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Committee C09 on Concrete and Concrete Aggregates
Subcommittee C09.43 on Packaged Dry Combined Materials

Research Report C09-1035

Interlaboratory Study to Establish Precision Statements for ASTM C0928-09, Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs

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1. Introduction:

Interlaboratory Study 269 was conducted to establish a precision statement for C0928, Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs.

2. Test Method:

The Test Method used for this ILS is C0928-09. To obtain a copy of C0928, go to ASTM's website, www.astm.org, or contact ASTM Customer Service by phone at 610-832-9585 (8:30 a.m. - 4:30 p.m. Eastern U.S. Standard Time, Monday through Friday) or by email at service@astm.org.

3. Participating Laboratories:

The following laboratories participated in this interlaboratory study

1. Michael Morrison
CTL Group
5400 Old Orchard Road
Skokie, IL 60077-1030

2. Frank Verano
Elotex
10 Finderne Avenue
Bridgewater, NJ 08807

3. Tom Nappier
Dependable Chemical Company
1127 Linda Street
PO Box 16334
Rocky River, Ohio 441133-0334

4. Charles Alt
LaFarge Calcium Aluminates, Inc.
1316 Priority Lane
Chesapeake, VA 23324

5. Bob Schmidt
Bonsal American
10300 Pulaski Highway
White March, MD 21162

6. Richard Nicholson
The Quikrete Compaines
3097 Presidential Drive, Suite F
Atlanta, GA 30340-3906

7. Shawn McCormick
TEC Services
235 Buford Drive
Lawrenceville, GA 30046

4. Description of Samples:

There were 1 samples of varying targeted results used for this study. Each sample was supplied, prepared and distributed by TEC Services, Inc. Below is a list of the samples with the corresponding supplier:

1. CTS Cement and Concrete Sand (1:3 ratio)

5. Interlaboratory Study Instructions

Laboratory participants were emailed the test program instructions. For a copy of the instructions, please see Annex A.

6. Description of Equipment/Apparatus[1]:

The following list is the equipment/apparatus used by each laboratory.

12Q Hobart Mixer
1x1x10" prism molds
Moisture Room
Curing Room

7. Data Report Forms:

Each laboratory was provided with a data report form for the collection of data. A copy of the data is provided in Annex B.

Please note: The laboratories have been randomly coded and cannot be identified herein.

8. Statistical Data Summary:

A summary of the statistics calculated from the data returned by the participating laboratories is provided in Annex C.

9. Precision and Bias Statement:

10.1 *Length Change*:

10.1.1 *Precision*—The precision of the length change test method described in section 8.3 is based on an interlaboratory study that was conducted in 2007.[2] Seven laboratories tested one rapid-hardening material that consisted of commercially available rapid hardening cement blended with three parts standard graded sand complying with Specification C778. The precision values were calculated for both "water storage" and "air storage" of test specimens. A test result is defined in this specification as the average of three separate measurements (triplicate length change specimens).

10.1.2 The single-operator standard deviation for water storage of test specimens has been found to be 0.0031 %.[3] Therefore, results of two properly conducted tests by the same operator on the same material are not expected to differ by more than 0.009 %.[6] The single-operator standard deviation for air storage of test specimens has been found to be 0.0067 %.[6] Therefore, results of two properly conducted tests by the same operator on the same material are not expected to differ by more than 0.019 %.[6]

10.1.3 The multi-laboratory standard deviation for water storage of test specimens has been found to be 0.0078 %.[6] Therefore, results of two properly conducted tests from two different laboratories on the same material are not expected to differ by more than

[1] The equipment listed was used to develop a precision statement for C0928-09. This listing is not an endorsement or certification by ASTM International.