5236; 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 procedure for distillation of heavy hydrocarbon mixtures having initial boiling points greater than 150 °C (300 °F), such as heavy crude oils, petroleum distillates, residues, and synthetic mixtures. It employs a potstill with a low pressure drop entrainment separator operated under total takeoff conditions. Distillation conditions and equipment performance criteria are specified and typical apparatus is illustrated.

1.2 This test method details the procedures for the production of distillate fractions of standardized quality in the gas oil and lubricating oil range as well as the production of standard residue. In addition, it provides for the determination of standard distillation curves to the highest atmospheric equivalent temperature possible by conventional distillation.

1.3 The maximum achievable atmospheric equivalent temperature (AET) is dependent upon the heat tolerance of the charge. For most samples, a temperature up to 565 °C (1050 °F) can be attained. This maximum will be significantly lower for heat sensitive samples (for example, heavy residues) and might be somewhat higher for nonheat sensitive samples.

1.4 The recommended distillation method for crude oils up to cutpoint 400 °C (752 °F) AET is Test Method D2892. This test method can be used for heavy crude oils with initial boiling points greater than 150 °C (302 °F). However, distillation curves and fraction qualities obtained by these methods are not comparable.

1.5 This test method contains the following annexes:

1.5.1 *Annex A1*—Test Method for Determination of Temperature Response Time,

1.5.2 *Annex A2*—Practice for Calibration of Sensors,

1.5.3 *Annex A3*—Test Method for Dehydration of a Wet Sample of Oil,

1.5.4 *Annex A4*—Practice for Conversion of Observed Vapor Temperature to Atmospheric Equivalent Temperature (AET), and

1.5.5 *Annex A5*—Test Method for Determination of Wettage.

1.6 The values stated in SI units are to be regarded as standard. The values given in parentheses after SI units are provided for information only and are not considered standard.

1.7 *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 warnings, see 6.5.4.2, 6.5.6.3, 6.9.3, 9.5, 9.7, and A2.3.1.3.

1.8 **WARNING**—Mercury has been designated by many regulatory agencies as a hazardous substance that can cause serious medical issues. Mercury, or its vapor, has been demonstrated to be hazardous to health and corrosive to materials. Use Caution when handling mercury and mercury-containing products. See the applicable product Safety Data Sheet (SDS) for additional information. The potential exists that selling mercury or mercury-containing products, or both, is prohibited by local or national law. Users must determine legality of sales in their location.

1.9 *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]

[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 D02.08 on Volatility.

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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

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