

COMPRESSIVE STRENGTH OF MOLDED CEMENT  
TREATED BASE OR SOIL-CEMENT SPECIMENS

(An Arizona Method)

SCOPE

1. This test method is used to determine the unconfined compressive strength of cement treated base or soil-cement specimens.

APPARATUS

2. Three split ring molds shall be used. Refer to AASHTO T 134 for other applicable apparatus. AASHTO T 134, Section 2.1.1, shall be modified as follows; a 4 inch mold having a capacity of  $1/30\text{th} \pm 0.003$  of a cubic foot with an internal diameter of  $4.00 \pm 0.16$  inch.

SAMPLE PREPARATION

3. (a) A representative sample of approximately 10 kg. shall be obtained in a random manner from the completed mixture prior to final compaction, and immediately placed in an air-tight container. Not more than 90 minutes shall lapse between the time of mixing and the final mold fabrication.

(b) Sieve material over 3/4" sieve and discard plus 3/4" material.

FABRICATION

4. Three specimens shall be promptly fabricated, following the procedure below:

(a) Compact the mixture in the mold, with the collar attached, in three equal layers so as to give a total compacted depth of about 5 inches. The top of the first and second layers shall be scratched to aid in bonding to subsequent layer. Compact each layer by 25 blows from the rammer dropping from a height of 12 inches. The blows shall be uniformly distributed over the surface of the layer being compacted. During compaction, the mold shall rest on a uniform, rigid foundation.

(b) Following compaction, remove the extension collar, carefully trim the compacted mixture even with the top of the mold by means of a knife and straightedge. During the trimming operation, remove all particles that extend above the top level of the mold. Correct all irregularities in the surface by hand tamping fine material into these irregularities and leveling the specimen again with the straightedge, spraying with a fine mist of water as necessary to maintain specimen surface in a moist condition.

(c) Remove specimens from molds, taking proper care in removing the specimens so that the shape of the molded specimens is maintained. To assure that specimens are in a moist condition they may be sprayed with a fine mist of water upon demolding, and promptly placed in the curing environment.

#### CURING

5. (a) The specimens shall be cured at 100% humidity between 65°F and 80°F for six days. The specimens shall be protected from direct contact with free water to prevent saturation and/or leaching of cementitious material from the specimen.

(b) If the specimens are fabricated where a "fog" room is not available, the curing is to be accomplished by surrounding the specimens with pre-saturated warm "Zonolite" or other satisfactory material in a sealed container. This sealed container shall be promptly placed in a 65°F to 80°F environment.

(c) After six days the specimens shall be immersed in saturated lime water at 65°F to 80°F for 24 hours.

#### COMPRESSIVE STRENGTH

6. (a) Carefully remove the specimens from the water and towel dry. Due to the fragility of the specimens they must be handled carefully to assure that they are not damaged. Determine the diameter of each test specimen to the nearest 0.01 inch by averaging two diameter determinations measured at right angles to each other at midheight of the specimen. The specimens shall be capped in accordance with AASHTO T-231, and broken immediately after capping.

(b) Place each specimen on the bearing block of the compression machine and center it under the loading head.

(c) Continuously apply a uniform load to the specimen at the rate of  $0.05 \pm 0.01$  inches per minute for the screw type testing machines, or 20 to 50 psi/sec for the hydraulically operated machines until failure is noted or the continued application of pressure results in no increase in load. Record the load at failure and convert to psi using diameter determined in paragraph (a) above. The average of the three results shall constitute one test value for purposes of compressive strength specification compliance.

REPORT

7. Record the load failure point and compressive strength in psi for each specimen, and the average compressive strength for the three specimens.