



Designation: D 4734 – 98

Standard Specification for Refined Benzene-545¹

This standard is issued under the fixed designation D 4734; 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 specification covers benzene-545.

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

1.3 Consult current OSHA regulations, supplier’s Material Safety Data Sheets, and local regulations for all materials used in this specification.

2. Referenced Documents

2.1 *ASTM Standards:*

D 848 Test Method for Acid Wash Color of Industrial Aromatic Hydrocarbons²

D 852 Test Method for Solidification Point of Benzene²

D 1209 Test Method for Color of Clear Liquids (Platinum-Cobalt Scale)²

D 1492 Test Method for Bromine Index of Aromatic Hydrocarbons by Coulometric Titration²

D 1685 Test Method for Traces of Thiophene in Benzene by Spectrophotometry²

D 3437 Practice for Sampling and Handling Liquid Cyclic Products²

D 4017 Test Method for Water in Paints and Paint Materials by Karl Fisher Method³

D 4045 Test Method for Sulfur in Petroleum Products by Hydrogenolysis and Rateometric Colorimetry⁴

D 4492 Test Method for Analysis of Benzene by Gas Chromatography²

D 4629 Test Method for Trace Nitrogen in Liquid Petroleum Hydrocarbons by Syringe/Inlet Oxidative Combustion and Chemiluminescence Detection⁴

D 4735 Test Method for Determination of Trace Thiophene in Refined Benzene by Gas Chromatography²

D 5386 Test Method for Color of Liquids Using Tristimulus Colorimetry²

D 5776 Test Methods for Bromine Index of Aromatic Hydrocarbons by Electrometric Titration²

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

2.2 *Other Document:*

OSHA Regulations, 29 CFR, paragraphs 1910.1000 and 1910.1200⁶

3. Properties

3.1 Benzene-545 shall conform to the following requirements:

Property	Specification	ASTM Test Method
Benzene, min, weight %	99.90	D 4492
Sulfur, max, mg/kg	1	D 4045
Thiophene, max, mg/kg	0.6	D 1685 or D 4735
Toluene, max, weight%	0.05	D 4492
Nonaromatic hydrocarbons, max, weight %	0.10	D 4492
Nitrogen	(if needed)	D 4629
1,4 Dioxane	(if needed)	D 4492
Acid wash color, max	pass with 1	D 848
Bromine index, max	20	D 1492 or D 5776
Water	(if needed)	D 4017
Appearance	A	...
Color, max, Pt–Co scale	20	D 1209 or D 5386
Solidification point, anhydrous basis, min, °C	5.45	D 852

^AClear liquid at 18.3 to 25.6°C.

4. Sampling

4.1 The material shall be sampled in accordance with Practice D 3437.

5. Keywords

5.1 benzene; benzene-545; purity

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

⁶ Available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

¹ This specification 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.

Current edition approved April 10, 1998. Published September 1998. Originally published as D 4734 – 87. Last previous edition D 4734 – 96b.

² *Annual Book of ASTM Standards*, Vol 06.04.

³ *Annual Book of ASTM Standards*, Vol 06.01.

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