



## Standard Specification for Chemical-Resistant Resin Grouts for Brick or Tile<sup>1</sup>

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

### 1. Scope

1.1 This specification covers the requirements for chemical-resistant resin grouts for filling joints of chemical-resistant brick or tile units. For use of these materials, see Practice C 723. (For mortars, see Specification C 395.)

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.

NOTE 1—Resin grouts and mortars are differentiated as follows: Resin grouts are applied to the joints, generally  $\frac{1}{4}$  in. (6 mm) wide, after the brick or tile are set in place and the setting bed has hardened (grouting or tiler's method). Resin mortars are trowelled onto the brick or tile in sufficient quantity to achieve a  $\frac{1}{8}$ -in. (3-mm) thick joint after the brick or tile are laid in place (buttering or bricklayer's method).

### 2. Referenced Documents

#### 2.1 ASTM Standards:<sup>2</sup>

- C 307 Test Method for Tensile Strength of Chemical-Resistant Mortar, Grouts, and Monolithic Surfacing
- C 308 Test Methods for Working, Initial Setting, and Service Strength Setting Times of Chemical-Resistant Resin Mortars
- C 395 Specification for Chemical-Resistant Resin Mortars
- C 413 Test Method for Absorption of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes
- C 531 Test Method for Linear Shrinkage and Coefficient of Thermal Expansion of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes
- C 579 Test Methods for Compressive Strength of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes
- C 723 Practice for Chemical-Resistant Resin Grouts for Brick or Tile

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee C03 on Chemical-Resistant Nonmetallic Materials and is the direct responsibility of Subcommittee C03.02 on Monolithics, Grouts and Polymer Concretes.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

### C 904 Terminology Relating to Chemical-Resistant Non-metallic Materials

### 3. Terminology

3.1 *Definitions*—For definitions of terms used in this specification, see Terminology C 904.

### 4. Types of Resins, Fillers, and Setting Agents

4.1 The liquid resins may be furan, epoxy, vinyl ester, or others capable of forming chemical-resistant grout when mixed with a suitable setting agent and filler.

4.2 The fillers may be silica, carbon, or other chemical resistant materials. Fillers may be supplied as a separate component or can be combined as a premix with the liquid resin and/or setting agent.

4.3 The setting agents may include amines, polyamides, peroxides, acids, or other reactants. Setting agents may be supplied as a separate component to be incorporated into the resin and filler at the time of mixing or may be supplied as a constituent of the filler.

### 5. General Requirements

5.1 When these components are mixed at 65 to 85°F (18 to 29°C) they form a uniform and flowable grout. The mixed grout shall be of a viscosity such that it will readily flow to the full depth of the open joint.

5.2 The filler shall have properly graded particles, not exceeding  $\frac{1}{32}$  in. (1 mm), that will permit the filling of a minimum joint width of  $\frac{3}{16}$  in. (5 mm).

5.3 The service limitations of the grout shall be defined by the manufacturer.

### 6. Physical Requirements

6.1 Chemical-resistant resin tile grouts prepared from these materials shall conform to the physical requirements prescribed in **Table 1**.

### 7. Test Methods

7.1 Determine the properties enumerated in this specification in accordance with the following methods:

7.1.1 *Setting Time*—Test Method C 308.

7.1.2 *Compressive Strength*—Test Method C 579.

7.1.3 *Tensile Strength*—Test Method C 307.



TABLE 1 Physical Requirements at 73 ± 4°F (23 ± 2°C)

	Furan Resin Grout	Epoxy Resin Grout	Vinyl Ester Resin Grout
Initial setting time, max, h	10	16	10
Service strength setting time, max, days	7	7	7
Compressive strength, 7 days, min, psi (MPa)	4000 (28)	7500 (52)	7500 (52)
Tensile strength, 7 days, min, psi (MPa)	600 (4)	1200 (8)	1300 (9)
Water absorption, max,%	0.5	0.5	0.4
Linear Shrinkage, 7 days, max,%	1.0	0.4	1.0

7.1.4 Water Absorption—Test Method C 413.

7.1.5 Linear Shrinkage—Test Method C 531.

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8. Rejection

8.1 The grout may be rejected if it fails to meet any of the requirements of this specification.

9. Packaging and Package Marking

9.1 Each component shall be packaged to prevent deterioration in storage and shall be labeled in such a manner to indicate clearly the other components with which it is to be used.

9.2 The supplier, at his discretion and responsibility, may indicate on the package that the product contained therein meets the requirements of this specification.

10. Keywords

10.1 brick; chemical-resistant; grout; tile