



PREPARATION OF BRICK MORTAR SPECIMENS FOR TESTING

1. SCOPE

- 1.1 The verification of the quality of cured mortar installed in certain brick lining projects may be required to be tested for quality assurance purposes. These projects include but are not limited to the construction of independent brick liners in the chimneys of fossil fired power plants, the lining of sulfuric acid plant equipment, pressure leaching autoclaves or any number of types of plant-critical equipment that may be brick lined.
- 1.2 Armor recommends that ASTM C-579 Method A be used as the standard test method for determining the compressive strength of silicate mortars. This procedure utilizes 1" (25 mm) diameter cylinder specimens instead of 2" (50 mm) cube specimens. Over years of experience, we have found better test specimens can be prepared and more meaningful and consistent results obtained with less shrinkage and less mass of material to cure.

2. SAMPLE PREPARATION AND TESTING PROCEDURE

- 2.1 As allowed by ASTM C-579, Armor-specific recommendations should be followed when performing the tests as noted below.
- 2.2 The bottom of Teflon cylinders shall be closed by means of plastic tape of appropriate width.
- 2.3 A mix of mortar is made and placed in one or more small plastic bags. The throat of the bag is gathered and tied, and a small hole is to be cut in one corner, allowing mortar to be squeezed from the opening as required. A volume of mortar approximately one-fourth to one-third that of the mold is taken on a spatula and carefully worked along the bottom and sides and into the circular "corner" area where tape meets the inside diameter of the mold. Two or three additional increments of mortar are worked into the previous material and along the sides of the mold. All mortar additions are accompanied by tapping the mold to aid settling, and to forestall the formation of air bubbles. Excess mortar is struck off evenly with the top of the mold using the edge of the spatula.
- 2.4 Immediately after being made, the mortar specimens shall be covered with polyethylene and remain covered for 3 days. After 3 days, the polyethylene covering and the bottom filament tape shall be removed. On the 6th day after manufacture, the specimens shall be de-molded and dressed by sanding with a fine grade of sandpaper. The side which was exposed to the air usually requires some work while the side which was against the tape seldom does. The intent is to ensure that the end surfaces of the cylinders are parallel. No acid treatment of the prepared test cylinders shall be undertaken.
- 2.5 Compressive strength is the most common test used in analyzing the performance of mortars. Other physical properties as noted below may also be important and should be examined when knowledge of the total performance is required. Test procedures for various properties recommended by Armor are listed below. As with compressive strength testing, specimens should be cured to full strength before any tests are conducted; consult the individual mortar product information sheets for full cure information. Consult Armor if there are

any questions. Shrinkage and flexural strength test specimens should not be demolded before 48 hours cure.

ASTM C-307	Tensile Strength
ASTM C-413	Absorption
ASTM C-414	Working and Setting Times
ASTM C-531	Shrinkage and Coefficient of Thermal Expansion
ASTM C-580	Flexural Strength and Modulus of Elasticity
ASTM C-321	Bond Strength
ASTM C-177	Thermal Conductivity

3. SAFETY PRECAUTIONS DISCLAIMER CONTACT INFORMATION

- 3.1 Consult current Safety Data Sheets before commencement of work.
- 3.2 While statements, technical information and recommendations contained herein are based on information our company believes to be reliable, nothing contained herein shall constitute any warranty, express or implied, with respect to the products and/or services described herein, and any such warranties are expressly disclaimed. We recommend that the prospective purchaser or user independently determine the suitability of our product(s) for their intended use. No statement, information, or recommendation with respect to our products, whether contained herein or otherwise communicated, shall be legally binding upon us unless expressly set forth in a written agreement between us and the purchaser/user. For all Terms and Conditions of Sale see armor-inc.com.
- 3.3 Please contact Armor for further information at +1-877-98ARMOR (982-7667) or customerservice@armor-inc.com.

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