Designation: F2982 – 13

Standard Specification for Polyester Composition Floor Tile[1]

This standard is issued under the fixed designation F2982; 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 polyester composition floor tile for use in commercial, light commercial or residential flooring applications. The tile may be either smooth or embossed.

1.2 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.

1.3 *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 of the issue in effect on the date of material purchase form a part of this specification to the extent referenced herein:

2.2 *ASTM Standards:*[2]

F141 Terminology Relating to Resilient Floor Coverings

F386 Test Method for Thickness of Resilient Flooring Materials Having Flat Surfaces

F925 Test Method for Resistance to Chemicals of Resilient Flooring

F970 Test Method for Static Load Limit

F1066 Specification for Vinyl Composition Floor Tile

F1265 Test Method for Resistance to Impact for Resilient Floor Tile

F1304 Test Method for Deflection of Resilient Floor Tile

F1514 Test Method for Measuring Heat Stability of Resilient Flooring by Color Change

F1515 Test Method for Measuring Light Stability of Resilient Flooring by Color Change

F1914 Test Methods for Short-Term Indentation and Residual Indentation of Resilient Floor Covering

F2055 Test Method for Size and Squareness of Resilient Floor Tile by Dial Gage Method

F2199 Test Method for Determining Dimensional Stability of Resilient Floor Tile after Exposure to Heat

2.3 *Other Standards:*

ANSI/ASQC Z1.4–1993 Sampling Procedures and Tables for Inspection by Attributes[3]

3. Terminology

3.1 For definitions refer to Terminology F141.

4. Ordering Information

4.1 The purchaser shall state whether this specification is to be used, select the preferred options permitted herein, and include the following information in the invitation to bid and purchase order:

4.1.1 Title, number, and date of this specification,

4.1.2 Color and pattern,

4.1.3 Quantity in square feet or cartons,

4.1.4 Thickness required, (see 8.1),

4.1.5 Size required (see 8.2),

4.1.6 Lot formation if other than as specified in ANSI/ASQC Z1.4–1993 (see Sections 10 and 11),

4.1.7 Sampling, if other than as specified in ANSI/ASQC Z1.4–1993 (see Sections 10 and 11),

4.1.8 Packing requirements if other than as specified (see 14.1),

4.1.9 Palletization, if required (agreed upon between the manufacturer and the purchaser),

4.1.10 Marking, if other than specified (agreed upon between the manufacturer and the purchaser), (see 13.1), and

4.1.11 Other requirements (agreed upon between the manufacturer and the purchaser).

5. Materials and Manufacture

5.1 *Materials*—The tile shall be composed of binder, fillers, and pigments.

[1] This test method is under the jurisdiction of ASTM Committee F06 on Resilient Floor Coverings and is the direct responsibility of Subcommittee F06.80 on Specifications.

Current edition approved May 1, 2013. Published June 2013. Originally approved in 2012. Last previous edition approved in 2012 as F2982 – 12. DOI: 10.1520/F2982-13.

[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.

5.1.1 The binder shall consist of one or more resins of polyester.

5.1.1.1 The polyester resin may be thermoplastic or thermoset.

5.1.2 The filler may be limestone or other suitable inorganic filler.

5.1.3 Floor tiles may have a clear specialty performance top layer which does not delaminate under normal use and is not removable by normal maintenance procedures.

5.1.3.1 The clear specialty performance top layer may constitute part of the total thickness up to a maximum 0.002 in. (0.051 mm).

5.2 *Color and Pattern*—The color and pattern, as applicable shall be as specified in the contract or order (see 4.1).

NOTE 1—The colors and patterns that are available are indicated in individual manufacturer's current catalogs. As manufactured, colors vary somewhat in hue and shade.

5.3 *Through Pattern Tile*—In through pattern tile, either the pattern and colors on the surface of the tile extend entirely through the thickness of the tile without significant change, or the colors appearing on the surface shall extend throughout the entire thickness of the tile, although the appearance of the pattern created by these colors will change throughout the thickness.

6. Mechanical Properties

6.1 *Indentation:*

6.1.1 When the tile is tested in accordance with Test Method F1914 per the test parameters listed in Table 1 for the F1066 specification but at a conditioning and testing temperature of 73.4°F (23.0°C), the indentation at the end of 1 min shall not exceed 0.012 in. (0.305 mm).

6.1.2 When the tile is tested in accordance with Test Method F1914 per the test parameters listed in Table 1 for the F1066 specification but at a conditioning and testing temperature of 73.4°F (23.0°C), the indentation at the end of 10 min shall not exceed 0.015 in. (0.356 mm).

6.2 *Impact:*

6.2.1 When the tile is tested in accordance with Test Method F1265, the tile shall not break or crack beyond the prescribed circle of zinc oxide paste after 12 drops.

6.2.2 For ⅛-in. (3.175-mm) tile the 0.143-lb (0.065-kg) steel ball weight shall be dropped from a drop height of 20 in. (508 mm).

7. Performance Requirements

7.1 *Deflection*—The tile, when tested in accordance with Test Method F1304, shall deflect not less than 1.0 in. (25.4 mm) both across and with the grain, without breaking.

7.2 *Dimensional Stability:*

7.2.1 When tested in accordance with Test Method F2199 the linear dimensions shall not change more than 0.028 in. (0.71 mm) per linear foot.

7.3 *Resistance to Chemicals:*

7.3.1 The chemical resistance of the tile shall be determined in accordance with Test Method F925. Polyester composition floor tile shall have no more than a slight change in surface dulling, surface attack, or staining when exposed to the following chemicals:

7.3.1.1 White vinegar (5 % acetic acid),
7.3.1.2 Rubbing alcohol (70 % isopropyl alcohol),
7.3.1.3 White mineral oil (medicinal grade),
7.3.1.4 Sodium hydroxide solution (5 % NaOH),
7.3.1.5 Household ammonia solution (5 % NH_4OH),
7.3.1.6 Household bleach (5.25 % NaOCl),
7.3.1.7 Olive oil (light),
7.3.1.8 Kerosene (K1),
7.3.1.9 Phenol (5 % active phenol).

NOTE 2—The basic chemicals are representative of those likely to be found in residential, commercial, and institutional use. Many proprietary compounds contain one or more of these basic chemicals. Should the flooring for an unusual application need to be resistant to a specific chemical, this additional requirement should become part of the procurement document.

7.4 *Resistance to Heat*—When tested in accordance with Test Method F1514, the color change of the polyester composition floor tile shall have an average ΔE not greater than 8.0 after 7 days exposure to 158°F (70°C).

7.5 *Resistance to Light*—When tested in accordance with Test Method F1515, the color change of the polyester composition floor tile shall have an average ΔE not greater than 8.0 after a 300–h exposure.

7.6 *Static Load Limit*—When tested in accordance with Test Method F970, with an applied load of 250 lb (113.4 kg), the residual indentation shall not be greater than 0.005 in. (0.076 mm).

8. Dimensions and Permissible Variations

8.1 *Overall Thickness*—Unless otherwise specified (see 4.1.4), the tile shall be furnished in ⅛-in. (3.175-mm) thickness. A tolerance of ±0.005 in. (0.127 mm) shall be permitted when measured in accordance with Test Method F386.

8.2 *Size*—Unless otherwise specified (see 4.1.5), the tile shall be furnished in 12 by 12 in. (305 by 305 mm) and 12 by 24 in. (305 by 610 mm). A tolerance of ±0.016 in. (0.406 mm) per linear ft (305 mm) shall be permitted when measured in accordance with Test Method F2055.

8.3 *Squareness*—When tested in accordance with Test Method F2055, the out-of-squareness of the tile shall not exceed 0.010 in. (0.254 mm).

9. Workmanship, Finish, and Appearance

9.1 The floor tile furnished in accordance with this specification shall be an acceptable match to approved samples in pattern, color, and surface appearance. The product shall be free of defects that adversely affect performance or appearance. Such defects include blemishes, spots, indentations, cracks, blisters, and breaks in corners or edges.

10. Sampling

10.1 Sampling for testing mechanical properties, performance requirements and dimensions listed in Table A1.1 shall be done in accordance with the provisions set forth in ANSI/

ASQC Z1.4–1993. The inspection level shall be special inspection level S-1, as noted in Table I, and the acceptable quality level (AQL) shall be 6.5 defects per hundred units as noted in Table II-A or as otherwise specified in 10.2 herein. The lot size shall be expressed in units. A unit represents a single, manufactured, inventoried, finished tile.

10.2 Sampling for testing physical properties, mechanical properties, and performance requirements listed in Table A1.1 shall be agreed upon by the purchaser and the manufacturer as part of the procurement document.

11. Inspection

11.1 Inspection of the polyester composition floor tile for defects that would adversely affect performance shall be done in accordance with the provisions set forth in ANSI/ASQC Z1.4–1993. The inspection level shall be level L-1, as noted in Table I, and the acceptable quality level (AQL) shall be 6.5 defects per hundred units as noted in Table II-A or as otherwise specified in 11.2 herein. The lot size shall be expressed in units. A unit represents a single, manufactured, inventoried, finished tile.

11.2 Inspection of the polyester composition floor tile for defects that would adversely affect performance shall be agreed upon by the purchaser and the manufacturer as part of the procurement document.

12. Certification

12.1 When specified in the purchase order or contract, a manufacturer's certification and any other documents required to substantiate certification shall be furnished to the purchaser that the material was manufactured to meet this specification.

13. Product Marking

13.1 Unless otherwise specified in the purchase order or contract, shipping containers shall be marked with the name of the material as defined by the contract or order under which the shipment is made, the size, thickness, the pattern number, the quantity contained therein and the name of the manufacturer shall be as specified in 4.1.

13.2 When product sample sets, sample set cover cards, marketing and technical literature reference this specification, the complete products classification information relative to this specification shall be included.

14. Packaging and Packing

14.1 The polyester composition floor tile shall be packaged in accordance with normal commercial practice and packed to ensure acceptance by common carrier and to provide protection against damage during normal shipping, handling, and storage or shall be as specified in 4.1.8.

15. Keywords

15.1 resilient flooring; tile

ANNEX

(Mandatory Information)

A1. CHARACTERISTICS AND TESTS

TABLE A1.1 Characteristics and Tests

Characteristic	Requirement	Test Method	Reference
Indentation (flat surface)			
□73.4°F (23°C)—1 min	≤ 0.012 in. (0.305 mm)	F1914	6.1.1
□73.4°F (23°C)—10 min	≤ 0.015 in. (0.356 mm)	F1914	6.1.2
Impact	12 drops - No cracks beyond limit	F1265	6.2
Deflection (MD and AMD)	1 in. (25.4 mm), min,	F1304	7.1
Dimensional stability	0.028 in. (0.0.710 mm) per linear foot, max	F2199	7.2
Resistance to chemicals	no more than a slight change in surface dulling, surface attack, or staining	F925	7.3
Resistance to heat	ΔE not greater than 8.0	F1514	7.4
Resistance to light	ΔE not greater than 8.0	F1515	7.5
Static Load Limit	≤ 0.005 in. (0.076 mm)	F970	7.6
Overall Thickness	±0.005 in. (0.127 mm), as specified	F386	8.1
Size, tolerance	±0.016 in. (0.406 mm) per linear foot	F2055	8.2
Squareness	0.010 in. (0.254 mm), max	F2055	8.3

APPENDIX

(Nonmandatory Information)

X1. ADDITIONAL INFORMATION

X1.1 The following sources can be consulted for additional information:

X1.1.1 *ASTM Standards:*[2]

D3564 Practice for Application of Floor Polishes to Maintain Vinyl Composition Tile or Flooring

F141 Terminology Relating to Resilient Floor Covering

F511 Test Method for Quality of Cut (Joint Tightness) of Resilient Floor Tile

F710 Practice for Preparing Concrete Floors and Other Monolithic Floors to Receive Resilient Flooring

F1482 Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring

X1.1.2 *Other Sources:*

Recommended Work Practices for the Removal of Resilient Floor Coverings[4]

[4] Available from the Resilient Floor Covering Institute 115 Broad Street, Suite 201, La Grange GA 30240.