



Designation: B979 – 12

Standard Specification for Non-Specular (NS) Surface Finish on Overhead Aluminum Electrical Conductors¹

This standard is issued under the fixed designation B979; 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 This specification covers non-specular surface finishes on overhead aluminum electrical conductors. Overhead aluminum electrical conductors, when installed, typically have a shiny surface appearance. This “reflective” or “specular” surface can make a transmission line more noticeable in appearance against the background landscape. A factory treatment process of the outer surface of the aluminum wires can render the surface finish into a dull, non-reflective, matte grey finish. This non-reflective or “de-glared” surface finish allows the conductor to become less visible when observed from a distance and enables the transmission line to blend in with the skyline or landscape background.²

1.2 This specification is intended, by means of diffuse reflectance measurement, to establish a uniformity of conductor finish which is acceptable to the user. Such a specification will furnish a basis for consistent manufacturing process control.

1.3 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

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 The following documents, in effect on the date of material purchase, form part of this specification to the extent referenced herein:

¹ This test method is under the jurisdiction of ASTM Committee B01 on Electrical Conductors and is the direct responsibility of Subcommittee B01.02 on Methods of Test and Sampling Procedure.

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² The historical origin of this standard is based upon AA/ANSI Standard C7.69 originally developed by the Aluminum Association, Inc. and adopted for recognition as an American National Standard in 1975.

2.2 *ASTM Standards*:³

B354 Terminology Relating to Uninsulated Metallic Electrical Conductors

3. Terminology

3.1 For definitions of terms relating to conductors, refer to definitions found in Terminology **B354**.

3.2 *Definitions*:

3.2.1 *specular*—a shiny, reflective appearance.

3.2.2 *non-specular*—a matte, non-shiny appearance.

3.2.3 *de-glared*—another term for non-specular.

3.2.4 *diffuse reflection*—reflection in which light energy is scattered in many directions by diffusion at or below the surface.

4. Ordering Information

4.1 Orders for material under this specification shall include the following information:

4.1.1 Aluminum overhead electrical conductor to have a non-specular, Type “NS” surface finish.

4.1.2 Unless otherwise specified the default non-specular gray finish requirement shall have an average maximum diffuse reflectivity of not more than 32 %.

5. Equipment

5.1 To measure diffuse reflectance, a portable reflectance meter⁴ shall be employed with search units “Y” or “T”, equipped with a green tristimulus filter.

5.2 For calibration, use a matte gray reference standard having a diffuse reflection value between 23 and 29 %.

³ 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.

⁴ The sole source of supply of the apparatus (Photovolt Reflectance Meter, Model No. 577 or 577-A) known to the committee at this time is Photovolt Instruments, Inc. 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.