



Standard Practice for Making and Conditioning Chemical-Resistant Sulfur Polymer Cement Concrete Test Specimens in the Laboratory¹

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1. Scope

1.1 This practice covers procedures for making and conditioning test specimens of chemical-resistant sulfur polymer cement concrete (SC) in the laboratory. The specimens are cast under accurate control of materials and test conditions using aggregate and sulfur polymer cement (SPC) to make SC that can be consolidated by rodding, as described in this practice.

1.2 Sulfur polymer cement may be furnished as a single or multiple component system.

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

1.4 *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:²

C 470/C 470M Specification for Molds for Forming Concrete Test Cylinders Vertically

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

2.2 National Institute of Standards and Technology:

Handbook 44: Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices³

3. Terminology

3.1 **Definitions**—For definitions of terms used in this practice, refer to Terminology C 904.

4. Significance and Use

4.1 This practice is for making specimens of SC in a standard way so that comparative testing can be performed by various producers and users. Use of this practice to prepare specimens for laboratory testing will reduce variability that might be introduced by different methods of casting and by the use of a variety of specimen shapes and sizes.

5. Apparatus

5.1 Molds:

5.1.1 *Molds for Specimens or Fastenings Thereto in Contact with the SC* shall be made of steel, cast iron, or other nonabsorbent materials that are nonreactive with concretes containing either SPC, its components, or other polymer cements.

5.1.2 *Size of the Molds* shall conform to the dimensions and tolerances specified in the procedure for which the specimens are required. Molds shall hold their dimensions and shape under conditions of severe use.

5.1.3 *Condition of the Molds for Casting* shall be watertight. A suitable sealant, such as modeling clay, shall be used where necessary to prevent leakage through joints. Positive means shall be provided to hold base plates firmly to the molds. If cylinders are filled vertically and immediately stored horizontally for cooling, positive means also shall be provided to hold top plates firmly to the molds. Reusable molds shall be lightly coated with mineral oil or a suitable nonreactive release material before use.

5.2 Cylinder Molds:

5.2.1 *Molds for Casting Specimens Vertically* shall conform to the requirements of 5.1 and Specification C 470/C 470M.

5.2.2 *Molds for Casting Specimens Vertically and Storing Horizontally* shall conform to the requirements for symmetry and dimensional tolerances of Specification C 470/C 470M. Provision shall be made for fixing both end plates firmly to the mold.

5.3 *Beam and Prism Molds* shall be rectangular in cross section (unless otherwise specified) and of the dimensions required to produce the desired specimen size. The inside surfaces of the molds shall be smooth and free from indentations. The sides, bottom, and ends shall be at either equal or

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

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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 National Institute of Standards and Technology (NIST), 100 Bureau Dr., Stop 3460, Gaithersburg, MD 20899-3460.