



Standard Classification for Natural Muscovite Mica Splittings¹

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1. Scope

1.1 This specification covers the determination of muscovite mica splittings of standard commercial grades and specifies the maximum allowable physical defects for each grade. It is applicable to commercially available natural muscovite mica splittings regardless of the basic color of the mica or its source.

1.2 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

1.3 This standard is very similar to ISO 6386. It is expected that materials would be classified identically using the criteria of either standard. The grades shown under “ASTM Grade No.” in [Table 1](#) and [Table 2](#) are shown under “Old Grade No.” in ISO 6386-1981.

2. Referenced Documents

2.1 *ASTM Standards*:²

[D351 Classification for Natural Muscovite Block Mica and Thins Based on Visual Quality](#)

[D1711 Terminology Relating to Electrical Insulation](#)

2.2 *ISO Publications*:

[ISO 6386-1981 Muscovite Mica Splittings—Grading and Visual Classification](#)³

3. Terminology

3.1 For definitions relating to mica and for terms applicable to this standard, refer to Terminology [D1711](#), and Classification [D351](#).

4. Classification

4.1 Mica splittings are classified by size, form, and visual quality and properties.

¹ This specification is under the jurisdiction of ASTM Committee [D09](#) on Electrical and Electronic Insulating Materials and is the direct responsibility of Subcommittee [D09.01](#) on Electrical Insulating 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 Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

4.2 Thirteen grades, based on size and form, are described as given in [Table 1](#).

4.3 Within the grades, up to thirteen categories of visual quality may be separately specified, as listed in Section [6](#). Not all of the visual quality categories are available in all grades.

5. Physical Properties

5.1 Natural muscovite mica splittings shall meet the size requirements specified in [Table 1](#). Classification [D351](#), Table 1 and Fig. 1, define more completely the areas and minimum dimensions that define the size grades, and which should be used in conjunction with [Table 1](#) of this specification.

5.2 There shall not be more than the maximum allowable total defects specified in [Table 2](#) based on percentage weight. Such defects shall not lie predominantly in any one category.

5.3 There shall not be more of any single defect than the percentages specified where a specific percentage is allowed for such defect.

5.4 There shall not be any foreign matter included among the splittings.

6. Visual Quality

6.1 Where specified, the visual quality shall conform to the description of the visual category specified, as given in Classification [D351](#):

6.1.1 *V-1*—Clear,

6.1.2 *V-2*—Clear and Slightly Stained,

6.1.3 *V-3*—Fair Stained,

6.1.4 *V-4*—Good Stained,

6.1.5 *V-5*—Stained A Quality,

6.1.6 *V-5.1*—Stained [D351](#) Quality,

6.1.7 *V-6*—Stained B Quality,

6.1.8 *V-7*—Heavy Stained,

6.1.9 *V-8*—Densely Stained,

6.1.10 *V-9*—Black Dotted,

6.1.11 *V-10*—Black Spotted,

6.1.12 *V-11*—Black Stained, and

6.1.13 *V-12*—Black/Red Stained

6.2 Refer to Classification [D351](#) for a complete description of the visual quality categories.

TABLE 1 Requirements for Size and Average Thickness of Splittings

NOTE 1—Splittings shall not be of the minimum area specified, but shall contain a fair proportion of sizes throughout the range specified.

NOTE 2—The areas specified do not refer to the total area of the splittings but to the usable rectangular size that each grade will produce. For example, Grade 5 splittings should be large enough to provide rectangular pieces measuring 1½ by 2, 3 by 2, 2 by 2⅓ in., etc.

ASTM Grade	Form	Size, in. ^{2A}	Minimum Dimension of Usable Rectangle, in. ^B	Thickness of 10 Splittings, in. ^B
4	Bookform	6 to 10, excl	1½ (38)	0.006 to 0.009, incl ^C
5	Bookform	3 to 6, excl	1 (25)	0.006 to 0.009, incl ^C
5½	Bookform	2 ^D to 3, excl	7⁄8 (22)	0.006 to 0.009, incl ^C
6	Bookform	1 to 2, excl	¾ (19)	0.006 to 0.010, incl ^C
4	Loose with powder	6 to 10, excl	1½ (38)	0.006 to 0.009, incl
5	Loose with powder	3 to 6, excl	1 (25)	0.006 to 0.009, incl
5½	Loose with powder	1½ to 3, excl	7⁄8 (22)	0.007 to 0.010, incl
6	Loose with powder	1 to 1½, excl	¾ (19)	0.007 to 0.010, incl
6-1st	Loose	At least 70 % shall be 1 to 1½, excl Not more than 3 % shall pass through a screen having ¾-in. square openings.		0.007 to 0.010, incl
6 Intermediate	Loose	At least 60 % shall be 1 to 1½, excl At least 25 % shall be ¾ to 1 Not more than 3 % shall pass through a screen having 5⁄8-in. square openings.		0.007 to 0.010, incl
6-2nd	Loose	At least 50 % shall be 1 to 1½, excl Not more than 5 % shall pass through a screen having 5⁄8-in. square openings.		0.007 to 0.011, incl
6-3rd	Loose	At least 65 % shall have a minimum area of ¾ in. ² Not more than 8 % shall pass through a screen having 5⁄8 in. square openings.		0.007 to 0.011, incl
6-4th	Loose	At least 30 % shall have a minimum area of ½ in. ² and 100 % shall pass over a screen having ¼-in. square openings.		0.007 to 0.012, incl

^A 1 in.² = 6.45 cm².

^B 1 in. = 25.4 mm (exact).

^C Minimum and maximum thickness of a single splitting in the case of bookform splittings shall be agreed upon between the purchaser and the seller.

^D Upon agreement between the buyer and the seller, the minimum area may be 1½ in.² (9.7 cm²).

TABLE 2 Defects

ASTM Grade No.	Form	Under-size, % ^A	Stain, % ^B	Waviness	Tears, Fractures and Holes	Thick Splittings, %	Thin Splittings	V cuts	Rough or Burred Edges	Other Defects	Total Allowable Defects, % ^C	Maximum Allowable Individual Defects, %
4	bookform	3	D	D	D,E	D	D	D	D,F	D	15	4
5	bookform	3	D	D	D,E	D	D	D	D,F	D	15	4
5½	bookform	3	D	D	D,E	D	D	D	D,F	D	15	4
6	bookform	5	D	D	D,E	D	D	D	D,F	D	15	5
4	loose with powder	10	D	D	D	D	D	D	D,G	D	25	7
5	loose with powder	10	D	D	D	D	D	D	D,G	D	25	7
5½	loose with powder	10	D	D	D	D	H	H	D,G	D	25	7
6	loose with powder	10	D	D	D	3			D,G	D	20	7
6-1st	loose	/	12			3						
5-intermediate	loose	/	16			3						
6-2nd	loose	/	20			4						
6-3rd	loose	/	20			5						
—	loose	/				8						

^A Not to be included with total allowable defects.

^B Lots that contain more than 2 % of stained splittings in which the sum of the major dimensions of the stains exceed ¼ in. (6.4 mm) shall not be regarded as meeting these standards. No mineral stain shall be permitted in Bookform Splittings. No more than 30 % of the stain in Nos. 4, 5, and 5½ Loose with Powder shall be mineral stain. No more than 40 % of the stain in Nos. 6 Loose with Powder, 6-1st, 6-2nd, and 6-3rd Loose, shall be mineral stain.

^C To include an evaluation of undersize splittings for other defects.

^D Examine for the defect listed.

^E No hole shall be permitted.

^F Count as a defect if more than 20 % of the periphery is rough or burred.

^G Same as Footnote^F except 35 %.

^H Do not examine for the defect listed.

^I Determine undersize in accordance with Table 1.

7. Sampling

7.1 *Bookform*—Fifty books shall be drawn at random from each case sampled. At least 10 % of the cases in the lot shall be sampled.

7.2 *Loose with Powder*—A minimum of a 1-oz (28-g) sample from each case sampled shall be taken. At least 10 % of the cases in the lot shall be sampled.

7.3 *Method of Calculation*—Splittings shall be examined for defects in the order of separate values listed and counted defective for the first defective characteristic noted. Defects for

which separate values are not given may be aggregated. Each group shall be weighed to determine the percentage it represents of the total sample weight less undersizes (see Footnote A, **Table 2**). In computing percentages, ½ % or more shall be considered 1 %; less than ½ % shall be considered zero.

8. Keywords

8.1 area; bookform; classification; form; grades; loose with powder; mica splittings; muscovite mica; size; thickness; visual quality

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