



Standard Specification for Physical and Chemical Properties of Industry Reference Materials (IRM)¹

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1. Scope

1.1 This standard covers the chemical and physical quality specifications or requirements, or both, for Industry Reference Materials (IRMs) as cited in Practice D 4678 and other standards.

1.2 IRMs, as evaluated and referenced in Practice D 4678, are vitally important to conduct product, specification, and development testing in the rubber and carbon black industries.

1.3 Before a new lot of material can be accepted as an IRM, it must comply with the specifications prescribed in this specification. However, these specifications are only part of the requirements. Other requirements as given in Practice D 4678 shall be met before a candidate material can be formally accepted as an IRM.

1.4 *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.*

2. Referenced Documents

2.1 ASTM Standards:

- D 88 Test Method for Saybolt Viscosity²
- D 97 Test Method for Pour Point of Petroleum Products³
- D 280 Test Methods for Hygroscopic Moisture (and Other Matter Volatile Under the Test Conditions) in Pigments²
- D 287 Test Method for API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method)³
- D 445 Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)³
- D 611 Test Methods for Aniline Point and Mixed Aniline Point of Petroleum Products and Hydrocarbon Solvents³
- D 1278 Test Methods for Rubber from Natural Sources—Chemical Analysis⁴

- D 1416 Test Methods for Rubber From Synthetic Sources—Chemical Analysis⁴
- D 1500 Test Method for ASTM Color of Petroleum Products (ASTM Color Scale)³
- D 1519 Test Method for Rubber Chemicals—Melting Range⁴
- D 1646 Test Method for Rubber—Viscosity, Stress Relaxation, and Pre-Vulcanization Characteristics (Mooney Viscometer)⁴
- D 1747 Test Method for Refractive Index of Viscous Materials³
- D 1993 Test Method for Precipitated Silica—Surface Area by Multipoint BET Nitrogen Adsorption⁴
- D 2007 Test Method for Characteristic Groups in Rubber Extender and Processing Oils and Other Petroleum Derived Oils by the Clay-Gel Absorption Chromatographic Method³
- D 2140 Test Method for Carbon-Type Composition of Insulating Oils of Petroleum Origin⁵
- D 2161 Practice for Conversion of Kinematic Viscosity to Saybolt Universal Viscosity or to Saybolt Furol Viscosity³
- D 2501 Test Method for Calculation of Viscosity-Gravity Constant (VGC) of Petroleum Oils³
- D 3037 Test Methods for Carbon Black—Surface Area by Nitrogen Adsorption⁴
- D 3157 Test Method for Rubber from Natural Sources—Color⁴
- D 3194 Test Method for Rubber from Natural Sources—Plasticity Retention Index (PRI)⁴
- D 3280 Test Methods for Analysis of White Zinc Pigments⁶
- D 4004 Test Methods for Rubber—Determination of Metal Content by Flame Atomic Absorption (AAS) Analysis⁴
- D 4075 Test Method for Compounding Materials—Flame Atomic Absorption Technique—Determination of Metals⁴
- D 4315 Test Methods for Rubber Compounding Material—Zinc Oxide⁴
- D 4571 Test Methods for Rubber Chemicals—Determination of Volatile Material⁴
- D 4572 Test Method for Rubber Chemicals—Wet Sieve Analysis of Sulfur⁴

¹ This specification is under the jurisdiction of ASTM Committee D-11 on Rubber and is the direct responsibility of Subcommittee D11.20 on Compounding Materials and Procedures.

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² *Annual Book of ASTM Standards*, Vol 04.04.

³ *Annual Book of ASTM Standards*, Vol 05.01.

⁴ *Annual Book of ASTM Standards*, Vol 09.01.

⁵ *Annual Book of ASTM Standards*, Vol 10.03.

⁶ *Annual Book of ASTM Standards*, Vol 06.03.