



Standard Practice for Use of Chemically Setting Chemical-Resistant Silicate and Silica Mortars¹

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1. Scope

1.1 This practice provides information for the proper storage, mixing, and use of chemically setting silicate and silica mortars for bonding chemical-resistant brick or tile in order to obtain the optimum chemical resistance and physical strength of the mortar.

1.2 This practice does not apply to the air-setting type of silicate and silica chemical-resistant mortars.

1.3 Chemical-resistant brick or tile conforming to Specifications C 279, C 410, or C 980 are considered satisfactory for use with these mortars.

NOTE 1—For specifications for mortars covered by this practice, see Specification C 466.

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

1.5 *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 ASTM Standards:

- C 267 Test Method for Chemical Resistance of Mortars, Grouts, and Monolithic Surfacing²
- C 279 Specification for Chemical-Resistant Masonry Units²
- C 410 Specification for Industrial Floor Brick²
- C 414 Test Method for Working, Setting, and Service Strength Setting Times of Chemically Setting Chemical-Resistant Silicate and Silica Mortars²
- C 466 Specification For Chemically Setting Silicate and Silica Chemical-Resistant Mortars²
- C 904 Terminology Relating to Chemical Resistant Nonmetallic Materials²
- C 980 Specification for Industrial Chimney Lining Brick²

¹ This practice is under the jurisdiction of ASTM Committee C-3 on Chemical-Resistant Nonmetallic Materials and is the direct responsibility of Subcommittee C03.02 on Mortar and Monolithics.

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² Annual Book of ASTM Standards, Vol 04.05.

3. Terminology

3.1 For definitions of terms used in this practice, see Terminology C 904.

4. Shipment and Storage

4.1 The powder shall be protected from water during shipment and storage. Powder that has become wet shall be discarded.

4.2 The liquid binder shall be protected from freezing during shipment and storage. In the event that any containers of liquid have ruptured, they shall be discarded.

4.3 In the event that silica sols freeze, they must be discarded. In the event that silicates freeze, they may be restored by warming and thorough stirring until a uniform solution results. Consult the manufacturer for recommendations.

5. Installation Conditions

5.1 Silicate and silica mortars shall be applied when the powder, binder or water, brick or tile, substrate and ambient air temperatures are all between 50°F (10°C) and 90°F (32°C). For temperatures outside this range, consult the manufacturer for recommendations.

5.2 The brick or tile and substrate shall be clean and dry during installation.

6. Mixing and Application

6.1 Use the proportions of powder to binder or potable water recommended by the manufacturer. Weigh the powder and binder or potable water into separate containers according to the recommended ratio. Liquid and powder levels may then be marked so that future measurements may be made by volume.

6.1.1 The optimum properties may vary due to temperature. The mortar should be sufficiently stiff for the brick or tile to retain its position without slipping or sliding or without sagging out of the joint.

6.2 Using a clean mortar pan or other suitable container, add approximately three fourths of the powder to the liquid and mix with hoe, trowel, or power mixer until all of the powder has been wetted. Add the remainder of the powder to the mix and continue mixing to a proper mortar consistency.

