



Designation: C125 – 09

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 Department of Defense.

1. Scope*

1.1 This standard is a compilation of general terminology related to hydraulic cement concrete, concrete aggregates, and other materials used in or with hydraulic cement concrete.

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. Additional related terminology can be found in ACI 116R.

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.

1.5 Definitions that are adopted from those published by other ASTM committees or other standards organizations are identified with the ASTM designation (for example, Terminology C219) or with the abbreviation of the name of the other organization.

1.6 A definition in this standard is a statement of the meaning of a word or word group expressed in a single sentence with additional information included in notes or discussion.

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 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

C109/C109M Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)

C143/C143M Test Method for Slump of Hydraulic-Cement Concrete

C219 Terminology Relating to Hydraulic Cement

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

C939 Test Method for Flow of Grout for Preplaced-Aggregate Concrete (Flow Cone Method)

C1074 Practice for Estimating Concrete Strength by the Maturity Method

C1611/C1611M Test Method for Slump Flow of Self-Consolidating Concrete

2.2 American Concrete Institute Publications:³

308 Practice for Curing Concrete

116R Cement and Concrete Terminology

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

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.

³ Available from American Concrete Institute (ACI), P.O. Box 9094, Farmington Hills, MI 48333-9094, <http://www.concrete.org>.

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

increase in mass of a porous solid body resulting from the penetration of a liquid into its permeable pores. (R 2008)

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 and 110 °C.

admixture, *n*—a material other than water, aggregates, hydraulic 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. (R 2008)

accelerating admixture, *n*—admixture that accelerates the setting and early strength development of concrete. (C494/C494M)

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

chemical admixture, *n*—a nonpozzolanic admixture in the form of a liquid, suspension, or water-soluble solid.

mineral admixture, *n*—deprecated term.

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,” “ground granulated blast-furnace slag,” or “finely divided aggregate,” as is appropriate.

retarding admixture, *n*—admixture that retards the setting of concrete. (C494/C494M)

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.

water-reducing admixture, high-range, *n*—a water-reducing admixture capable of producing at least 12 % reduction of water content when tested in accordance with Specification C494/C494M and meeting the other relevant requirements of Specification C494/C494M.

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. (R 2008)

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.

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.

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.

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.

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

DISCUSSION—This term refers to aggregate with relative density typically ranging between 2.4 and 3.0, or with bulk density typically ranging between 1120 kg/m³ (70 lb/ft³) and 1920 kg/m³ (120 lb/ft³).

normalweight aggregate, *n*—see *normal-density aggregate*.

air content, *n*—the volume of air voids in cement paste, mortar, or concrete, exclusive of pore space in aggregate particles, usually expressed as a percentage of total volume of the paste, mortar, or concrete. (R 2008)

air-cooled blast-furnace slag—see **blast-furnace slag, air-cooled**.

air void—see **void, air**.

blast-furnace slag, *n*—the nonmetallic product, consisting essentially of silicates and aluminosilicates of calcium and other bases, that is developed in a molten condition simultaneously with iron in a blast furnace. (R 2008)

blast-furnace slag, air-cooled, *n*—the material resulting from solidification of molten blast-furnace slag under atmospheric conditions; subsequent cooling may be accelerated by application of water to the solidified surface. (R 2008)

blast-furnace slag, granulated, *n*—the glassy, granular material formed when molten blast-furnace slag is rapidly chilled, as by immersion in water. (R 2008)

bleeding, *n*—the autogenous flow of mixing water within, or its emergence from, newly placed concrete or mortar caused by the settlement of the solid materials within the mass, also called water gain. (R 2008)

bulk density, *n*—of *aggregate*, the mass of a unit volume of bulk aggregate material (the unit volume includes the volume of the individual particles and the volume of the voids between the particles). (R 2008)

DISCUSSION—This term replaces the deprecated term **unit weight**—of *aggregate*.

bulk specific gravity, *n*—the ratio of the mass of a volume of a material (including the permeable and impermeable voids