

## Standard Method of Test for YIELD OF MAGNESIUM OXYCHLORIDE CEMENT (LABORATORY TEST)<sup>1</sup>



ASTM Designation: C 389 - 58

ADOPTED, 1958.<sup>2</sup>

This Standard of the American Society for Testing Materials is issued under the fixed designation C 389; the final number indicates the year of original adoption as standard or, in the case of revision, the year of last revision.

### Scope

1. This method of test covers a procedure for determining the area that will be covered by a given dry weight of magnesium oxychloride composition when placed in a thickness of  $\frac{1}{4}$  in.

### Apparatus

2. (a) *Balance*, having a sensitivity of 0.1 g under a load of 2000 g.  
(b) *Flow Table Mold*, as used in the Method of Test for Consistency of Magnesium Oxychloride Cements by the Flow Table (ASTM Designation: C 255).<sup>3</sup>  
(c) *Glass Plate*, flat,  $\frac{1}{4}$  in. thick and 4 in. square.

### Preparation of Sample

3. The cement shall be mixed accord-

<sup>1</sup> Under the standardization procedure of the Society, this method is under the jurisdiction of the ASTM Committee C-2 on Magnesium Oxychloride and Magnesium Oxysulfate Cements.

<sup>2</sup> Prior to adoption as standard, this method was published as tentative from 1956 to 1958.

<sup>3</sup> Appears in this publication, see Contents in Numeric Sequence of ASTM Designations at front of book.

where:

$Y$  = yield in square feet of  $\frac{1}{2}$ -in. thickness per 100 lb of dry mix,  
 $R$  = gauging ratio in milliliters of gauging solution per gram of dry mix,  
 $\rho$  = specific gravity of the gauging solution, and  
 $W$  = weight of the cement sample in grams.

(b) If desired, the amounts of dry mix and of magnesium chloride ( $MgCl_2$ , where  $W$ ,  $\rho$ , and  $R$  are defined as in Paragraph (a).

$6H_2O$ ) in pounds per square foot ma be calculated as follows:

$$\text{Dry mix, lb per sq ft} = \frac{0.0087W}{1 + \rho R}$$

$$MgCl_2 \cdot 6H_2O, \text{ lb per sq ft}$$

$$= \frac{0.233(\rho - 1.0124)\rho R W}{1 + \rho R}$$

ing to the Method for Mixing Magnesium Oxychloride Cement Compositions with Gauging Solution (for Preparation of Specimens for Laboratory Tests) (ASTM Designation: C 251).<sup>3</sup>

### Procedure

4. (a) Weigh the flow table mold and the flat piece of glass to the nearest 0.5 g.  
(b) Place the flow table mold in the inverted position (large end uppermost) on the glass plate, fill with cement, rod thoroughly to eliminate air bubbles, and strike off the excess cement with a straightedge.

(c) Weigh the mold, filled with cement, to the nearest 0.5 g.

### Calculations

5. (a) Calculate the yield in square feet of  $\frac{1}{2}$ -in. thickness per 100 lb of dry mix as follows:

$$Y = \frac{11,400(1 + R\rho)}{W}$$