



Standard Terminology Relating to Water¹

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^{ε1} NOTE—Previously approved terms from the Terminology sections of all D19 standards have been editorially included (in accordance with D19 bylaws) in August 2008.

absolute filter rating, *n*—particle size above which 100 % of particles that are trapped on or within the filter medium.

D 6161

absorbance, *n*—logarithm to the base 10 of the reciprocal of the transmittance (T). $A = \log_{10} (1/T) = -\log_{10} T$.

D 4691

absorption, *n*—release for desorption holding of a substance within a solid by cohesive or capillary forces.

D 6161

absorptivity, *n*—absorbance (A) divided by the product of the sample path length (b) and the concentration (c). $a = A/bc$.

D 4691

accelerated erosion, *n*—erosion at a rate greater than geologic or natural erosion.

D 4410

DISCUSSION—Accelerated erosion is usually associated with anthropogenic activities and usually reduces plant cover and increases runoff.

acceptable holding time, *n*—any period of time less than or equal to the maximum holding time.

D 4841

acceptable verification ratio (AVR)—ratio of the difference between measured value of the verification sample and the known value added to the verification sample to the square root of the sum of the squares of their associated combined standard uncertainties. See Eq. 8 in 16.2.13.

D 7282

accretion, *n*—process of sediment accumulation.

D 4410

accumulator, *n*—pulsation dampener installed on the suction and/or discharge lines of pumps, generally plunger type, to minimize pressure surges and provide uniformity of flow.

D 6161

accuracy, *n*—a measure of the degree of conformity of a value generated by a specific procedure to the assumed or accepted true value, and includes both precision and bias.

accuracy, *n*—closeness of agreement between an observed value and an accepted reference value. Where an accepted reference value is not available, accuracy is a description of a measure of the degree of conformity of a value generated by a specific procedure to the assumed or accepted true

value, including both precision and bias.

D 6161

accuracy, *n*—measure of the degree of conformity of a single test result generated by a specific procedure to the assumed or accepted true value, and includes both precision and bias.

D 2777

accuracy, *n*—proportion of the observed count to the true density of a sample.

D 5392

accuracy, *n*—refers to how close a measurement is to the true or actual value. (See Terminology D 1129.)

D 5906

acid error, *n*—in very acid solutions, the activity of water is reduced (less than unity) causing a non-Nernstian response in glass electrodes. A positive error in the pH reading results.

D 4127

acidity, *n*—the quantitative capacity of aqueous media to react with hydroxyl ions.

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D 6161

acidity, free mineral, *n*—the quantitative capacity of aqueous media to react with hydroxyl ions to pH 4.3.

acidity, theoretical free mineral, *n*—the free mineral acidity that would result from the conversion of the anions of strong acids in solution to their respective free acids.

acoustic path, *n*—straight line between the centers of two acoustic transducers.

D 5389

acoustic path length, *n*—face-to-face distance between transducers on an acoustic path.

D 5389

acoustic transducer, *n*—device that is used to generate acoustic signals when driven by an electric voltage, and conversely, a device that is used to generate an electric voltage when excited by an acoustic signal.

D 5389

acoustic travel time, *n*—time required for an acoustic signal to propagate along an acoustic path, either upstream or downstream.

D 5389

action level, *n*—concentration of the analyte of concern at which some further action is required or suggested.

D 6850

activated carbon, *n*—granulated or powdered activated carbon used to remove tastes, odor, chlorine, chloramines, and some organics from water. A family of carbonaceous substances manufactured by processes that develop adsorptive

¹ This terminology is under the jurisdiction of ASTM Committee D19 on Water and is the direct responsibility of Subcommittee D19.02 on Quality Systems, Specification, and Statistics.

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properties.

D 6161

activity, *n*—thermodynamically effective concentration of a free ion in solution. In dilute solutions, ionic activity and concentration are practically identical, but in solutions of high ionic strength, or in the presence of complexing agents, activity may differ significantly from concentration. Ionic activity, not concentration, determines both the rate and the extent of chemical reactions.

D 4127

activity coefficient, *n*—factor, γ , that relates activity, *A*, to the concentration, *C* of a species in solution:

$$A = \gamma C$$

The activity coefficient is dependent on the ionic strength of the solution. Ions of similar size and charge have similar activity coefficients.

D 4127

activity standard, *n*—standardizing solution whose value is reported in terms of ionic activity. If the electrode is calibrated using activity standards, the activity of the free, unbound ion in the sample is determined.

D 4127

adenosine triphosphate—see **ATP**.

D 6161

adsorption, *n*—holding of a substance onto the surface of a solid by chemical surface forces, without forming new chemical bonds.

D 6161

aerobic bacteria, *n*—bacteria that require oxygen for growth. See **bacteria, aerobes**.

D 6161

aerosol, *n*—any solid or liquid particles, with a nominal size range from 10 nm to 100 μm , suspended in a gas (usually air).

D 5544

agglomeration or flocculation, *n*—coalescence of dispersed suspended matter into large flocs or particles that settle rapidly.

D 4410

aggradation, *n*—geologic process by which stream beds, flood plains, and the bottoms of other water bodies are raised in elevation by the deposition of material eroded and transported by water from other areas.

D 4410

aggregate, *n*—granular material such as sand, gravel, or crushed stone.

D 6161

air header, *n*—pipe running within a cassette that distributes the air to the individual modules or aerators.

D 6161

air scour, *v*—distributing air over the entire area at the bottom of a filter media flowing upward or immersed membrane to improve the effectiveness of filtration or backwashing or to permit the use of lower backwash water flow rate, or both.

D 6161

air stripping, *v*—removal of volatile substances from a water solution by passing a gas through the solution.

D 6161

algae, *n*—major group of lower plants, generally aquatic, photosynthetic of extremely varied morphology and physiology, monocellular plants with chlorophyll often masked by a brown or red pigment.

D 6161

alkaline error, *n*—in alkaline solutions, where hydrogen ion activity becomes very small, some glass electrodes respond to other cations, such as sodium. A negative error in the pH reading results. By changing the composition of the glass, the affinity of the glass for sodium ion can be reduced. Such electrodes are known as lithium glass, high-pH, or full-range electrodes.

D 4127

alkalinity, *n*—the quantitative capacity of aqueous media to react with hydrogen ions.

alkalinity, *n*—quantitative capacity of aqueous media to react with hydrogen ions. “M” alkalinity is that which will react with acid as the pH of the sample is reduced to the methylorange endpoint of about 4.5. “P” alkalinity is that which reacts with acid as the pH of the sample is reduced to the phenolphthalein end point of 8.3. “M” is the total alkalinity which is the sum of hydroxide, carbonate, and bicarbonate contents, “P” includes all the hydroxyl and half the carbonate content.

D 6161

alkyl benzene sulfonate (ABS)²—generic name applied to the neutralized product resulting from the sulfonation of a branched-chain alkylated benzene. See also **Terminology D 459**.

D 2330

alluvial channel—see **alluvial stream**.

D 4410

alluvial deposit—sediment deposited by the action of moving water.

D 4410

alluvial fans—sediment deposited in the shape of a segment of a cone formed because of a sudden flattening of a stream gradient especially at debouchures of tributaries on main stream flood plains.

D 4410

alluvial stream, *n*—stream whose boundary is composed of appreciable quantities of the sediments transported by the flow and which generally changes its bed forms as the rate of flow changes.

D 4410

alleviation, *n*—process of accumulating sediment deposits at places where the flow is retarded.

D 4410

alluvium, *n*—general term for all fluvial deposits resulting directly or indirectly from the sediment transport of (modern) streams, thus including the sediments laid down in riverbeds, flood plains, lakes, fans, and estuaries.

D 4410

alpha (α), *n*—velocity-head coefficient that adjusts the velocity head computed on basis of the mean velocity to the true velocity head.

D 5129

alpha (α), *n*—velocity-head coefficient that adjusts the velocity head computed on basis of the mean velocity to the true velocity head. It is assumed equal to 1.0 if the cross section is not subdivided.

D 5243

alpha (α), *n*—velocity-head coefficient that represents the ratio of the true velocity head to the velocity head computed on the basis of the mean velocity. It is assumed equal to 1.0 if the cross section is not subdivided. For subdivided sections, α is computed as follows:

D 5130

$$\alpha = \frac{\sum \left(\frac{k_i^3}{A_i^2} \right)}{\frac{K_T^3}{A_T^2}}$$

where:

K and A = the conveyance and area of the subsection indicated by the subscript i and

K_T and A_T = the conveyance and area of the entire cross section.

alpha (α), *n*—dimensionless velocity-head coefficient that represents the ratio of the true velocity head to the velocity

² For a more complete discussion of terms relating to synthetic detergents and their significance, refer to “Syndets and Waste Disposal” by McKinney, R. E., *Sewage and Industrial Wastes*, Vol 29, Part 6, June 1957, pp. 654-666.

head computed on the basis of the mean velocity. It is assumed equal to unity if the cross section is not subdivided. For subdivided sections, α is computed as follows: **D 5388**

$$\alpha = \frac{\sum \left(\frac{k_i^3}{a_i^2} \right)}{\frac{K_T^3}{A_T^2}}$$

where:

k and a = the conveyance and area of the subsection indicated by the subscript i and

K_T and A_T = the conveyance and area of the total cross section indicated by the subscript T .

alpha particle (α), n —particle consisting of two protons and two neutrons emitted from the nucleus of an atom during radioactive decay. **D 7316**

alpha particle detection efficiency, n —in the measurement of radioactivity, that fraction of alpha particles emitted by a source which are identified as alpha particles by the counter. **D 7283**

alpha-to-beta spillover, n —in the measurement of radioactivity, that fraction of alpha particles emitted by a source which are misclassified as beta particles. **D 7283**

alum, n —aluminum sulfate, $Al_2(SO_4)_3 \cdot XH_2O$ ($X = 14-18$), a coagulant. **D 6161**

ambient temperature, n —temperature of the surroundings, generally assumed to be 20–25°C. **D 6161**

American Water Works Association—see **AWWA**. **D 6161**

American Water Works Association Research Foundation—see **AWWARF**. **D 6161**

amorphous, adj —noncrystalline, devoid of regular cohesive structure. **D 6161**

amperometric systems, n —those instrumental probes that involve the generation of an electrical current from which the final measurement is derived. **D 888**

amphoteric, adv —capable of acting as an acid or a base. **D 6161**

anaerobic bacteria, n —bacteria that do not use oxygen. Oxygen is toxic to them. See **bacteria**, **anaerobes**. **D 6161**

analate addition, n —variation of the known addition measurement technique in which the sample (analate) is added to a reagent containing the ion being measured. The electrode is placed in the reagent, and the sample concentration is calculated from the change in electrode potential after the addition of the sample. **D 4127**

analate subtraction, n —variation of the known subtraction measurement technique in which the sample (analate) is added to a reagent containing an ion that reacts with the species being determined. The electrode is placed in the reagent, the change in electrode potential is observed when the sample is added, and the sample concentration calculated. **D 4127**

analyte, n —a possible sample component whose presence and concentration is of interest.

analyte, n —chemical or constituent being determined. **D 5463**

analytical column, n —chromatography column that contains the stationary phase for separation by ion exchange. The column is packed with anion exchange resin that separates the analytes of interest based on their retention characteristics before detection. **D 6994**

analytical column, n —column used to separate the anions of interest. **D 5996**

analytical column, n —ion exchange column used to separate the ions of interest according to their retention characteristics prior to detection. **D 6581**

analytical column set, n —combination of one or more guard columns, followed by one or more analytical columns used to separate the ions of interest. All of the columns in series then contribute to the overall capacity and resolution of the analytical column set. **D 6581**

analytical column set, n —combination of one or more guard columns followed by one or more analytical columns. **D 5996**

analytical columns, n —combination of one or more guard columns followed by one or more separator columns used to separate the ions of interest. It should be remembered that all of the columns in series contribute to the overall capacity of the analytical column set. **D 4327**

analytical columns, n —combination of one or more guard columns followed by one or more separator columns used to separate the ions of interest. It should be remembered that all of the columns in series contribute to the overall capacity of the analytical column set. **D 5542**

analyze, v —to determine the relationship of parts or the value of a particular parameter. **D 5851**

analyzer—see **monitoring system**. **D 3864**

angstrom (A), n —unit of length equaling 10^{-10} metres, 10^{-4} umetres, 10^{-8} centimetres, and 3.937×10^{-9} in. The symbol is Å, A, or A.U. **D 6161**

animal/vegetable-derived oils, n —mixture made of mono-, di-, and triglyceride esters of fatty acids and other substances of animal or vegetable origin, or both. **D 3326**

anion, n —negatively charged ion. **D 6161**

anion exchange chromatography, n —type of liquid chromatography in which anionic analytes are separated by differential retention on an anion exchange resin and detected by an appropriate detection mechanism. **D 6994**

anion-exchange material, n —a material capable of the reversible exchange of negatively charged ions.

anion-exchange material, n —ion-exchange material capable of the reversible exchange of negatively charged ions. **D 2187**

anion-exchange material, n —ion-exchange material capable of the reversible exchange of negatively charged ions. **D 4548**

anion exchange material, n —material capable of the reversible exchange of negatively charged ions. **D 6161**

anion exchange membrane, n —membrane containing fixed cationic charges and mobile anions that can be exchanged with other anions present in an external fluid in contact with the membrane. **D 6161**

anion suppressor device, n —device that is placed between the analytical columns and the detector. Its purpose is to inhibit