



Standard Test Method for Solidification Point of Industrial Organic Chemicals¹

This standard is issued under the fixed designation D 1493; 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 a general procedure for determining the solidification point of most organic chemicals having appreciable heats of fusion and solidification points between -20 and +150°C.

1.2 This test method is applicable only to relatively pure compounds. Values obtained for grossly impure compounds can be low because of the freezing out of one component during the determination.

1.3 In order that the test method may be used on many materials, a choice of certain alternatives and a selection of apparatus are permitted. The report (Section 12) requires that the selected alternatives must be stated. Materials to which the test method is applicable in particular detail include phenol, naphthalene, phthalic anhydride, and maleic anhydride.

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

NOTE 1—A companion test method is Test Method D 852.

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.* For specific hazard statements, see Section 8.

2. Referenced Documents

2.1 ASTM Standards:

D 850 Test Method for Distillation of Industrial Aromatic Hydrocarbons and Related Materials²

D 852 Test Method for Solidification Point of Benzene²

D 1015 Test Method for Freezing Points of High Purity Hydrocarbons³

D 1016 Test Method for Purity of Hydrocarbons from Freezing Points³

D 3437 Practice for Sampling and Handling Liquid Cyclic Products²

D 3438 Practice for Sampling and Handling Naphthalene, Maleic Anhydride, and Phthalic Anhydride²

D 3852 Practice for Sampling and Handling Phenol and Cresyl Acid²

E 1 Specification for ASTM Thermometers⁴

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

E 77 Test Method for Inspection and Verification of Thermometers⁴

2.2 Other Document:

OSHA Regulations, 29 CFR, paragraphs 1910.1000 and 1910.1200⁶

3. Terminology

3.1 Definitions:

3.1.1 *solidification point*—an empirical constant defined as the temperature at which the liquid phase of a substance is in approximate equilibrium with a relatively small amount of the same substance in its solid phase.

3.1.1.1 *Discussion*—Solidification point is distinguished from freezing point, which is described in Test Method D 1015. An interpretation of mole percent purity in terms of freezing point is given in Test Method D 1016.

4. Summary of Test Method

4.1 Solidification point is measured by noting the maximum temperature reached during a controlled cooling cycle after the appearance of a solid phase in a liquid sample.

5. Significance and Use

5.1 This test method is suitable for setting specifications on

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 D16.04 on Instrumental Analysis.

Current edition approved Feb. 10, 1997. Published September 1997. Originally published as D 1493 – 57 T. Last previous edition D 1493 – 92.

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

³ *Annual Book of ASTM Standards*, Vol 05.01.

⁴ *Annual Book of ASTM Standards*, Vol 14.03.

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

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