



## Standard Specification for Crosslinkable Ethylene Plastics<sup>1</sup>

This standard is issued under the fixed designation D 2647; 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 reappraisal. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reappraisal.

### 1. Scope

1.1 This specification covers a general classification system for crosslinkable ethylene plastics compounds (Note 1). The requirements specified herein are not necessarily applicable for use as criteria in determining suitability for the end use of a fabricated product.

NOTE 1—It is to be noted that this specification describes materials that are available commercially in their uncrosslinked form. Therefore, they are crosslinkable compounds despite the fact that measurement of the parameters used for their classification and specification will usually be carried out after curing has been effected.

1.2 Two types of compounds are covered, namely, mechanical types in which mechanical strength properties are of prime importance in applications, and electrical types in which electrical insulating or conducting properties also are of prime importance in applications.

1.3 The parameters used to classify and specify the mechanical types are ultimate elongation, elongation retention after aging, apparent modulus of rigidity, and brittleness temperature.

1.4 The parameters used to classify and specify the electrical types are ultimate elongation, elongation retention after aging, apparent modulus of rigidity, brittleness temperature, dielectric constant, dissipation factor, and volume resistivity.

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

1.6 The following safety hazards caveat pertains only to the test methods portion, Section 7, of this specification: *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.*

NOTE 2—There is no similar or equivalent ISO standard.

### 2. Referenced Documents

#### 2.1 ASTM Standards:

D 150 Test Methods for A-C Loss Characteristics and

Permittivity (Dielectric Constant) of Solid Electrical Insulating Materials<sup>2</sup>

D 257 Test Methods for D-C Resistance or Conductance of Insulating Materials<sup>2</sup>

D 573 Test Method for Rubber—Deterioration in an Air Oven<sup>3</sup>

D 618 Practice for Conditioning Plastics and Electrical Insulating Materials for Testing<sup>4</sup>

D 638 Test Method for Tensile Properties of Plastics<sup>4</sup>

D 746 Test Method for Brittleness Temperature of Plastics and Elastomers by Impact<sup>4</sup>

D 883 Terminology Relating to Plastics<sup>4</sup>

D 991 Test Method for Rubber Property—Volume Resistivity of Electrically Conductive and Antistatic Products<sup>3</sup>

D 1043 Test Method for Stiffness Properties of Plastics as a Function of Temperature by Means of a Torsion Test<sup>4</sup>

D 1898 Practice for Sampling of Plastics<sup>4</sup>

D 2765 Test Methods for Determination of Gel Content and Swell Ratio of Crosslinked Ethylene Plastics<sup>5</sup>

D 3892 Practice for Packaging/Packing of Plastics<sup>5</sup>

E 380 Practice for the Use of the International System of Units (SI) (The Modernized Metric System)<sup>6</sup>

#### 2.2 Military Standard:

MIL-STD-105 Sampling Procedures and Tables for Inspection by Attributes<sup>7</sup>

### 3. Terminology

3.1 *Definitions:* For definitions of plastics terms used in this specification, see Terminology D 883.

3.2 Units, Symbols, and Abbreviations—For units, symbols, and abbreviations used in this specification see Practice E 380.

### 4. Classification

4.1 *Classification System*—Table 1 and Table 2 provide a classification system for these compounds so that the relations among them may be delineated and those that are commercially available may be specified readily. It is not the intent to indicate that all the combinations of properties possible are represented by commercial products or that they are technically

<sup>2</sup> Annual Book of ASTM Standards, Vol 10.01.

<sup>3</sup> Annual Book of ASTM Standards, Vol 09.01.

<sup>4</sup> Annual Book of ASTM Standards, Vol 08.01.

<sup>5</sup> Annual Book of ASTM Standards, Vol 08.02.

<sup>6</sup> Annual Book of ASTM Standards, Vol 14.02.

<sup>7</sup> Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.

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