



Designation: C125 – 21a

Standard Terminology Relating to Concrete and Concrete Aggregates¹

This standard is issued under the fixed designation C125; 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.

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

1. Scope*

1.1 This standard is a compilation of definitions of terms as they are used in standards under the jurisdiction of Committee C09.

1.2 Other terminology under the jurisdiction of Committee C09 is included in two specialized standards. Terms relating to constituents of concrete aggregates are defined in Descriptive Nomenclature C294. Terms relating to constituents of aggregates for radiation-shielding concrete are defined in Descriptive Nomenclature C638.

1.3 Related terminology for hydraulic cement is included in Terminology C219. In the event of conflict between definitions in Terminology C125 and definitions in Terminology C219, definitions in Terminology C125 shall govern for Committee C09 standards.

1.4 When a term is used in an ASTM standard for which Committee C09 is responsible, it is included herein only if used in more than one Committee C09 standard.

NOTE 1—The subcommittee responsible for this standard will review definitions on a five-year basis to determine if the definition is still appropriate as stated. Revisions will be made when determined necessary. The year shown in parentheses at the end of a definition indicates the year the definition or revision to the definition was approved. A letter R and a year indicate when the definition was reviewed. No date indicates the term has not yet been reviewed.

1.5 This terminology includes notes and discussions to definitions that provide supplementary or explanatory information. These notes and discussions shall not be considered as requirements of this standard nor as parts of the definitions.

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

¹ This terminology is under the jurisdiction of ASTM Committee C09 on Concrete and Concrete Aggregates and is the direct responsibility of Subcommittee C09.91 on Terminology.

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2. Referenced Documents

2.1 ASTM Standards:²

- C33/C33M Specification for Concrete Aggregates
- C94/C94M Specification for Ready-Mixed Concrete
- C143/C143M Test Method for Slump of Hydraulic-Cement Concrete
- C219 Terminology Relating to Hydraulic and Other Inorganic Cements
- C294 Descriptive Nomenclature for Constituents of Concrete Aggregates
- C403/C403M Test Method for Time of Setting of Concrete Mixtures by Penetration Resistance
- C494/C494M Specification for Chemical Admixtures for Concrete
- C511 Specification for Mixing Rooms, Moist Cabinets, Moist Rooms, and Water Storage Tanks Used in the Testing of Hydraulic Cements and Concretes
- C638 Descriptive Nomenclature of Constituents of Aggregates for Radiation-Shielding Concrete
- C670 Practice for Preparing Precision and Bias Statements for Test Methods for Construction Materials
- C939/C939M Test Method for Flow of Grout for Preplaced-Aggregate Concrete (Flow Cone Method)
- C1074 Practice for Estimating Concrete Strength by the Maturity Method
- C1077 Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
- C1240 Specification for Silica Fume Used in Cementitious Mixtures
- C1437 Test Method for Flow of Hydraulic Cement Mortar
- C1610/C1610M Test Method for Static Segregation of Self-Consolidating Concrete Using Column Technique
- C1611/C1611M Test Method for Slump Flow of Self-Consolidating Concrete
- E135 Terminology Relating to Analytical Chemistry for Metals, Ores, and Related Materials

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.

*A Summary of Changes section appears at the end of this standard

3. Terms and Their Definitions

absorption, *n*—the process by which a liquid is drawn into and tends to fill permeable pores in a porous solid body; also, the increase in mass of a porous solid body resulting from the penetration of a liquid into its permeable pores. (R2008)

DISCUSSION—In the case of concrete and concrete aggregates, unless otherwise stated, the liquid involved is water, the increase in mass is that which does not include water adhering to the outside surface, the increase in mass is expressed as a percentage of the dry mass of the body and the body is considered to be “dry” when it has been treated by an appropriate process to remove uncombined water, such as drying to constant mass at a temperature between 100 °C and 110 °C.

acceptable range, *n*—the difference between the largest and smallest of three or more test determinations that is expected to be exceeded with a probability of about 5 % in the normal and correct operation of the test method. (2019)

DISCUSSION—The acceptable range can be used as an index of precision for test methods that define a test result as the average of three or more test determinations.

accreditation, *n*—of testing agency, a process by which an evaluation authority attests that a testing agency has demonstrated the competency to perform specific tasks in accordance with a standard. (2011)

admixture, *n*—a material other than water, aggregates, cementitious material, and fiber reinforcement that is used as an ingredient of a cementitious mixture to modify its freshly mixed, setting, or hardened properties and that is added to the batch before or during its mixing. (R2015)

accelerating admixture, *n*—an admixture that increases the rate of reaction of cementitious materials thus reducing time of setting and increasing the rate of early-age strength development of a cementitious mixture. (2021)

air-entraining admixture, *n*—admixture that causes the development of a system of microscopic air bubbles in concrete or mortar during mixing. (R2008)

chemical admixture, *n*—an admixture in the form of a liquid, suspension, or water-soluble solid. (2014)

extended set-control admixture, *n*—an admixture that can predictably reduce the hydration rate of cement for applications requiring extended time of setting followed by normal strength development. (2019)

DISCUSSION—Depending on dosage rate, this admixture can be used to manage the setting time of returned concrete, reduce the hydration of cement in wash water from concrete production, permit extended delivery times of ready mixed concrete, or function as an ordinary retarding admixture. Also referred to as a *hydration controlling admixture* or a *hydration stabilizing admixture*.

mineral admixture, *n*—deprecated term. (R2008)

DISCUSSION—This term has been used to refer to different types of water insoluble, finely divided materials such as pozzolanic materials, cementitious materials, and aggregate. These materials are not similar, and it is not useful to group them under a single term. The name of the specific material should be used, for example, use “pozzolan,” “slag cement,” or “finely divided aggregate,” as is appropriate.

retarding admixture, *n*—an admixture that decreases the rate of reaction of cementitious materials thus increasing time of setting of a cementitious mixture. (2015)

water-reducing admixture, *n*—admixture that either increases the slump of freshly mixed mortar or concrete without increasing the water content or that maintains the slump with a reduced amount of water due to factors other than air entrainment. (R2008)

water-reducing admixture, high-range, *n*—an admixture that reduces the quantity of mixing water required to produce concrete of a given slump by 12 % or greater. (2021)

DISCUSSION—The water reduction of at least 12 % is based on comparing the performance of the test mixture made with the admixture with the performance of the reference mixture in accordance with Specification C494/C494M.

age, equivalent, *n*—the number of days or hours of curing of a concrete mixture at a specified temperature required to produce a maturity equal to the maturity achieved by a given curing period at concrete temperatures different from the specified temperature. (2015)

DISCUSSION—The specified temperature is taken typically as the temperature used for standard laboratory curing. For example, a concrete cured for three days at an elevated temperature may have an equivalent age of seven days of curing at the standard laboratory temperature.

aggregate, *n*—granular material, such as sand, gravel, crushed stone, or iron blast-furnace slag, used with a cementing medium to form hydraulic-cement concrete or mortar. (R2008)

coarse aggregate, *n*—(1) aggregate predominantly retained on the 4.75 mm (No. 4) sieve; or (2) that portion of an aggregate retained on the 4.75 mm (No. 4) sieve. (R2008)

DISCUSSION—The definitions are alternatives to be applied under differing circumstances. Definition (1) is applied to an entire aggregate either in a natural condition or after processing. Definition (2) is applied to a portion of an aggregate. Requirements for properties and grading should be stated in the specification.

fine aggregate, *n*—(1) aggregate passing the 9.5 mm (3/8 in.) sieve and almost entirely passing the 4.75 mm (No. 4) sieve and predominantly retained on the 75 μ m (No. 200) sieve; or (2) that portion of an aggregate passing the 4.75 mm (No. 4) sieve and retained on the 75 μ m (No. 200) sieve. (R2008)

DISCUSSION—The definitions are alternatives to be applied under differing circumstances. Definition (1) is applied to an entire aggregate either in a natural condition or after processing. Definition (2) is applied to a portion of an aggregate. Requirements for properties and grading should be stated in the specifications.

heavyweight aggregate, *n*—see *high-density aggregate*.

high-density aggregate, *n*—aggregate with relative density greater than 3.3, such as: barite, magnetite, limonite, ilmenite, iron, or steel. (R2008)

lightweight aggregate, *n*—see *low-density aggregate*.

low-density aggregate, *n*—aggregate with bulk density less than 1120 kg/m³ [70 lb/ft³], such as: pumice, scoria, volcanic cinders, tuff, and diatomite; expanded or sintered clay, shale, slate, diatomaceous shale, perlite, vermiculite, or slag; and end products of coal or coke combustion. (R2008)

normal-density aggregate, *n*—aggregate that is neither high nor low density. (R2008)