



Standard Classification for Natural Muscovite Block Mica and Thins Based on Visual Quality¹

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

1. Scope

1.1 This classification covers the determination of commercially available natural muscovite block mica and is intended to be independent of the basic color of the mica or its source.

1.2 Muscovite mica is characterized by having an optical axial angle between 50 and 75° (see [Appendix X1](#)); and has a weight loss when heated for 5 min at 600°C not exceeding 0.2 % (based on the weight after drying at 120°C).

1.3 The visual system of classifying the quality of natural muscovite mica covered by this specification is based upon relative amounts of visible foreign inclusions such as air bubbles, stains, and spots in combination with relative amounts and types of waviness, as well as other physical properties. In this system, a perfectly clear, transparent, flat specimen of mica is the visual standard of perfection. Increasing amounts of visual defects lower the visual quality, and a total of 13 levels of visual quality are covered by this standard. This method of classification, generally known as the Bengal India System, is purely qualitative and is entirely dependent on personal opinion and judgment.

1.4 The standards for visual quality classification that are covered in this classification are the best commercially available concept of the various qualities and their relative positions. Variations in the methods of using and applying these standards from those herein defined may be specified by the purchaser, or defined by agreement between the supplier and the purchaser.

1.5 Standard size classifications are defined, based upon available usable rectangular areas and the minimum dimensions of the rectangles that the pieces will yield. Precautions to be taken in making thickness measurements are also described.

1.6 This standard covers the following two definite forms of commercial preparation:

1.6.1 *Form 1*—Full-trimmed natural block mica, 0.007 in. (0.178 mm) minimum thickness.

1.6.2 *Form 2*—Partially-trimmed natural block mica, 0.007 in. minimum thickness.

1.7 The basic color of mica, such as white, ruby, light green, dark green, brownish green, and rum, as well as other colors, and the method of controlling the color and other problems associated with the basic color, are not a part of this classification.

1.8 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.

1.9 Section 5 is technically identical to procedures specified in ISO 67-1981.

1.10 Section 6 differs somewhat in procedure from ISO 5972-1978, but data obtained by either should be identical.

1.11 Section 7 is technically identical to procedures specified in ISO 2185-1972.

2. Referenced Documents

2.1 *ASTM Standards*:²

[D374 Test Methods for Thickness of Solid Electrical Insulation](#) (Withdrawn 2013)³

[D1711 Terminology Relating to Electrical Insulation](#)

2.2 *ISO Publications*:

[ISO 67-1981 Muscovite Mica Blocks, Thins, and Films—Grading by Size](#)⁴

[ISO 2185-1972 Muscovite Mica Blocks, Thins, and Films—Visual Classification](#)⁴

[ISO 5972-1978 Mica Blocks, Thins, Films, and Splittings—Measurement of Thickness](#)⁴

¹ This classification is under the jurisdiction of ASTM Committee D09 on Electrical and Electronic Insulating Materials and is the direct responsibility of Subcommittee D09.19 on Dielectric Sheet and Roll Products.

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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 The last approved version of this historical standard is referenced on www.astm.org.

⁴ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.