



Designation: D 2710 – 99

An American National Standard



Designation: 299/92 (98)

Standard Test Method for Bromine Index of Petroleum Hydrocarbons by Electrometric Titration¹

This standard is issued under the fixed designation D 2710; 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 amount of bromine-reactive material in petroleum hydrocarbons and is thus a measure of trace amounts of unsaturates in these materials. It is applicable to materials having bromine indexes below 1000.

1.2 This test method is applicable only to essentially olefin-free hydrocarbons or mixtures that are substantially free from material lighter than isobutane and have a distillation end point under 288°C (550°F).

1.3 The values stated in SI units are to be regarded as standard. The values stated in inch-pound units are for information only.

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 and health practices and determine the applicability of regulatory limitations prior to use.* For specific hazard statements, see Sections 7 and 8.

NOTE 1—This procedure has been cooperatively tested on materials with bromine indexes in the range from 100 to 1000. These materials include petroleum distillates such as straight-run and hydrocracked naphtha, reformer feed, kerosine, and aviation turbine fuel.

NOTE 2—Materials with bromine index greater than 1000 should be tested for bromine number using Test Method D 1159/IP 130.

NOTE 3—Bromine index of industrial aromatic hydrocarbons should be determined using Test Method D 1492 or D 5776.

2. Referenced Documents

2.1 ASTM Standards:

D 1159 Test Method for Bromine Number of Petroleum Distillates and Commercial Aliphatic Olefins by Electrometric Titration²

¹ This test method is under the jurisdiction of ASTM Committee D-2 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.04.OD on Physical Methods.

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In the IP, this test method is under the jurisdiction of the Standardization Committee.

² Annual Book of ASTM Standards, Vol 05.01.

D 1492 Test Method for Bromine Index of Aromatic Hydrocarbons by Coulometric Titration³

D 5776 Test Method for Bromine Index of Aromatic Hydrocarbons by Electrometric Titration³

3. Terminology

3.1 Definition:

3.1.1 *bromine index*—the number of milligrams of bromine that will react with 100 g of sample under the conditions of the test.

4. Summary of Test Method

4.1 A known mass of the sample dissolved in a specified solvent is titrated with standard bromide-bromate solution. The end point is indicated by a dead stop electrometric titration apparatus when the presence of free bromine causes a sudden change in the electrical conductivity of the system.

5. Significance and Use

5.1 This test method provides a measure of trace amounts of unsaturated hydrocarbons in petroleum distillates boiling up to 288°C (550°F). An estimate of the quantity of these materials is useful in assessing the suitability of the lighter fractions for use as reaction solvents.

6. Apparatus

6.1 *Electrometric End Point Titration Apparatus*—Any apparatus designed to perform titrations to pre-set end points (see Note 4) may be used in conjunction with a high-resistance polarizing current supply capable of maintaining approximately 0.8 V across two platinum electrodes and with a sensitivity such that a voltage change of approximately 50 mV at these electrodes is sufficient to indicate the end point. Other types of commercially available electric titrimeters, including certain pH meters, have also been found to be suitable.

NOTE 4—Pre-set end point indicated with polarized electrodes provides a detection technique similar to the dead stop technique specified in previous versions of this test method.

³ Annual Book of ASTM Standards, Vol 06.04.