



Designation: D8 – 17b

Standard Terminology Relating to Materials for Roads and Pavements¹

This standard is issued under the fixed designation D8; 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 reappraisal. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

1. Scope

1.1 This standard incorporates generic terms and generic definitions of terms specifically associated with road and paving materials. These generic terms and definitions are used within the standards developed by Committee D04 on Road and Paving Materials.

1.2 Only terms that appear in more than one standard under the jurisdiction of Committee D04 will be included in Terminology D8.

1.3 *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.*

2. Referenced Documents

2.1 ASTM Standards:²

- D2026/D2026M Specification for Cutback Asphalt (Slow-Curing Type)
- D2027/D2027M Specification for Cutback Asphalt (Medium-Curing Type)
- D2028/D2028M Specification for Cutback Asphalt (Rapid-Curing Type)
- D3142/D3142M Test Method for Specific Gravity, API Gravity, or Density of Cutback Asphalts by Hydrometer Method
- D4124 Test Method for Separation of Asphalt into Four Fractions
- D4552 Practice for Classifying Hot-Mix Recycling Agents
- D5505 Practice for Classifying Emulsified Recycling Agents

¹ This terminology is under the jurisdiction of ASTM Committee D04 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.91 on Terminology.

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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. Terminology

aggregate, *n*—a granular material used as a construction material, meeting the requirements of road and paving applications.

DISCUSSION—Examples of aggregate include sand, gravel, shell, slag, and crushed stone. See *coarse aggregate* and *fine aggregate* for more information.

air voids (Pa), *n*—the volume of air between the asphalt-coated aggregate particles throughout a compacted asphalt mix, expressed as a percent of the total volume of the sample.

DISCUSSION—A variable previously used for this term was *V_a*.

anionic emulsion, *n*—a type of emulsion such that a particular emulsifying agent establishes a predominance of negative charges on the discontinuous phase.

API gravity, *n*—a function of specific gravity represented by the equation in Test Method D3142/D3142M.

DISCUSSION—A specific gravity scale developed by the American Petroleum Institute (API) used to compare how heavy or light a petroleum liquid is compared to water.

asphalt, *n*—A dark brown to black cement-like residuum obtained from the distillation of suitable crude oils.

DISCUSSION—The distillation processes may involve one or more of the following: atmospheric distillation, vacuum distillation, steam distillation. Further processing of distillation residuum may be needed to yield a material whose physical properties are suitable for commercial applications. These additional processes can involve air oxidation, solvent stripping or blending of residua of different stiffness characteristics. In Europe asphalt is called *bitumen*.

asphalt binder, *n*—asphalt which may or may not contain an asphalt modifier (see *asphalt modifier*).

DISCUSSION—this term is often used in the Performance Graded Binder system.

asphalt cement, *n*—See *asphalt*

asphalt concrete, *n*—See *asphalt mix*.

asphalt mix (asphalt mixture), *n*—a mixture of asphalt binder, emulsified asphalt, or cutback asphalt and aggregates. The mixture may also include other materials.

asphalt pavement, *n*—a structure consisting of one or more prepared layers of asphalt mix atop one or more supporting layers of unbound, modified, or treated subgrade, subbase or base materials.

asphalt-rubber, *n*—a blend of asphalt cement, reclaimed tire rubber, and certain additives in which the rubber component is at least 15 % by weight of the total blend and has reacted in the hot asphalt cement sufficiently to cause swelling of the rubber particles.

asphaltenes, *n*—insoluble materials that are precipitated by use of selected solvents, such as *n*-heptane.

DISCUSSION—The asphaltene fraction should be identified by the solvent and solvent-asphalt ratio used.

bank gravel, *n*—gravel found in natural deposits, usually more or less intermixed with fine material, such as sand or clay, or combinations thereof; gravelly clay, gravelly sand, clayey gravel, and sandy gravel indicate the varying proportions of the materials in the mixture.

bitumen, *n*—dark brown to black cement-like residuum obtained from the distillation of suitable crude oils.

DISCUSSION—The distillation processes may involve one or more of the following: atmospheric distillation, vacuum distillation, steam distillation. Further processing of distillation residuum may be needed to yield a material whose physical properties are suitable for commercial applications. These additional processes can involve air oxidation, solvent stripping or blending of residua of different stiffness characteristics. In North America bitumen is called asphalt.

bituminous, *adj*—containing or treated with bitumen (also *bituminized*).

DISCUSSION—Examples: bituminous concrete, bituminized felts and fabrics, bituminous pavement.

bituminous emulsion, *n*—(1) a suspension of minute globules of bituminous material in water or in an aqueous solution, (2) a suspension of minute globules of water or of an aqueous solution in a liquid bituminous material.

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

DISCUSSION—Depending on the way of cooling of the liquid slag, it can be distinguished between crystalline air-cooled blast furnace (ACBF) slag and glassy granulated blast furnace (GBF) slag.

bulk density, *n*—the ratio of the mass of a material to the volume it occupies.

DISCUSSION—Another common phrase for this term is *unit weight*.

bulk specific gravity, *n*—the ratio of the mass of a given volume of material, including the impermeable and permeable voids, to the mass of an equal volume of water at a specified temperature.

DISCUSSION—This term is also sometimes referred to as *relative density*.

cationic emulsion, *n*—a type of emulsion such that a particular emulsifying agent establishes a predominance of positive charges on the discontinuous phase.

clinker, *n*—generally a fused or partly fused by-product of the combustion of coal, but also including lava and portland-cement clinker, and partly vitrified slag and brick.

coal tar, *n*—a dark brown to black cementitious material produced by the destructive distillation of bituminous coal.

coarse aggregate, *n*—(1) aggregate predominantly retained on the 4.75-mm (No. 4) sieve: or (2) the portion of 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. Some specifying agencies use alternative sieve sizes to define coarse aggregate, such as the No. 8 and $\frac{3}{8}$ in.

coke-oven tar, *n*—coal tar produced in by-product coke ovens in the manufacture of coke from bituminous coal.

crack filler, *n*—bituminous material used to fill and seal cracks in existing pavements.

crusher-run, *n*—the total unscreened product of a stone crusher.

cutback asphalt, *n*—asphalt binder which has been blended with hydrocarbon distillates.

DISCUSSION—Slow-curing materials may be made and are often referred to as road oils. See Specifications [D2026/D2026M](#), [D2027/D2027M](#), and [D2028/D2028M](#).

dense-graded aggregate, *n*—an aggregate that has a particle size distribution such that when it is compacted, the resulting voids between the aggregate particles, expressed as a percentage of the total space occupied by the material, are relatively small.

dust binder, *n*—a light application of bituminous material for the express purpose of laying and bonding loose dust.

fine aggregate, *n*—(1) aggregate passing the 4.75-mm (No. 4) sieve or (2) the portion of aggregate passing 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 specifications. Some specifying agencies use alternative sieve sizes to define fine aggregate, such as the 2.36-mm (No. 8) and 9.50-mm ($\frac{3}{8}$ -in.) sieve.

fog seal, *n*—a light application of bituminous material to an existing pavement as a seal to inhibit raveling, or to seal the surface, or both. Medium and slow-setting bituminous emulsions are usually used and may be diluted with water.

fractured face, *n*—an angular, rough, or broken surface of an aggregate particle created by crushing, by other artificial means, or by nature.

“free-carbon” in tars, *n*—the hydrocarbon fraction that is precipitated from a tar by dilution with carbon disulfide or benzene.

gas-house coal tar, *n*—coal tar produced in gas-house retorts in the manufacture of illuminating gas from bituminous coal.

macadam, dry-bound and water bound, *n*—a pavement layer containing essentially one-size coarse aggregate choked in place with an application of screenings or sand;