



Designation: D1519 – 95 (Reapproved 2023)

Standard Test Methods for Rubber Chemicals—Determination of Melting Range¹

This standard is issued under the fixed designation D1519; 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 These test methods cover the determination of the melting range of commercial rubber processing chemicals either by use of capillary melting point tubes or by differential scanning calorimetry (DSC).

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 *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.*

1.4 *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:*²

D4483 Practice for Evaluating Precision for Test Method Standards in the Rubber and Carbon Black Manufacturing Industries

E1 Specification for ASTM Liquid-in-Glass Thermometers

E324 Test Method for Relative Initial and Final Melting Points and the Melting Range of Organic Chemicals

E473 Terminology Relating to Thermal Analysis and Rheology

E967 Test Method for Temperature Calibration of Differential Scanning Calorimeters and Differential Thermal Analyzers

¹ These test methods are under the jurisdiction of ASTM Committee **D11** on Rubber and Rubber-like Materials and is the direct responsibility of Subcommittee **D11.11** on Chemical Analysis.

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² 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.

3. Terminology

3.1 *Definitions:*

3.1.1 *differential scanning calorimetry*—see Terminology **E473**.

4. Significance and Use

4.1 This test method may be used for research and development. It also may be used for quality assurance, provided a standard has been agreed upon between a producer and a user.

4.2 For identification purposes, melting range should be supplemented by measurements of a more specific physical and chemical property.

4.3 This test method is not recommended for rubber chemicals that decompose at their melting ranges.

4.4 The melting range as determined by Test Method A—Capillary Tube Melting Range is not recommended as a criterion of purity of a rubber chemical.

5. Sampling

5.1 Grind a representative sample of the chemical to be tested with a mortar and pestle, if necessary, to pass completely through a 150- μ m (No. 100) sieve. Use the sample without further treatment.

TEST METHOD A—CAPILLARY TUBE MELTING RANGE

6. Apparatus

6.1 *Melting Apparatus*—Any electric melting apparatus that satisfies the requirements of Test Method **E324** may be used or any suitable manually heated oil bath such as Hershberg tube.

6.2 *Capillary Tube*—The capillary tube to contain the sample shall be a glass tube approximately 150 mm long and 1.2 mm to 1.4 mm in internal diameter with walls 0.2 mm to 0.3 mm thick and closed at one end.

6.3 *Thermometer*—The thermometer shall be of the partial immersion type and of suitable range selected from Specification **E1**, or of an equivalent range as specified by the Chemical Manufacturers Association. It shall be divided into subdivisions of 0.5 °C (1 °F) or less. Corrections for the thermometer shall be determined by calibration against a thermometer certified by National Institute of Standards and Technology.