



Designation: D8 – 02

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 reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This standard is a compilation of terminology related to materials used in the highway industry, generally for the construction of bituminous pavements, and that are within the jurisdiction of Committee D04. Terms that are generally understood or that are adequately defined in other readily available sources are not included.

1.2 Other terminology under the jurisdiction of Committee D04 is included in two other standards. Terms relating to bridge deck and substructure protection are defined in Terminology D3743. Terms relating to sealants for joints and cracks are defined in Terminology D5535.

1.3 When a term is used in an ASTM document for which Committee D04 is responsible, it is included herein only when judged, after review by Subcommittee D04.91, to be a term generally usable in a number of Committee D04 standards.

1.4 Definitions that are identical to those published by other ASTM committees or other standards organizations are identified with the ASTM designation (for example, Terminology C125) or with the abbreviation of the name of the organization.

1.5 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.

2. Referenced Documents

2.1 ASTM Standards:²

C125 Terminology Relating to Concrete and Concrete Aggregates

D3743 Terminology Relating to Bridge Deck and Substructure Protection³

D5535 Terminology Relating to Formed-in-Place Sealants for Joints and Cracks in Pavements³

2.2 AASHTO Standards:

MP2 Standard Specification for Superpave Volumetric Mix Design⁴

3. Terminology

3.1 Definitions:

3.1.1 Bituminous Materials:

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

asphalt, *n*—a dark brown to black cementitious material in which the predominating constituents are bitumens which occur in nature or are obtained in petroleum processing.

asphalt cement, *n*—a fluxed or unfluxed asphalt specially prepared as to quality and consistency for direct use in the manufacture of bituminous pavements, and having a penetration at 25°C (77°F) of between 5 and 300, under a load of 100 g applied for 5 s.

asphaltenes, *n*—the high molecular weight hydrocarbon fraction precipitated from asphalt by a designated paraffinic naphtha solvent at a specified solvent-asphalt ratio.

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

asphalt rock (rock asphalt), *n*—a naturally occurring rock formation, usually limestone or sandstone, impregnated throughout its mass with a minor amount of bitumen.

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.

bitumen, *n*—a class of black or dark-colored (solid, semisolid, or viscous) cementitious substances, natural or manufactured, composed principally of high molecular weight hydrocarbons, of which asphalts, tars, pitches, and asphaltites are typical.

bituminous, *adj*—containing or treated with bitumen (also *bituminized*); for example: bituminous concrete, bituminized

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 Withdrawn. The last approved version of this historical standard is referenced on www.astm.org.

⁴ Available from American Association of State Highway and Transportation Officials (AASHTO), 444 N. Capitol St., NW, Suite 249, Washington, DC 20001.

felts and fabrics, bituminous pavement.

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

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

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

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

cut-back asphalt, *n*—petroleum residuum (asphalt) which has been blended with petroleum distillates.

DISCUSSION—Slow-curing materials may be made directly by distillation and are often referred to as road oils.

cut-back products, *n*—petroleum or tar residuums which have been blended with distillates.

flux, *n*—a bituminous material, generally liquid, used for softening other bituminous materials.

“free-carbon” in tar, *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.

naphthene-aromatics, *n*—a mixture of naphthenic and aromatic hydrocarbons which are adsorbed from a paraffinic solvent on an adsorbent during percolation and then desorbed with an aromatic solvent such as toluene.

DISCUSSION—The naphthene-aromatics fraction should be identified by the solvent, the solvent-asphalt ratio and the absorbing medium.

native asphalt, *n*—asphalt occurring as such in nature.

oil-gas tar, *n*—tar produced by cracking oil vapors at high temperatures in the manufacture of oil gas.

pitch, *n*—black or dark-brown solid cementitious material which gradually liquefies when heated and which is obtained as residua in the partial evaporation or fractional distillation of tar.

polar-aromatics, *n*—a polar aromatic hydrocarbon fraction that is adsorbed on an adsorbing medium from a paraffinic solvent during percolation and then desorbed with a chlorinated hydrocarbon solvent such as trichloroethylene.

DISCUSSION—The polar-aromatics fraction should be identified by the solvent, the solvent-asphalt ratio and the absorbing medium.

recycling agent (RA), *n*—a blend of hydrocarbons with or without minor amounts of other materials that is used to alter or improve the properties of the aged asphalt in a recycled asphalt paving mixture.

refined tar, *n*—tar freed from water by evaporation or distillation which is continued until the residue is of desired consistency; or a product produced by fluxing tar residuum with tar distillate.

rock asphalt—see **asphalt rock**.

saturates, *n*—a mixture of paraffinic and naphthenic hydrocarbons that on percolation in a paraffinic solvent are not adsorbed on the adsorbing medium; other compounds such

as naphthenic and polar aromatics are adsorbed thus permitting the separation of the saturate fraction.

DISCUSSION—The saturates fraction should be identified by the solvent, the solvent-asphalt ratio and the absorbing medium.

straight-run pitch, *n*—a pitch run to the consistency desired in the initial process of distillation and without subsequent fluxing.

tar, *n*—brown or black bituminous material, liquid or semi-solid in consistency, in which the predominating constituents are bitumens obtained as condensates in the destructive distillation of coal, petroleum, oil-shale, wood, or other organic materials, and which yields substantial quantities of pitch when distilled.

3.1.2 *Bitumen-Aggregate Mixtures and Applications:*

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

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

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.

maintenance mix, *n*—a mixture of bituminous material and mineral aggregate applied at ambient temperature for use in patching holes, depressions, and distress areas in existing pavements.

DISCUSSION—Appropriate hand or mechanical methods are used in placing and compacting the mix. These mixes may be designed for immediate use or for use out of a stockpile at a later time without further processing.

mixed-in-place (road mix), *n*—a bituminous surface or base course produced by mixing mineral aggregate and cut-back asphalt, bituminous emulsion, or tar at the job-site by means of travel plants, motor graders, drags, or special road-mixing equipment; open or dense-graded aggregates, sand, and sandy soil may be used.

mulch treatment, *n*—a spray application of bituminous material used to temporarily stabilize a recently seeded area; the bituminous material can be applied to the soil or to straw or hay mulch as a tie-down, also.

penetration macadam, *n*—a pavement layer containing essentially one-size coarse aggregate, penetrated in place by a heavy application of bituminous material, followed by an application of a smaller size coarse aggregate, and compacted; multiple layers containing still smaller coarse aggregate may be used.

plant mix, cold-laid, *n*—a mixture of cut-back asphalt, bituminous emulsion, or tar and mineral aggregate prepared in a central bituminous mixing plant and spread and compacted at the job-site when the mixture is at or near ambient temperature.

plant mix, hot-laid bituminous emulsion mixtures, *n*—a mixture of emulsion and heated mineral aggregate usually prepared in a conventional asphalt plant or drum mixer and spread and compacted at the job site at a temperature above ambient.

prime coat, *n*—an application of a low-viscosity bituminous