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.

Designation: D3182 – 21a

Standard Practice for Rubber—Materials, Equipment, and Procedures for Mixing Standard Compounds and Preparing Standard Vulcanized Sheets[1]

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 compounding 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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.* For a specific warning statement, see 5.4.

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]

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

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

D5900 Specification for Physical and Chemical Properties of Industry Reference Materials (IRM)

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 Industry Reference Materials (IRM) as specified in Specification D5900. The current list of Industry Reference Materials for rubber can be found on the webpage of the Committee D11 under the section Additional Information (www.astm.org/COMMITTEE/D11).

4.1.2 In case of dispute in the United States of America, reference materials from the National Institute of Standards and Technology (NIST) shall be used.

4.2 Other standard or industry reference materials are as follows: Industry Reference Black, Current Lot in use at time of testing.

5. Weighing of Materials

5.1 The standard batch mass (in grams) for the laboratory mill shall be three times the formula mass in parts per hundred grams of rubber, unless otherwise specified.

5.2 The batch mass (in grams) for an internal mixer shall be the nominal capacity multiplied by the density of the rubber compound and multiplied by the batch factor.

[1] This practice is under the jurisdiction of ASTM Committee D11 on Rubber and Rubber-like Materials 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.

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