Standard Specifications for
INDUSTRIAL 90 BENZENE[1,2]

ASTM Designation: D 361 – 65

Replaces Former Designation D 837

ADOPTED, 1936; REVISED, 1961, 1965.[3]

This Standard of the American Society for Testing and Materials is issued under the fixed designation D 361; the final number indicates the year of original adoption as standard or, in the case of revision, the year of last revision.

Scope

1. These specifications cover industrial 90 benzene.

Properties

2. Industrial 90 benzene shall conform to the following requirements:

Specific gravity	
15.56/15.56 C	0.870 to 0.886
20/20 C[a]	0.866 to 0.882
Color	not darker than 20 on the platinum-cobalt scale (ASTM Method D 1209), or the visible color shall be not darker than standard by Method D 853.
Distillation range at 760 mm pressure:	
Initial boiling point, min	78 C
Percentage recovered at 100 C, min	90
Dry point, max	120 C
Odor	characteristic aromatic hydrocarbon odor as agreed upon between the manufacturer and the purchaser, non-residual.
Water	not sufficient to show turbidity at 20 C
Acidity	not more than 0.005 per cent by weight (free acid calculated as acetic acid) equivalent to 0.047 mg KOH (0.0334 mg NaOH) or no free acid; that is, no evidence of acidity as defined in Method D 847.
Acid wash color	not darker than No. 6 color standard
Sulfur compounds	free of H_2S and SO_2
Corrosion, ½ hr at 100 C	copper strip shall not show greater discoloration than Class 2 in Method D 1616[3a]

[a] In case of dispute, experimental values for 15.56/15.56 C shall be controlling.

[1] Under the standardization procedure of the Society, these specifications are under the joint jurisdiction of the ASTM Committee D-1 on Paint, Varnish, Lacquer, and Related Products and the ASTM Committee D-16 on Industrial Aromatic Hydrocarbons and Related Materials.

[2] This material was formerly known as "industrial 90 per cent benzol."

[3] Latest revision accepted August 31, 1965, by action of the Society at the Annual Meeting and confirming letter ballot.

Prior to adoption as standard, these specifications were published as tentative from 1933 to 1936.

[3a] Method of Test for Copper Corrosion by Mineral Spirits (Copper Strip Test) (ASTM Designation: D 1616), which appears in this publication.

Methods of Test

3. The material shall be sampled and the properties enumerated in these specifications shall be determined in accordance with the following methods:

(*a*) *Sampling.*—Section 2 of the Methods of Sampling and Testing Volatile Solvents for Use in Paint, Varnish, Lacquer, and Related Products (ASTM Designation: D 268);[4] or Methods of Sampling Petroleum and Petroleum Products (ASTM Designation: D 270).[5]

(*b*) *Specific Gravity.*—Any convenient method that is accurate to the third decimal place (Note 1).

NOTE 1.—See Method of Test for Specific Gravity of Industrial Aromatic Hydrocarbons and Related Materials (ASTM Designation: D 891);[4] Test for Density and Specific Gravity of Liquids by Lipkin Bicapillary Pycnometer (ASTM Designation: D 941);[6] Specific Gravity of Petroleum Liquids, Hydrometer Method (ASTM Designation: D 1298).[6]

(*c*) *Color.*—Method of Test for Color of Clear Liquids (Platinum-Cobalt Scale) (ASTM Designation: D 1209);[4] or Test for Color, and Hydrogen Sulfide and Sulfur Dioxide Content (Qualitative) of Industrial Aromatic Hydrocarbons (ASTM Designation: D 853).[4]

(*d*) *Distillation.*—Method of Test for Distillation Range of Volatile Organic Liquids (ASTM Designation: D 1078);[4] or Method of Test for Distillation of Industrial Aromatic Hydrocarbons and Related Materials (ASTM Designation: D 850)[4] using either ASTM Solvents Distillation thermometer having a range of 72 to 126 C, and conforming to the requirements for thermometer 40 C as prescribed in ASTM Specifications E 1;[7] or the thermometer described in Section 2 (*b*), Item (*2*) of Method D 850. In case of dispute, gas heat shall be used.

(*e*) *Odor.*—Method of Test for Residual Odor of Lacquer Solvents and Diluents (ASTM Designation: D 1296).[4]

(*f*) *Water.*—Place 10 ml of the sample in a dry, loosely stoppered test tube (16 by 150 ml) and place in a water bath at 20 C (68 F). On viewing the tube transversely at the end of 3 min, no turbidity should be observed and no free water should appear on the bottom of the tube (Note 2).

NOTE 2.—If a more precise test for moisture is needed, the buyer and seller should agree on specification limits, using the Karl Fischer quantitative procedure described in Method of Test for Water in Volatile Solvents (Fischer Reagent Titration Method) (ASTM Designation: D 1364).[4]

(*g*) *Acidity.*—Method of Test for Acidity in Volatile Solvents and Chemical Intermediates Used in Paint, Varnish, Lacquer, and Related Products (ASTM Designation: D 1613);[4] or Method of Test for Acidity of Benzene, Toluene, Xylenes, Solvent Napththas, and Similar Industrial Aromatic Hydrocarbons (ASTM Designation: D 847).[4]

(*h*) *Acid Wash Color.*—Method of Test for Acid Wash Color of Industrial Aromatic Hydrocarbons (ASTM Designation: D 848).[4]

(*i*) *Sulfur Compounds.*—Methods of Test for Color, and Hydrogen Sulfide and Sulfur Dioxide Content (Qualitative) of Industrial Aromatic Hydrocarbons (ASTM Designation: D 853).[4]

(*j*) *Corrosion.*—Section 12 of Methods D 268.

[4] Appears in this publication.
[5] 1966 Book of ASTM Standards, Part 18.
[6] 1966 Book of ASTM Standards, Part 17.
[7] 1966 Book of ASTM Standards, Parts 18 and 30.