



Standard Test Method for Calculation of Volume and Weight of Industrial Aromatic Hydrocarbons [Metric]¹

This standard is issued under the fixed designation D 1555M; 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 The tables in this test method cover calculating the weight and volume of benzene, toluene, mixed xylenes, styrene, *o*-xylene, *m*-xylene, *p*-xylene, cumene, ethylbenzene, 148.9 to 176.7°C (300 to 350°F) aromatic hydrocarbons, 176.7 to 204.4°C (350 to 400°F) aromatic hydrocarbons, and cyclohexane. A procedure is given for calculating the volume at 15.0°C from an observed volume at $t^\circ\text{C}$. Table 1 lists the density in kilograms per litre at 15.0°C for high purity chemicals.

1.2 A procedure for the calculation of density in kilograms per litre at 15.0°C of materials of lower purity is provided.

NOTE 1—The purchaser and the seller should agree on a reasonable policy in regard to rounding of final numbers in all computations. Rounding the final weight or volume to not more than five significant digits is, in most cases, consistent with the experimental reliability of the data.

NOTE 2—An alternative test method is Test Method D 4052.

1.3 This test method is the SI companion of Test Method D 1555.

1.4 The following applies to all specified limits in this test method: for purpose of determining conformance with this test method, an observed value or calculated value shall be rounded off “to the nearest unit” in the last right-hand digit used on expressing the specification limit, in accordance with the rounding-off method of Practice E 29.

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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

¹ This test method is under the jurisdiction of ASTM Committee D16 on Aromatic Hydrocarbons and Related Chemicals and is the direct responsibility of Subcommittee D16.01 on Benzene, Toluene, Xylenes, Cyclohexane, and Their Derivatives.

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TABLE 1 Density Data

Product	Density in Vacuum at 15.0°C, g/mL	Density in Air at 15°C, kg/L
Benzene	0.8842	0.8831
Cumene	0.8660	0.8649
Cyclohexane	0.7832	0.7821
Ethylbenzene	0.8714	0.8703
<i>m</i> -Xylene	0.8684	0.8673
<i>o</i> -Xylene	0.8843	0.8832
<i>p</i> -Xylene	0.8654	0.8643
Styrene	0.9106	0.9095
Toluene	0.8716	0.8705

D 941 Test Method for Density and Relative Density (Specific Gravity) of Liquids by Lipkin Bicapillary Pycnometer²

D 1217 Test Method for Density and Relative Density (Specific Gravity) of Liquids by Bingham Pycnometer²

D 1555 Test Method for Calculation of Volume and Weight of Industrial Aromatic Hydrocarbons³

D 3505 Test Method for Density or Relative Density of Pure Liquid Chemicals³

D 4052 Test Method for Density and Relative Density of Liquids by Digital Density Meter⁴

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications⁵

E 201 Test Method for Calculation of Volume and Weight of Industrial Chemical Liquids⁶

E 380 Practice for Use of the International System of Units (SI) (the Modernized Metric System)⁷

3. Significance and Use

3.1 This test method is suitable for use in calculating weights and volumes of products outlined in Section 1. The information gained from this test method can be used for

² *Annual Book of ASTM Standards*, Vol 05.01.

³ *Annual Book of ASTM Standards*, Vol 06.04.

⁴ *Annual Book of ASTM Standards*, Vol 05.02.

⁵ *Annual Book of ASTM Standards*, Vol 14.02.

⁶ *Annual Book of ASTM Standards*, Vol 15.05.

⁷ Discontinued 1997. Replaced by IEEE/ISO 10. Available from ASTM Headquarters.