

Curing and Testing CERATECH™ Cement Concrete Specimens

As part of a series of ongoing material testing initiatives, CeraTech Inc. (“CTI”) performed evaluation to determine the best method for curing and testing CERATECH™ Cement concrete. Acceptable practices as per ASTM have been narrowed to provide the most accurate testing results. These criteria are outlined below.

PROCEDURES

Curing:

The Contractor is required to cure the test specimens in a manner that represents the bulk placement concrete (refer ASTM C 31 section 10).

Initial Curing – During the first 48 hours after preparation, all test specimens shall be stored in a temperature range of 68 to 78 °F and in an environment preventing moisture loss.

- Covering after finishing – to prevent evaporation of water from the unhardened concrete, flexural beam specimens shall be covered loosely immediately after finishing, preferably with a non-absorptive, non-reactive plate, blanket or impervious plastic.
- A layer of burlap or similar material should be placed over the above to facilitate a complete seal around the samples.
- Cylinders for compressive strength tests should be covered with a cap following casting and remain in their mold until tested.

Final Curing – Upon completion of initial curing and within 30 minutes of transportation, all flexural beam test specimens will be placed in plastic bags and sealed. Following the initial cure, the specimens may be transported utilizing a substantial vibration damping method or medium to the testing laboratory for subsequent curing and testing. Laboratory curing shall consist of minimum relative 50% humidity and a controlled temperature of 73 ± 3 °F (23 ± 1° C).

- All compressive strength cylinders or flexural beam test specimens will be kept in the mold and/or bag until they are tested. If samples must be removed from the mold prior to testing, they shall be bagged and sealed to maintain constant moisture.
- Cylinders and/or flexural beam samples *will not be* submerged at any point in the curing process.

Practices and Procedures

V.10.14

Testing:

The Contractor is required to test all specimens in accordance with ASTM C 39 (compressive) and ASTM C 78 (flexural).

- Compression samples – all samples shall be cured in the mold (capped) until age of testing.
 - All samples will utilize bonded caps as per ASTM C 39
- Flexural samples – all samples shall be cured in the mold and then sealed in a bag until age of testing.
 - Load surfaces will be checked with a 0.004 in. leaf-type feeler gage to determine any gaps or uneven faces (as per ASTM C 78 section 6.2) with calculated loads between 300 and 400 psi.
 - Grinding specimen faces is the only acceptable means to eliminate any gap in excess of 0.004 in. over a 1 in. length.
 - Leather shims shall not be used.