



Designation: D6379 – 21<sup>ε1</sup>



Designation: 436/20

## Standard Test Method for Determination of Aromatic Hydrocarbon Types in Aviation Fuels and Petroleum Distillates—High Performance Liquid Chromatography Method with Refractive Index Detection<sup>1,2</sup>

This standard is issued under the fixed designation D6379; 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>ε1</sup> NOTE—Editorially corrected 9.4.3.1 in October 2021.

### INTRODUCTION

This test method is intended to be technically equivalent to IP 436-20 with an identical title. The ASTM format for test methods has been used, and where possible, equivalent ASTM test methods have replaced the IP or ISO standards.

The test method is intended to be used as one of several possible alternative instrumental test methods that are aimed at quantitative determination of hydrocarbon types in fuels. This does not imply that a correlation necessarily exists between this and any other test method intended to give this information, and it is the responsibility of the user to determine such correlation if necessary.

### 1. Scope\*

1.1 This test method covers a high performance liquid chromatographic test method for the determination of mono-aromatic and di-aromatic hydrocarbon contents in aviation kerosenes and petroleum distillates boiling in the range from 50 °C to 300 °C, such as Jet A or Jet A-1 fuels. The total aromatic content is calculated from the sum of the individual aromatic hydrocarbon-types.

NOTE 1—Samples with a final boiling point greater than 300 °C that contain tri-aromatic and higher polycyclic aromatic compounds are not determined by this test method and should be analyzed by Test Method D6591 or other suitable equivalent test methods.

1.2 This test method is applicable to distillates containing from 0.8 % to 44.0 % by mass mono-aromatic hydrocarbons, 0.23 % to 6.20 % by mass di-aromatic hydrocarbons, and

0.7 % to 50 % by mass total aromatics. Although this method generates results in m/m, results may also be quoted in v/v.

1.3 The precision of this test method has been established for kerosene boiling range distillates containing from 0.40 % to 44.0 % by mass mono-aromatic hydrocarbons, 0.02 % to 6.20 % by mass di-aromatic hydrocarbons, and 0.40 % to 50.0 % by mass total aromatics. If results are quoted in volume, the precision is 0.3 % to 41.4 % by volume mono-aromatics, 0.01 % to 5.00 % by volume di-aromatics, and 0.30 % to 46.3 % by volume total aromatics. As calculated by IP 367-1.

1.4 Compounds containing sulfur, nitrogen, and oxygen are possible interferents. Mono-alkenes do not interfere, but conjugated di- and poly-alkenes, if present, are possible interferents.

1.5 *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.*

1.6 *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.*

<sup>1</sup> 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 D02.04.0C on Liquid Chromatography. The technically equivalent standard as referenced is under the jurisdiction of the Energy Institute Subcommittee SC-G-2.

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<sup>2</sup> This test method has been developed through the cooperative effort between ASTM and the Energy Institute, London. ASTM and IP standards were approved by ASTM and EI technical committees as being technically equivalent but that does not imply both standards are identical.

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