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~~Designation:C 544–92 (Reapproved 1998)ε1~~ Designation: C 544 – 03 (Reapproved 2008)

Standard Test Method for Hydration of Dead Burned Magnesite or Periclase Grain[1]

This standard is issued under the fixed designation C 544; 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.

~~ε[1] NOTE—Editorial changes were made throughout in March 1998.~~

1. Scope

1.1 This test method covers the measurement of the relative resistance of magnesia grain to hydration.

1.2 *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 92 Test Methods for Sieve Analysis and Water Content of Refractory Materials

C 357 Test Method for Bulk Density of Granular Refractory Materials

C 456 Test Method for Hydration Resistance of Basic Bricks and Shapes

C 493 Test Method for Bulk Density and Porosity of Granular Refractory Materials by Mercury Displacement (Discontinued 2002)

3. Significance and Use

3.1 This test method determines relative hydration resistance of magnesia grain.

3.2 This test method is used in industry to evaluate grain samples and is used for specification purposes in some cases.

3.3 Care must be taken in interpreting the data.

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4. Apparatus

4.1 *Autoclave*, suitable for operation at 80 psi (552 kPa) at 324°F (162°C) and equipped with pressure- and temperature-measuring devices and safety equipment.

ASTM C544-03(2008) https://standards.iteh.ai/catalog/standards/sist/bd7d6076-0c0b-410a-a09f-4c7652988781/astm-c544-032008

NOTE 1—A suitable apparatus is shown in Fig. 1 of Test Method C 456.

4.2 *Standard Sieves*, ASTM No. 6 (3.35 mm), No. 12 (1.70 mm), No. 20 (850 µm), No. 40 (425 µm), and No. 50 (300 µm).

NOTE 2—The equivalent Tyler Standard Series sieves described in Test Methods C 92 may be substituted for the ASTM sieves.

5. Procedure

5.1 Remove the material retained on a No. 6 (3.35-mm) sieve, and crush it to pass the No. 6 sieve to obtain the maximum amount of coarse material. Recombine with the portion passing the No. 6 sieve, and screen the resultant sample to remove all material passing a No. 40 (425-µm) sieve. If necessary, dry at 220 to 230°F (105 to 110°C).

5.2 Separate this sample into the following three fractions:

Passing Sieve No.	Retained on Sieve No.
6 (3.35 mm)	12 (1.70 mm)
12 (1.70 mm)	20 (850 µm)
20 (850 µm)	40 (425 µm)

5.3 Prepare a 100-g specimen by using equal parts by weight of the three sizes listed in 5.2.

~~[1] This test method is under the jurisdiction of ASTM Committee C-8 on Refractories and is the direct responsibility of Subcommittee C08.04 on Chemical Behaviors. Current edition approved July 15, 1992. Published September 1992. Originally published as C544–64. Last previous edition C544–91.~~

[1] This test method is under the jurisdiction of ASTM Committee C08 on Refractories and is the direct responsibility of Subcommittee C08.04 on Chemical Behaviors. Current edition approved March 1, 2008. Published March 2008. Originally approved in 1964. Last previous edition approved in 2003 as C 544 – 03.

~~[2] Annual Book of ASTM Standards, Vol 15.01.~~

[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.

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