



Designation: D 2652 – 05

## Standard Terminology Relating to Activated Carbon<sup>1</sup>

This standard is issued under the fixed designation D 2652; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 This terminology covers terms particularly related to activated carbon and encompasses finished products, applications, and testing procedures.

1.2 When any of the definitions in this terminology are quoted or published out of context, editorially insert the limiting phrase “in activated carbon” after the dash following the term to properly limit the field of application of the term and definition.

### 2. Significance and Use

2.1 This terminology ensures that terms peculiar to activated carbon are adequately defined so that other standards in which such terms are used can be understood and interpreted properly.

2.2 This terminology is useful to those who are not conversant with the terms related to activated carbon. However, it is also a ready reference for those directly associated with activated carbon to resolve differences and ensure commonality of usage, particularly in the preparation of ASTM standards.

2.3 Although this terminology is intended to promote uniformity in the usage of terms related to activated carbon, it can never be complete because new terms are constantly arising. The existence of this terminology does not preclude the use or misuse of any term in another context.

### 3. Terminology

**abrasion resistance**—the property of a particle to resist attrition or wearing away by friction.

**absorption**—a process in which fluid molecules are taken up by a liquid or solid and distributed throughout the body of that liquid or solid.

**accelerated adsorption tests**—adsorption tests in which the end point is hastened by testing at conditions more severe than those anticipated in service.

**acid-extractable material**—substances dissolved by an acid under specified conditions.

**activated carbon**—a family of carbonaceous substances manufactured by processes that develop adsorptive properties.

**activation**—any process whereby a substance is treated to develop adsorptive properties.

**activity**—a generic term used to describe the capacity to adsorb in general; also, the adsorptive capacity of an adsorbent as measured by a standard test.

**adsorbate**—any substance that is adsorbed.

**adsorbent**—any solid having the ability to concentrate significant quantities of other substances on its surface.

**adsorption**—a process in which fluid molecules are concentrated on a surface by chemical or physical forces, or both.

*adsorption zone*—see **mass transfer zone**.

**ash**—residue after the combustion of a substance under specified conditions.

**as is basis**—as received.

**breakpoint**—the appearance in the effluent of a specified concentration of an adsorbate.

**breakthrough, *n***—the first appearance in the effluent of an adsorbate of interest under specified conditions.

**channeling**—the preferential flow of fluid through passages of lower resistance that can occur in fixed beds or columns of particles owing to nonuniform packing, irregular sizes and shapes of the particles, gas pockets, wall effects, and other causes.

*chemical adsorption*— see **chemisorption**.

**chemisorption (chemical adsorption)**—the binding of an adsorbate to the surface of a solid at strengths approximating those of a chemical bond.

**coadsorption**—the adsorption of two or more components on an adsorbent, each affecting the adsorbability of the other.

**contact batch operation**—an adsorption process in which an adsorbent is dispersed in a fluid to be treated and then separated when practical equilibrium is attained.

**continuous moving bed**—an adsorption process characterized by flow of a fluid through a continuously moving bed of granular adsorbent with continuous withdrawal of spent adsorbent and continuous addition of reprocessed or virgin adsorbent.

**countercurrent adsorption**—an adsorption process in which the flow of fluid is in a direction opposite to the movement of the adsorbent.

<sup>1</sup> This terminology is under the jurisdiction of ASTM Committee D28 on Activated Carbon and is the direct responsibility of Subcommittee D28.03 on Nomenclature and Editorial.

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