



Standard Practice for Rubber—Materials, Equipment, and Procedures for Mixing Standard Compounds and Preparing Standard Vulcanized Sheets¹

This standard is issued under the fixed designation D3182; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 This practice provides a listing of reference compound-ing materials required to prepare the rubber test compounds listed in succeeding methods and contains procedures for weighing. It also specifies the mixing equipment, general mixing procedures, vulcanization equipment and procedures.

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

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 and health practices and determine the applicability of regulatory limitations prior to use.* For a specific warning statement, see 5.5.

2. Referenced Documents

2.1 ASTM Standards:²

D88 Test Method for Saybolt Viscosity

D1646 Test Methods for Rubber—Viscosity, Stress Relaxation, and Pre-Vulcanization Characteristics (Mooney Viscometer)

D2084 Test Method for Rubber Property—Vulcanization Using Oscillating Disk Cure Meter

D2161 Practice for Conversion of Kinematic Viscosity to Saybolt Universal Viscosity or to Saybolt Furol Viscosity

D2226 Classification for Various Types of Petroleum Oils for Rubber Compounding Use

D2501 Test Method for Calculation of Viscosity-Gravity

Constant (VGC) of Petroleum Oils

D4678 Practice for Rubber—Preparation, Testing, Acceptance, Documentation, and Use of Reference Materials

D5289 Test Method for Rubber Property—Vulcanization Using Rotorless Cure Meters

D6204 Test Method for Rubber—Measurement of Unvulcanized Rheological Properties Using Rotorless Shear Rheometers

E145 Specification for Gravity-Convection and Forced-Ventilation Ovens

3. Significance and Use

3.1 This practice shall be used for specific procedures used in preparing rubber compounds for quality control of production, for research and development purposes, and for comparison of different materials.

4. Standard Materials

4.1 Standard Reference Materials:

4.1.1 The materials required for standard rubber test formulas shall be National Institute of Standards and Technology (NIST) Reference Materials or materials that are known to have properties similar to these standard materials. However, in case of dispute, the following actual standard materials from the NIST of the United States shall be used:

4.1.2 An Industry Reference Material (IRM) is a standard reference from a designated supplier and has been certified in accordance with Practice D4678.^{3,4}

¹ This practice is under the jurisdiction of ASTM Committee D11 on Rubber and is the direct responsibility of Subcommittee D11.20 on Compounding Materials and Procedures.

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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 NIST has discontinued supply of SRM 373, 374, and 385. A substitute material is available as IRM 2, 1, and 201. The sole source of supply of IRM 1 and 2 known to the committee at this time is Forcoven Products, Inc., P.O. Box 1556, Humble, TX 77338. The sole source of supply of IRM 201 known to the committee at this time is Akron Chemical Co., 255 Fountain St., Akron, OH 44304. If you are aware of alternative suppliers, please provide this information to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee,¹ which you may attend. Supporting data have been filed at ASTM International Headquarters and may be obtained by requesting Research Report RR:D11-1034.

⁴ Supporting data have been filed at ASTM International Headquarters and may be obtained by requesting Research Report RR:D11-1026.