



Designation: D1929 – 20

Standard Test Method for Determining Ignition Temperature of Plastics¹

This standard is issued under the fixed designation D1929; 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 fire test response test method² covers a laboratory determination of the flash ignition temperature and spontaneous ignition temperature of plastics using a hot-air furnace.

1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.3 *Caution*—During the course of combustion, gases or vapors, or both, are evolved that have the potential to be hazardous to personnel.

1.4 *This standard is used to measure and describe the response of materials, products, or assemblies to heat and flame under controlled conditions, but does not by itself incorporate all factors required for fire-hazard or fire-risk assessment of the materials, products, or assemblies under actual fire conditions.*

1.5 *Fire testing is inherently hazardous. Adequate safeguards for personnel and property shall be employed in conducting these tests.*

1.6 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use. Specific precautionary statements are given in 1.3 and 1.4.*

NOTE 1—This test method and ISO 871-1996 are similar in all technical details.

1.7 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the*

Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

2. Referenced Documents

2.1 ASTM Standards:³

- D618 Practice for Conditioning Plastics for Testing
 - D883 Terminology Relating to Plastics
 - E176 Terminology of Fire Standards
 - E456 Terminology Relating to Quality and Statistics
 - E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method
 - E2653 Practice for Conducting an Interlaboratory Study to Determine Precision Estimates for a Fire Test Method with Fewer Than Six Participating Laboratories
 - E2935 Practice for Conducting Equivalence Testing in Laboratory Applications
- #### 2.2 International Standards:^{4,5}
- ISO 871-1996 Plastics—Determination of Ignition Temperature Using a Hot-Air Furnace
 - ISO 5725:1994 Accuracy (trueness and precision) of Measurement Methods and Results
 - ISO 13943:2017 Fire Safety—Vocabulary
 - IEC 584-2 Thermocouples—Part 2: Tolerances

3. Terminology

3.1 For definitions of terms relating to plastics, the definitions in this test method are in accordance with Terminology D883. For terms relating to fire, the definitions in this test method are in accordance with Terminology E176 and ISO 13943. In case of conflict, the definitions given in Terminology E176 shall prevail. For terms relating to precision and bias and associated issues, the terms used in this test method are in accordance with the definitions in Terminology E456.

3.2 Definitions of Terms Specific to This Standard:

¹ This test method is under the jurisdiction of ASTM Committee D20 on Plastics and is the direct responsibility of Subcommittee D20.30 on Thermal Properties.30.03).

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In 1996, this test method was totally revised to be technically equal to ISO 871-1996, and a specific air velocity is specified, which eliminates the need for approximations.

² The following reference may be of interest in connection with this test method: Stetchkin, N. P., “A Method and Apparatus for Determining the Ignition Characteristics of Plastics,” *Journal of Research*, National Institute of Standards and Technology, Vol 43, No. 6, December 1949 (RP 2052), p. 591.

³ For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard’s Document Summary page on the ASTM website.

⁴ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

⁵ Available from International Organization for Standardization (ISO), ISO Central Secretariat, BIBC II, Chemin de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland, <http://www.iso.org>.

*A Summary of Changes section appears at the end of this standard