



Designation: D1929 – 23

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 871-2022 (Option 1) 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*

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.

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 Test Method with Fewer Than Six Participating Laboratories

E2935 Practice for Evaluating Equivalence of Two Testing Processes

2.2 International Standards:^{4,5}

ISO 871-2022 Plastics—Determination of Ignition Temperature Using a Hot-Air Furnace

ISO 5725-2 (2019) Accuracy (trueness and precision) of Measurement Methods and Results—Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method

ISO 13943:2017 Fire Safety—Vocabulary

IEC 60584-2 (1982) Thermocouples—Part 2: Tolerances

IEC 60584-3 (2013) Thermocouples—Part 1: EMF specifications and 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

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