



Standard Test Method for Determining Chemical Resistance of Aggregates for Use in Chemical-Resistant Sulfur Polymer Cement Concrete and Other Chemical-Resistant Polymer Concretes¹

This standard is issued under the fixed designation C1370; 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 test method covers the determination of the effects of selected environments on aggregates for use in manufacturing sulfur polymer cement concrete (SC) and other chemical-resistant polymer concretes.

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 ASTM Standards:²

C904 Terminology Relating to Chemical-Resistant Nonmetallic Materials

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

Handbook 44 Specifications Tolerances and other Technical Requirements for Commercial Weighing and Measuring Devices

3. Terminology

3.1 Definitions:

3.1.1 For definitions of terms used in this test method, refer to Terminology C904.

¹ This test method is under the jurisdiction of ASTM Committee C03 on Chemical-Resistant Nonmetallic Materials and is the direct responsibility of Subcommittee C03.01 on Mortars and Carbon Brick.

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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.

4. Significance and Use

4.1 The results obtained by this test method should serve as a guide in, but not as the sole basis for, selection of aggregates for use in sulfur polymer cement concrete and other chemical-resistant polymer concretes for a particular application. No attempt has been made to incorporate in the test method all the various factors that may affect the performance of a material when subjected to actual service.

4.2 This test method assists in determining whether aggregates are susceptible to attack by solutions in the environment of intended use.

4.3 This is not a test for permeability and results are not to be interpreted as a measurement of, or indication of, permeability of the material tested.

5. Apparatus

5.1 *Weighing Equipment*, shall be capable of weighing materials or specimens to $\pm 0.3\%$ accuracy. The weighing equipment shall meet the National Institute of Standards and Technology requirements for sensitivity and tolerances.

NOTE 1—In general, small quantities should not be weighed on large capacity scales. In many applications, the smallest quantity weighed on a scale should be greater than about 10 % of the maximum capacity of the scale; however, this will vary with the performance characteristics of the scale and the required accuracy of the determination. Acceptable scales used for weighing concrete materials preferably should weigh accurately to about 0.1 % of total capacity and the foregoing precaution is applicable. However, certain analytical and precision balances are exceptions to this rule and should weigh accurately to 0.001 %. Particular care must be exercised in measuring small quantities of material by determining the difference between two much larger weights.

5.2 Drying oven of sufficient size to accommodate the aggregate sample and capable of holding the sample at a temperature of $230 \pm 10^\circ\text{F}$ ($110 \pm 6^\circ\text{C}$).

5.3 *Small Tools*, including, but not limited to, items such as 600-mL beakers, hot plate capable of holding sample and solution at constant $140 \pm 4^\circ\text{F}$ ($60 \pm 2^\circ\text{C}$), desiccator, filter flask, funnel, and No. 1 qualitative filter papers.

6. Materials Preparation

6.1 The temperature in the vicinity of the mixing and testing operations shall be $73 \pm 4^\circ\text{F}$ ($23 \pm 2^\circ\text{C}$).