

AMERICAN SOCIETY FOR TESTING AND MATERIALS

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AMERICAN STANDARD Z11.110-1962
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METHOD 3701.3—FEDERAL TEST
METHOD STANDARD NO. 791

Standard Method for

CALCULATION OF OLEFINS AND AROMATICS IN PETROLEUM DISTILLATES FROM BROMINE NUMBER AND ACID ABSORPTION¹



ASTM Designation: D 875 - 64

ADOPTED, 1964.²

This Standard of the American Society for Testing and Materials is issued under the fixed designation D 875; the final number indicates the year of original adoption as standard or, in the case of revision, the year of last revision.

Scope

1. (a) This method describes the calculations of the percentage of olefins and aromatics in (1) straight-run, reformed, cracked gasolines and commercial gasolines that have a 90 per cent boiling point below 392 F (200 C); and (2) turbine fuel and kerosine, etc., boiling below 600 F (316 C) and having a bromine number less than 20. The bromine number is determined in accordance with ASTM Method D 1159, Test for Bromine Number of Petroleum Distillates and Commercial Aliphatic Olefins by Electrometric Titration,³ and the 90 per cent boiling point in accordance with ASTM Method D 86, Test for Distillation of Petroleum Products.³

¹ Under the standardization procedure of the Society, this method is under the jurisdiction of the ASTM Committee D-2 on Petroleum Products and Lubricants.

² Adopted as standard August 31, 1964, by action of the Society at the Annual Meeting and confirming letter ballot.

Prior to adoption as standard, this method was published as tentative from 1946 to 1964, being revised in 1953, 1960, and 1962.

In 1964, this method was adopted as standard without revision.

³ Appears in this publication.

(b) The method is not intended for synthetic olefinic blends of pure or nearly pure compounds having a boiling range of more than 25 F (see Note 4).

(c) Sulfur, nitrogen, or oxygen compounds (see Note 3), if present in substantial concentration (1 per cent or more), will reduce the accuracy of the method.

Summary

2. (a) *Short Method.*—Olefins plus aromatics are absorbed by a mixture of sulfuric acid and phosphorus pentoxide (ASTM Method D 1019). Olefins are calculated from bromine number (ASTM Method D 1159) and aromatics by difference.

NOTE 1.—For commercial gasolines, it is often desirable to depentanize and analyze the C₆ and lighter and C₆+ fractions separately. This is called the "short method with depentanization."⁴

(b) *Cut Analysis Method* (see Note 4). The sample is depentanized, and olefins are determined on the C₆ and lighter frac-

⁴ ASTM Method D 2001, Test for Depentanization of Gasoline and Naphthas, is suitable for the short method. It appears in this publication.