



Designation: C 172 – 99

Standard Practice for Sampling Freshly Mixed Concrete¹

This standard is issued under the fixed designation C 172; 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 approval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This practice covers procedures for obtaining representative samples of fresh concrete as delivered to the project site on which tests are to be performed to determine compliance with quality requirements of the specifications under which the concrete is furnished (Note 1). The practice includes sampling from stationary, paving and truck mixers, and from agitating and nonagitating equipment used to transport central-mixed concrete.

1.2 The values stated in SI units are to be regarded as the standard. The values shown in parentheses are provided for information only.

NOTE 1—Composite samples are required by this practice, unless specifically excepted by procedures governing the tests to be performed such as tests to determine uniformity of consistency and mixer efficiency. Procedures used to select the specific test batches are not described in this practice, but it is recommended that random sampling be used to determine over-all specification compliance.

1.3 This practice also covers the procedures to be used for preparing a sample of concrete for further testing where it is desirable or necessary to remove the aggregate larger than a designated size. This removal of larger aggregate particles is preferably accomplished by wet-sieving.

1.4 The text of this standard references notes and footnotes which provide explanatory material and shall not be considered as requirements of the practice.

1.5 *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:

E 11 Specification for Wire-Cloth and Sieves for Testing Purposes²

¹ This practice is under the jurisdiction of ASTM Committee C-9 on Concrete and Concrete Aggregates and is the direct responsibility of Subcommittee C09.60 on Fresh Concrete Testing.

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² *Annual Book of ASTM Standards*, Vol 14.02.

3. Significance and Use

3.1 This practice is intended to provide standard requirements and procedures for sampling freshly mixed concrete from different containers used in the production or transportation of concrete. The detailed requirements as to materials, mixtures, air content, temperature, number of specimens, slump, interpretation of results, and precision and bias are in specific test methods.

4. Sampling

4.1 The elapsed time shall not exceed 15 min. between obtaining the first and final portions of the composite sample.

4.1.1 Transport the individual samples to the place where fresh concrete tests are to be performed or where test specimens are to be molded. They shall be combined and remixed with a shovel the minimum amount necessary to ensure uniformity and compliance with the maximum time limits specified in 4.1.2.

4.1.2 Start tests for slump, temperature, and air content within 5 min after obtaining the final portion of the composite sample. Complete these tests expeditiously. Start molding specimens for strength tests within 15 min after fabricating the composite sample. Expeditiously obtain and use the sample and protect the sample from the sun, wind, and other sources of rapid evaporation, and from contamination.

5. Procedure

5.1 *Size of Sample*—Make the samples to be used for strength tests a minimum of 28 L (1 ft³). Smaller samples are not prohibited for routine air content, temperature, and slump tests. The size of the samples shall be dictated by the maximum aggregate size.

5.2 The procedures used in sampling shall include the use of every precaution that will assist in obtaining samples that are truly representative of the nature and condition of concrete sampled as follows:

NOTE 2—Sampling should normally be performed as the concrete is delivered from the mixer to the conveying vehicle used to transport the concrete to the forms; however, specifications may require other points of sampling, such as the discharge of a concrete pump.