Designation: D1129 – 06a$^{\varepsilon 1}$

Standard Terminology Relating to Water[1]

This standard is issued under the fixed designation D1129; 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.

ε^1 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. **D6161**

absorbance, *n*—logarithm to the base 10 of the reciprocal of the transmittance (*T*). $A = \log_{10}(1/T) = -\log_{10}T$. **D4691**

absorption, *n*—release for desorption holding of a substance within a solid by cohesive or capillary forces. **D6161**

absorptivity, *n*—absorbance (*A*) divided by the product of the sample path length (*b*) and the concentration (*c*). $a = A/bc$. **D4691**

accelerated erosion, *n*—erosion at a rate greater than geologic or natural erosion. **D4410**

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. **D4841**

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. **D7282**

accretion, *n*—process of sediment accumulation. **D4410**

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. **D6161**

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. **D6161**

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. **D2777**

accuracy, *n*—proportion of the observed count to the true density of a sample. **D5392**

accuracy, *n*—refers to how close a measurement is to the true or actual value. (See Terminology D1129.) **D5906**

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. **D4127**

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

acidity, *n*—quantitative capacity of aqueous media to react with hydroxyl ions. **D6161**

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. **D5389**

acoustic path length, *n*—face-to-face distance between transducers on an acoustic path. **D5389**

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. **D5389**

acoustic travel time, *n*—time required for an acoustic signal to propagate along an acoustic path, either upstream or downstream. **D5389**

action level, *n*—concentration of the analyte of concern at which some further action is required or suggested. **D6850**

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 properties. **D6161**

activity, *n*—thermodynamically effective concentration of a free ion in solution. In dilute solutions, ionic activity and

[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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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. **D4127**

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. **D4127**

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. **D4127**

adenosine triphosphate—see **ATP**. **D6161**

adsorption, *n*—holding of a substance onto the surface of a solid by chemical surface forces, without forming new chemical bonds. **D6161**

aerobic bacteria, *n*—bacteria that require oxygen for growth. See **bacteria, aerobes**. **D6161**

aerosol, *n*—any solid or liquid particles, with a nominal size range from 10 nm to 100 µm, suspended in a gas (usually air). **D5544**

agglomeration or flocculation, *n*—coalescence of dispersed suspended matter into large flocs or particles that settle rapidly. **D4410**

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. **D4410**

aggregate, *n*—granular material such as sand, gravel, or crushed stone. **D6161**

air header, *n*—pipe running within a cassette that distributes the air to the individual modules or aerators. **D6161**

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. **D6161**

air stripping, *v*—removal of volatile substances from a water solution by passing a gas through the solution. **D6161**

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. **D6161**

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. **D4127**

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. **D6161**

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 D459. **D2330**

alluvial channel—see **alluvial stream**. **D4410**

alluvial deposit—sediment deposited by the action of moving water. **D4410**

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. **D4410**

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. **D4410**

alleviation, *n*—process of accumulating sediment deposits at places where the flow is retarded. **D4410**

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. **D4410**

alpha (α), *n*—velocity-head coefficient that adjusts the velocity head computed on basis of the mean velocity to the true velocity head. **D5129**

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. **D5243**

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, a is computed as follows: **D5130**

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

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 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, a is computed as follows: **D5388**

[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.

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

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. **D7316**

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. **D7283**

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. **D7283**

alum, *n*—aluminum sulfate, $AL_2(SO_4)_3XH_2O$ (X = 14-18), a coagulant. **D6161**

ambient temperature, *n*—temperature of the surroundings, generally assumed to be 20–25°C. **D6161**

American Water Works Association—see **AWWA**. **D6161**

American Water Works Association Research Foundation—see **AWWARF**. **D6161**

amorphous, *adj*—noncrystalline, devoid of regular cohesive structure. **D6161**

amperometric systems, *n*—those instrumental probes that involve the generation of an electrical current from which the final measurement is derived. **D888**

amphoteric, *adv*—capable of acting as an acid or a base. **D6161**

anaerobic bacteria, *n*—bacteria that do not use oxygen. Oxygen is toxic to them. See **bacteria, anaerobes**. **D6161**

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. **D4127**

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. **D4127**

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

analyte, *n*—chemical or constituent being determined. **D5463**

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. **D6994**

analytical column, *n*—column used to separate the anions of interest. **D5996**

analytical column, *n*—ion exchange column used to separate the ions of interest according to their retention characteristics prior to detection. **D6581**

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. **D6581**

analytical column set, *n*—combination of one or more guard columns followed by one or more analytical columns. **D5996**

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. **D4327**

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. **D5542**

analyze, *v*—to determine the relationship of parts or the value of a particular parameter. **D5851**

analyzer—see **monitoring system**. **D3864**

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. **D6161**

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. **D3326**

anion, *n*—negatively charged ion. **D6161**

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. **D6994**

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. **D2187**

anion-exchange material, *n*—ion-exchange material capable of the reversible exchange of negatively charged ions. **D4548**

anion exchange material, *n*—material capable of the reversible exchange of negatively charged ions. **D6161**

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. **D6161**

anion suppressor device, *n*—device that is placed between the analytical columns and the detector. Its purpose is to inhibit detector response to the ionic constituents in the eluant so as to lower the detector background and at the same time enhance detector response to the ions of interest. **D5996**

anion trap column, *n*—high-capacity, low-pressure anion exchange column used to remove reagent impurities from

the eluent stream. The anion trap column is placed between the eluent reservoir and the gradient pump. **D6994**

anionic polyelectrolyte, *n*—usually acrylamide or acrylamide and acrylic copolymers, negatively charged, used for coagulation/flocculation. See **polyelectrolyte**. **D6161**

anisotropic, *adv*—having different optical properties in different optical planes. These planes are referred to as the alpha, beta, and omega axes. **D1245**

anisotropic membrane, *n*—nonuniform structure in cross section; typically the support substructure has pores much larger than the barrier layer. See **asymmetric membranes**. **D6161**

anode, *n*—positive electrode. **D6161**

anthracite, *n*—granular hard coal used as a filtration media, commonly used as the coarser layer in dual and multimedia filters. **D6161**

antidunes, *n*—bed forms that occur at a velocity higher than that velocity that forms dunes and plane beds. Antidunes commonly move upstream, and are accompanied by, and in phase with, waves on the water surface. **D4410**

antifoulant, *n*—see **antiscalant**. **D6161**

antiscalant, *n*—compound added to a water that inhibits the precipitation of sparingly soluble inorganic salts. **D6161**

anti-telescoping device, *n*—plastic or metal device attached to the ends of a spiral wound cartridge to prevent movement of the cartridge leaves in the feed flow direction as a result of high feed flows. **D6161**

approach angle, *n*—angle between the velocity vector of the approaching flow and the centerline of the nozzle. **D6326**

approaching flow, *n*—flow immediately upstream of a nozzles entrance. **D6326**

aquatic free cyanide, *n*—sum of the free cyanide (HCN and CN^-) and cyanide bound in the metal-cyanide complexes that are easily dissociated into free cyanide under the test conditions described in this method. **D7237**

aquifer, *n*—geologic formation containing water, usually able to yield appreciable water. **D6146**

aquifer, *n*—water-bearing geological formation that provides a ground water reservoir. **D6161**

aramid, *n*—fully aromatic polyamide. **D6161**

area (A), *n*—area of a cross section, parts of a cross section, or parts of bridges below the water surface. Subscripts indicate specific areas as follows: **D5129**

A_i = area of subsection i,
A_j = area of piers or piles that is submerged,
A_1 = area of total cross-section 1 (see Fig. 1 of D5129), and
A_3 = gross area of Section 3 of D5129.

armoring, *v*—formation of a resistant layer of relatively large particles by erosion of the finer particles. **D4410**

array, *n*—arrangement of devices connected to common feed, product, and reject headers; that is, a 2:1 array. **D6161**

assess, *v*—to determine importance of data. **D5851**

assess, *v*—to determine the significance, value, and importance of the data collected and recorded. **D6145**

assimilable organic carbon, *n*—see **AOC**. **D6161**

asymmetric membrane, *n*—membrane that has a change in pore structure. See **anisotropic membranes**. **D6161**

asymmetry potential, *n*—potential across a glass pH electrode membrane when the inside and outside of the membrane are in contact with solutions of identical pH. This term has also been used to define the observed potential differences between identical electrode pairs placed in identical solutions. **D4127**

atomic absorption, *n*—absorption of electromagnetic radiation by an atom resulting in the elevation of electrons from their ground states to excited states. Atomic absorption spectrophotometry involves the measurement of light absorbed by atoms of interest as a function of the concentration of those atoms in a particular solution. **D4691**

automatic programmable sampler, *n*—portable device designed to collect sequential, discrete water samples representative of the water mixture moving in the river in the vicinity of the sampler at a single point in a cross section. Depending on the make and model of the device, water samples can be collected at equal or variable time intervals. **D5613**

autopsy, *n*—dissection of a membrane module or element to investigate causes of unsatisfactory performance. **D6161**

available cyanide—inorganic cyanides that are free (HCN and CN^-) and metal-cyanide complexes that are easily dissociated into free cyanide ions. Available cyanide does not include the less toxic strong metal-cyanide complexes, cyanides that are not "amenable to chlorination." **D6888**

availability, *n*—on-stream time or rated operating capacity of a water treatment system. **D6161**

a-value, *n*—membrane water permeability coefficient. The coefficient is defined as the amount of water produced per unit area of membrane per unit of net driving pressure (NDP); units of measurement are m3/h/m2/kPa. **D6161**

avulsion, *n*—sudden, natural change of a stream channel, so that the water flows elsewhere than in its previous course. **D4410**

B-value—salt diffusion coefficient, *n*—defined as the amount of salt transferred per unit area of membrane per unit of concentration difference across the membrane. A unit of measurement is m/h or more specifically, $m^3/m^2/h$. **D6161**

back pressure regulator—a device designed to maintain a constant pressure upstream of itself (variable or fixed back pressure regulators are available) to maintain constant flow in analyzers in continual sampling. **D3370**

back titration, *n*—see **titration**. **D4127**

backflush, *n*—temporary reversal of the permeate or retentate flow. **D6161**

background sample, *n*—sample taken from a location on or proximate to the site of interest. This sample is taken to document baseline or historical information. **D5612**

background subtraction count (BSC)—a source count used to determine the background to be subtracted from the sample test source count. **D7282**

backpulse, *n*—pumping treated water with or without added chemicals in the reversed direction from the lumen to the feed side of the membrane (inside out). **D6161**

backwash, *n*—reversing the flow of water with/without air either across or through a medium or membrane. Designed to remove the collected foreign material from the bed or

membranes. **D6161**

bacteria, *n*—any of a class of microscopic single-celled organisms reproducing by fission or by spores. Characterized by round, rod-like, spiral, or filamentous bodies, often aggregated into colonies or mobile by means of flagella. Widely dispersed in soil, water, organic matter, and the bodies of plants and animals. Either autotrophic (self-sustaining, self-generative), saprophytic (derives nutrition from nonliving organic material already present in the environment), or parasitic (deriving nutrition from another living organism). Often symbiotic (advantageous) in man, but sometimes pathogenic. **D6161**

bacterial lawn, *n*—confluent growth of bacteria cultured on an agar plate. **D6734**

bactericide, *n*—agent capable of killing bacteria. **D6161**

bacteriostat, *n*—substance that prevents bacterial growth and metabolism but does not necessarily kill them. **D6161**

baffle, *n*—deflector plate in a vessel that disperses the inlet fluid. **D6161**

bag sampler—a sampler that uses a collapsible bag as the sample collection container. **D4410**

bank, *n*—grouping of devices. See **array, block, train**. **D6161**

bar, *n*—section of metallic channel, I-beam, T-beam, pipe, plate, or ball that will reflect sound waves produced by a fathometer. **D6318**

bar, *n*—unit of pressure; 14.50 lbs/in.^{2}, 1.020 kg/cm^2, 0.987 atm, 0.1 MPa. **D6161**

bar-check, *n*—method for calibrating a fathometer by setting a sound or acoustic reflector (bar) below a survey vessel to a known depth below a sounding transducer. **D6318**

bar-check, *n*—method for determining depth below a survey vessel by means of a long, narrow metal bar or beam suspended on a marked line beneath a sounding transducer. **D5073**

bar sweep, *n*—bar or pipes, suspended by wire or cable beneath a floating vessel, used to search for submerged snags or obstructions hazardous to navigation. **D5073**

base flow, *n*—stream flow that is sustained by ground water and other delayed sources. **D4410**

batch, *n*—set (group) of samples analyzed such that results of analysis of the QC samples (laboratory control sample, method blank, matrix spike, and duplicate or matrix spike duplicate) analyzed with the batch are indicative of the quality of the results of analysis of samples in the batch. The number of samples in the batch is defined by the task group responsible for the method. See 6.4 and Explanation 2 in Appendix X1 of Practice D5847. **D5847**

DISCUSSION—When results from tests of any of the QC samples associated with the batch fail to meet the performance criteria, the test method should define the appropriate corrective action. To make such a response valid, the batch shall be constructed in such a way as to assure that all variables affecting the batch will affect all samples in the batch in a statistically equivalent manner.

batch, *n*—set (group) of samples analyzed such that results of analysis of the QC samples analyzed with the batch are indicative of the quality of the results of analysis of samples in the batch. The number of samples in the batch is defined by the task group responsible for the method. **D6850**

DISCUSSION—See Practice D5847 for definition and discussion of batch and batch size.

baseline, *n*—primary reference line for use in measuring azimuth angles and positioning distances. **D5906**

baume scale, Be, *n*—measure of the density of a solution relative to water. **D6161**

$$BE = 145 - \frac{145}{\text{specific gravity*}}$$

United States for densities greater than unity.

$$BE = \frac{140}{\text{specific gravity*}} - 130$$

For densities less than unity.
*at 60°F

beam width, *n*—angle in degrees made by the main lobe of acoustical energy emitted from the radiating face of a transducer. **D5073**

Becke line, *n*—faint, halo-like line that surrounds a crystal when the crystal is mounted in an oil of different refractive index. It increases in intensity as the difference in the refractive index between the crystal and the oil increases. **D1245**

Becquerel, *n*—unit of radioactivity equivalent to one nuclear transformation per second. **D1890**

bed depth, *n*—depth of the filter medium or ion exchange resin in a vessel. **D6161**

bed expansion, *n*—depth increase of filter medium or ion exchange resin that occurs during backwashing. **D6161**

bed-load, *n*—material moving on or near the stream bed by rolling, sliding, and skipping. **D4410**

bed-load discharge, *n*—quantity of bed-load passing a cross section of a stream in a unit of time. **D4410**

bed-load sampler, *n*—device for sampling the bed-load. **D4410**

bed material, *n*—sediment mixture of which the stream bed is composed. **D4410**

bed-material discharge, *n*—that part of the total sediment discharge composed of grain sizes occurring in appreciable quantities in the bed material. **D4410**

bed-material load, *n*—that part of the total load which is composed of particle sizes present in appreciable quantities in the shifting portions of the stream bed. **D4410**

best available technology—see **BAT**. **D6161**

best management practice (BMP), *n*—practice or combination of practices that are determined by state or area-wide planning agencies to be the most effective and practical means of controlling point and nonpoint pollution. **D6145**

beta energy, maximum, *n*—maximum energy of the beta-particle energy spectrum produced during beta decay of a given radioactive species. **D1890**

DISCUSSION—Since a given beta-particle emitter may decay to several different quantum states of the product nucleus, more than one maximum energy may be listed for a given radioactive species.

beta energy, maximum, *n*—the maximum energy of the beta particle energy spectrum produced during beta decay of a given radionuclide.

DISCUSSION—Since a given beta emitter may decay to several different nuclear energy levels of the progeny, more than one maximum energy may be listed for a given radionuclide. **D7283**

beta particle (β), *n*—electron or positron emitted from the nucleus of an atom during radioactive decay. **D7316**

beta particle detection efficiency, *n—in the measurement of radioactivity*, that fraction of beta particles emitted by a source which are identified as beta particles by the counter. **D7283**

beta-to-alpha spillover, *n—in the measurement of radioactivity*, that fraction of beta particles emitted by a source which are misclassified as alpha particles. **D7283**

bias, *n*—the persistent positive or negative deviation of the method average value from the assumed or accepted true value.

bias, *n*—persistent positive or negative deviation of the average value of a test method from the assumed or accepted true value. **D2777**

bias, *n*—persistent positive or negative deviation of the average value of the test method from the assumed or accepted true value. **D5392**

binders, *n*—in reference to cartridge filters, chemicals used to hold, or "bind," short fibers together in a filter. **D6161**

binding, *n*—in surface filtration, a buildup of particulates on the filter, restricting fluid flow through the filter at normal pressures. **D6161**

biochemical oxygen demand—see **BOD**. **D6161**

biocide, *n*—substance that kills all living organisms. **D6161**

biodegradable plastic, *n*—degradable plastic in which the degradation results from the action of naturally occurring microorganisms such as bacteria, fungi, and algae. **D6888**

biological deposits, *n*—deposits of organisms or the products of their life processes.

biological deposits, *n*—debris left by organisms as a result of their life processes. **D6161**

biological deposits—water-formed deposits of organisms or the products of their life processes. **D887**

biomass, *n*—any material that is or was a living organism or excreted from a microorganism. **D6161**

bioremediation, *n*—biological degradation treatment of waste sludge and soils to breakdown organic and hydrocarbons. **D6161**

biostat, *n*—substance that inhibits biological growth. **D6161**

bipolar membrane, *n*—synthetic membrane containing two oppositely charged ion-exchange layers that are in contact with each other. **D6161**

blackwater, *n*—increase in the depth of flow upstream of a channel obstruction, in this case, a weir or flume. **D5640**

blank, *n*—matrix carried through all or part of the analytical process, where the analyte is not present, or where the analyte response is suppressed.

NOTE 1—A blank must be appropriate to the analytical process it is being used with.

NOTE 2—A blank is typically used to monitor contamination or to establish a baseline for quantitation.

block, *n*—grouping of devices in a single unit having common control. See **array, bank, train**. **D6161**

body feed, *v*—continuous addition of filter medium (for example, diatomaceous earth) to sustain the efficacy of the filter. **D6161**

bottom profile, *n*—line trace of the bottom surface beneath a water body. **D5073**

bottomset bed, *n*—fine-grained material (usually silts and clays) slowly deposited on the bed of a quiescent body of water which may in time be buried by foreset beds and topset beds. **D4410**

boulder size (fluvial sediment), *n*—larger than 256 mm in diameter. **D4410**

boundary layer, *n*—relatively thin layer of viscous influence adjacent to the probe (or any solid) surface caused by the requirement that the water velocity must be zero at the wall. **D5089**

boundary layer, *n*—thin layer at the membrane surface where water velocities are significantly less than those in the bulk flow. **D6161**

boundary layer displacement thickness, *n*—boundary layer is a layer of fluid flow adjacent to a solid surface (in this case, the flume throat) in which, owing to viscous friction, the velocity increases from zero at the stationary surface to an essentially frictionless-flow value at the edge of the layer. The displacement thickness is a distance normal to the solid surface that the surface and flow streamlines can be considered to have been displaced by virtue of the boundary-layer formation. **D5390**

boundary layer displacement thickness, *n*—boundary layer is a layer of fluid flow adjacent to a solid surface (in this case, the weir crest and sidewalls) in which, because of viscous friction, the velocity increases from zero at the stationary surface to an essentially frictionless-flow value at the edge of the layer. The displacement thickness is a distance normal to the solid surface that the flow streamlines can be considered to have been displaced by virtue of the boundary-layer information. **D5614**

brackish water, *n*—water that contains dissolved matter at an approximate concentration range from 1000 to 30 000 mg/L.

brackish water, *n*—water with an approximate concentration of total dissolved solids ranging from 500 to 10 000 mg/L. See **high brackish water, potable water, sea water**. **D6161**

braided river, *n*—wide- and shallow-river where the flow passes through a number of small interlaced channels separated by bars or shoals. **D4410**

brackish water reverse osmosis, *n*—see **BWRO**. **D6161**

breakpoint chlorination, *n*—point at which the water chlorine demand is satisfied and any further chlorine is the chlorine residual, the "free" chlorine species. **D6161**

break tank, *n*—storage device used for hydraulic isolation and surge protection. **D6161**

breakthrough volume, *n*—maximum sample volume that can be passed through a concentrator column before the least tightly bound ion of interest is eluted. **D5542**

breakthrough volume, *n*—maximum sample volume that can be passed through a concentrator column before the least tightly bound ion of interest is eluted. All of the columns in series contribute to the overall capacity of the analytical column set. **D5996**

brine, *n*—water that contains dissolved matter at an approximate concentration of more than 30 000 mg/L.

brine, *n*—concentrate (reject) stream from a crossflow membrane device performing desalination. Portion of the feed stream that does not pass through the membrane. **D6161**

brine, *n*—water that contains dissolved matter at an approximate concentration of more than 30 000 mg/L. **D1429**

brine (concentrate) seal, *n*—rubber lip seal on the outside of a spiral wound cartridge that prevents feed by-pass between the cartridge and the inside pressure vessel wall. **D6161**

brine seal carrier, *n*—see **ATD**. **D6161**

brine system staging, *n*—process in which the concentrate, under pressure, of a group of membrane devices is fed directly to another set of membrane devices to improve the efficiency of the water separation. **D6161**

bubble point, *n*—pressure differential at which bubbles first appear on one surface of an immersed porous membrane as gas pressure is applied to the other side. **D6161**

bubble point, *n*—when the pores of a membrane are filled with liquid and air pressure is applied to one side of the membrane, surface tension prevents the liquid in the pores from being blown out by air pressure below a minimum pressure known as the bubble point. **D6908**

bubble point pressure, *n*—pressure differential necessary to displace a liquid held by surface tension forces from the largest equivalent capillaries in a membrane filter. **D6161**

bubble point test, *n*—nondestructive membrane filter test used to assess filter integrity and proper installation. **D6161**

buffer, *n*—substance in solution that accepts hydrogen or hydroxyl ions added to the solution minimizing a change in pH. **D6161**

build, own, operate—see **BOO**. **D6161**

build, own, operate and transfer—see **BOOT**. **D6161**

bundle, *n*—general term for a collection of parallel filaments or fibers. **D6161**

cage, *n*—structural fabrication fitted around the perimeter of the cassette with one or more lifting eye suitable for installing or removing the cassette. The four bottom corners of the cage rest within the frame in the tank. **D6161**

cake layer, *n*—layer comprised of particulate materials residing on the upstream face of a membrane. **D6161**

calcium carbonate equivalents (mg/L as $CaCO_3$), *n*—method for expressing mg/L as ion in terms of calcium carbonate. Concentration in calcium carbonate equivalents is calculated by multiplying concentration in mg/L of the ion by the equivalent weight of calcium carbonate (50) and dividing by the equivalent weight of the ion. (See Table 1 of Terminology D6161). **D6161**

calcium hypochlorite, *n*—Ca $(HClO)_2$, a disinfection agent. **D6161**

calibration, *n*—certified evaluation of the accuracy of a measuring instrument as performed by its manufacturer or an independent licensed or accredited third party. **D6104**

calibration, *n*—certified evaluation of the accuracy of a measuring instrument as performed by its manufacturer or an independent licensed or accredited third party. **D6157**

calibration—determining the instrument response to a known amount of radioactive material. **D7282**

calibration blank, *n*—volume of water containing the same acid matrix as the calibration standards. **D1976**

calibration blank, *n*—volume of water containing the same acid matrix as the calibration standards. **D5673**

calibration curve, *n*—plot of the potential (emf) of a given ion-selective electrode cell assembly (ion-selective electrode combined with an identified reference electrode) versus the logarithm of the ionic activity (concentration) of a given species. For uniformity, it is recommended that the potential be plotted on the ordinate (vertical axis) with the more positive potentials at the top of the graph and that pa_A (-log activity of the species measured, *A*) or pc_A (-log concentration of species measured, *A*) be plotted on the abscissa (horizontal axis) with increasing activity to the right. **IUPAC,D4127**

calibration source (CS)—a known quantity of radioactive material, traceable to a national standards body, prepared for the purpose of calibrating nuclear instruments. **D7282**

calibration standard, *n*—solution prepared from the primary dilution standard solution and stock standard solutions of the internal standards and surrogate analytes. The calibration standards are used to calibrate the instrument response with respect to analyte concentration. **D5790**

calibration standard, *n*—solution containing the analyte of interest at a known concentration either purchased from an external source or prepared in-house from materials of known purity or concentration, or both, and used to calibrate the measurement system. **D5847**

calibration standard (CAL), *n*—solution prepared from the primary dilution standard solution and stock standard solutions of the internal standards and surrogate analytes. CAL solutions are used to calibrate the instrument response with respect to analyte concentration. **D5315**

calibration standard (CAL), *n*—solution prepared from the primary dilution standard solution and stock standard solutions of the internal standards and surrogate analytes. **D5475**

Discussion—The CAL solutions are used to calibrate the instrument response with respect to analyte concentration.

calibration standards, *n*—series of known standard solutions used by the analyst for calibration of the instrument (preparation of the analytical curve). **D1976**

calibration standards, *n*—series of known standard solutions used by the analyst for calibration of the instrument (that is, preparation of the analytical curve). **D5673**

calibration stock solution, *n*—solution prepared from the stock standard solution(s) to verify the instrument response with respect to analyte concentration. **D5673**

calibration turbidity standard, *n*—turbidity standard that is traceable and equivalent to the reference turbidity standard to within statistical errors, including commercially prepared 4000 NTU Formazin, stabilized formazin, and styrenedivinylbenzene (SDVB). These standards may be used to calibrate the instrument. **D6698**

Discussion—Calibration standards may be instrument specific.

calibration turbidity standard, *n*—a turbidity standard that is traceable and equivalent to the reference turbidity standard

to within statistical errors, including commercially prepared 4000 NTU Formazin, stabilized formazin (see 9.2.3), and styrenedivinylbenzene (SDVB) (see 9.2.4). These standards may be used to calibrate the instrument. **D6855**

DISCUSSION—Calibration standards may be instrument specific.

calibration verification standards, *n*—defined standards used to verify the accuracy of a calibration in the measurement range of interest. These standards may not be used to perform calibrations, only calibration verifications. Included standards are optomechanical light scatter devices, gel-like standards, or any other type of stable liquid standard. **D6698**

DISCUSSION—Calibration verification standards may be instrument specific.

calibration verification standards, *n*—defined standards used to verify the accuracy of a calibration in the measurement range of interest. These standards may not be used to perform calibrations, only calibration verifications. Included standards are optomechanical light scatter devices, gel-like standards, or any other type of stable liquid standard. **D6855**

DISCUSSION—Calibration verification standards may be instrument specific.

calibrations: **D3864**

laboratory check sample for flow-through systems, n—calibration curve calculated from withdrawn samples or additional standards that may be spiked or diluted and analyzed using the appropriate laboratory analyzer. **D3864**

line sample calibration, n—coincidental comparison of a line sample and adjustment of a continuous analyzer to the compared laboratory analyzer or a second continuous analyzer. **D3864**

multiple standard calibration, n—where the calibration curve is calculated from a series of calibration standards covering the range of the measurements of the sample being analyzed. **D3864**

probe calibration, n—where the probe is removed from the sample stream and exposed to a calibration solution and the analyzer is adjusted to indicate the appropriate value. Alternately, two probes are exposed to the same solution and the on-line analyzer is adjusted to coincide with the pre-calibrated laboratory instrument. **D3864**

reference sample calibration, n—coincidental comparison of a reference sample and adjustment of a continuous analyzer to the compared laboratory analyzer results. **D3864**

capillary ion electrophoresis, *n*—electrophoretic technique in which a UV-absorbing electrolyte is placed in a 50- to 75-µm fused silica capillary. Voltage is applied across the capillary causing electrolyte and anions to migrate towards the anode and through the capillary's UV detector window. Anions are separated based upon the their differential rates of migration in the electrical field. Anion detection and quantitation are based upon the principles of indirect UV detection. **D6508**

carbonate hardness, *n*—hardness in a water caused by carbonates and bicarbonates of calcium and magnesium. The amount of hardness equivalent to the alkalinity formed and deposited when water is boiled. In boilers, carbonate hardness is readily removed by blowdown. **D6161**

carryover, *n*—contamination of a subsequent sample by a previous sample, typically a result of incomplete cleaning of a reused test kit component. **D5463**

cartridge, *n*—see **spiral-wound cartridge**. **D6161**

cassette, *n*—assembly of membrane elements (or modules), membrane aerators, air and permeate manifolds, and hardware in the cage; this is how the membranes are installed or removed from the process tank. **D6161**

catalyst, *n*—substance whose presence initiates or changes the rate of a chemical reaction, but does not itself enter into the reaction. **D6161**

cathode, *n*—negative electrode. **D6161**

cation, *n*—positively charged ion. **D6161**

cation conductivity, *n*—a conductivity measurement performed on water after cations have been exchanged for protons using cation exchange media.

cation conductivity, *n*—parameter obtained by conditioning a sample by passing it through a hydrogen form cation ion exchange resin column and then measuring its electrolytic conductivity, on-line. **D6504**

cation-exchange material, *n*—a material capable of the reversible exchange of positively charged ions.

cation-exchange material, *n*—ion-exchange material capable of the reversible exchange of positively charged ions. **D2187**

cation-exchange material, *n*—ion-exchange material capable of the reversible exchange of positively charged ions. **D4548**

cation exchange material, *n*—material capable of the reversible exchange of positively charged ions. **D6161**

cation exchange membrane, *n*—membrane containing fixed anionic charges and mobile cations that can be exchanged with other cations present in an external fluid in contact with the membrane. **D6161**

cationic polyelectrolyte, *n*—polymer containing positively charged groups used for coagulation/flocculation, usually dimethyl-aminoethyl methacrylate or dimethyl-aminoethyl acrylate. See **polyelectrolyte**. **D6161**

caustic embrittlement, *n*—a form of metal failure that occurs in steam boilers at riveted joints and at tube ends, the cracking being predominantly intercrystalline.

cell, *n*—independently fed chamber formed by two adjacent ion exchange membranes, or by a membrane and an adjacent electrode. **D6807**

cell constant, *n*—ratio of the length of the path, L (cm) and the cross-sectional area of the solution, A (cm^2), between the electrodes of a conductivity/resistivity cell, with units of cm^{-1}. In high-purity water measurements, the cell constant is normally between 0.001 and 0.1 cm^{-1} to prevent electrical interference. This is lower than the 1 cm^{-1} of the standard centimetre cube and is taken into account by direct reading instrument ranges that are matched with specific cell constants. **D5391**

cell monolayer, *n*—single layer of cells grown on a glass or plastic surface to which they are securely attached. **D5244**

cellulose, *n*—amorphous carbohydrate ($C_6H_{10}O_5$) that is the principal constituent of wood and plants. **D6161**

cellulose acetate (CA), *n*—in the broad sense, any of several esters of cellulose and acetic acid. **D6161**

celsius (°C), *n*—designation of the degree on the International Practical Temperature Scale. Formerly called centigrade, °C = °K minus 273.15. K = Kelvin. °C = (°F –32) * 0.556. **D6161**

censored measurement, *n*—measurement that is not reported numerically nor is reported missing but as a nondetect or a less-than, for example, "less than 0.1 ppb." The former means that an algorithm in the measurement system determined that the measurement should not be reported numerically for one of two reasons: either it was considered not sufficiently precise or accurate, or the identification of the analyte was suspect. A reported less-than may have the same meaning, but it also implies (perhaps erroneously) that any concentration greater than or equal to the accompanying value (for example, 0.1 ppb) can be measured and will be reported numerically. **D6091**

censored measurement, *n*—measurement that is not reported numerically nor is reported missing, but is stated as a nondetect or a less-than (for example, "less than 0.1 ppb"). There are two reasons why the measurement may not be reported numerically. Either the measurement was considered insufficiently precise or accurate (these kinds of data should not be censored), or the identification of the analyte was suspect (these kinds of data should be censored). See 6.2.3.1 of Practice D6512. A reported " less than" may have the same meaning as a non-reported measurement, but a reported "less than" also implies (perhaps erroneously) that any concentration greater than or equal to the accompanying value (for example, 0.1 ppb) can be measured, and will be reported numerically. **D6512**

centigrade, *n*—since 1948, now called Celsius, a temperature scale. **D6161**

centroid, *n*—center of mass of the dye response curve calculated as outlined by Parker and Hunt.[3] **D5613**

ceramic membrane, *n*—generally a glass, silica, alumina, or carbon-based membrane. Generally used in micro and ultrafiltration. They tend to withstand high temperatures and wide pH ranges and be more chemically inert than polymeric membranes. **D6161**

certified reference material, *n*—reference material, accompanied by a certificate, one or more of whose property values are certified by a procedure that established its traceability to an accurate realization of the unit in which the property values are expressed and for which each certified value is accompanied by an uncertainty at a stated level of confidence. **ISO Guide 30:1992, D6568**

DISCUSSION—There is significant variation in the overall quality of commercially available Certified Reference Materials and caution should be used when choosing Certified Reference Materials. Use Practice D6362 to provide guidance as to what information needs to be included on certificate of a certified reference material.

chain of custody, *n*—documented accountability of each sample, that is, date, time, and signature of each recipient when the sample changes hands, from the time of collection until the requirement for each sample is terminated. **D4489**

channel, *n*—natural or artificial waterway that periodically or continuously contains moving water. **D4410**

channel-fill deposits, *n*—deposits of sediment within a channel, partly or completely filling the channel. Such materials accumulate where the transporting capacity has been insufficient to remove it as rapidly as it has been delivered. **D4410**

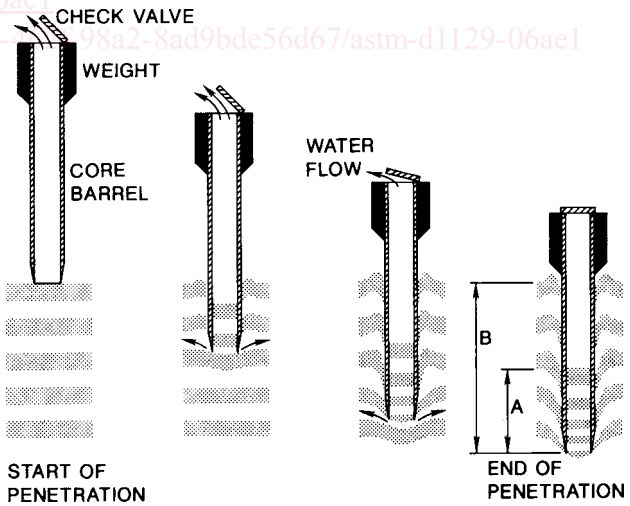
channeling, *v*—unequal flow distribution in the desalination bundle or filter bed. **D6161**

characteristic ion, *n*—usually the primary ion in the mass spectrum used to measure response for quantitation purposes. When there are interferences in the mass chromatogram of a primary ion, a secondary characteristic ion must be used for quantitation. **D4128**

charge-mosaic membranes, *n*—synthetic membranes composed of two-dimensional or three-dimensional alternating cation and anion exchange channels throughout the membrane. **D6161**

check valve, *n*—device (see Fig. 1) mounted atop an open-barrel core sampler. As the sampler moves down through water and sediment, the valve remains open to allow water to flow up through the barrel. When downward motion stops, the valve closes. During retrieval, the valve remains closed and creates suction that holds the core inside the barrel. **D4823**

check valve, *n*—valve that will allow water to pass in one



NOTE 1—Dark bands represent stiff sediments; light bands represent plastic sediments. As coring proceeds, sediment below the barrel moves laterally away from the cutting edge and plastic sediments inside the barrel are compressed. "A" is the core's length and "B" is the barrel's penetration depth.

NOTE 2—Source: Weaver, P. P. E., and Schultheiss, P. J., "Detection of Repenetration and Sediment Disturbance in Open-Barrel Gravity Cores," *Journal of Sedimentary Petrology*, Vol 53, No. 2, June 1983, pp. 649–654.

FIG. 1 Deformations Caused by Open-Barrel Core Samplers

[3] Parker, G. W., and Hunt, G. S., "Initial Assessment of Time-of-Travel Through Gulf Island Pond and the Lower Androscoggin River, Maine," *U.S. Geological Survey Water-Resources Investigations Report 83-4020*, 1983.

direction but will close and prevent flow in the opposite direction. **D6161**

chelating agent, *n*—sequestering or complexing agent that, in aqueous solution, renders a metallic ion inactive through the formation of an inner ring structure with the ion. **D6161**

chemical feed pump, *n*—pump used to meter chemicals, such as chlorine of polyphosphate, into a feed water supply. **D6161**

chemical oxygen demand—see **COD**. **D6161**

chemical suppressor device, *n*—device that is placed between the analytical columns and the detector. Its purpose is to inhibit detector response to the ionic constituents in the eluent, so as to lower the detector background and at the same time enhance detector response to the ions of interest. **D4327**

chemiluminescence, *n*—generation of light by a chemical reaction. **D6592**

chloramines, *n*—combination of chlorine and ammonia in water which has bactericidal qualities for a longer time than does free chlorine. **D6161**

chlorine, *n*—chemical used for its qualities as a bleaching or oxidizing agent and disinfectant in water purification. **D6161**

chlorine demand, *n*—amount of chlorine that must be added to a unit volume of water under specified conditions of pH, temperature, and contact time to completely react with all chlorine-reactable substances in the water. It is defined as the difference between the amount of chlorine applied and the amount of free chlorine remaining at the end of the contact period. **D1291**

chlorine demand, *n*—amount of chlorine used up by reacting with oxidizable substances in water before chlorine residual can be measured. **D6161**

chlorine, combined available, *n*—residual chlorine combined with ammonia nitrogen or nitrogenous compounds.

chlorine, free available, *n*—the hypochlorite ions (OCl^-), hypochlorous acid (HOCl) or the combination thereof present in water.

chlorine, free available, *n*—chlorine (Cl_2), hypochlorite ions (OCl^-), hypochlorous acid (HOCl), or the combination thereof present in water. **D6161**

chlorine requirement, *n*—the amount of chlorine required to achieve, under specified conditions, the objectives of chlorination.

chlorine requirement, *n*—amount of chlorine that shall be added to a unit volume of water under specified conditions of pH, temperature, and contact time to achieve the objectives of chlorination. **D1291**

chlorine residual, *n*—the amount of available chlorine present in water at any specified time.

chlorine, residual, *n*—amount of available chlorine present in water at any specified time. **D6161**

chlorine, total available, *n*—sum of free available chlorine plus chloramines present in water. **D6161**

chlorinity, *n*—weight of silver ion (g) required to precipitate completely the halides in 0.3285 kg of water (g/kg). **D1141**

chloroplatinate unit—see **CPU**. **D6161**

chlorosity, *n*—the concentration of the dissolved chloride equivalent in water at 20°C.

citric acid, *n*—$C_3H_4(OH)(CO_2H)_3$, membrane-cleaning chemical. **D6161**

clarifier, *n*—tank in which precipitate settles and supernatant overflows, a liquid-solids separation unit using gravity to remove solids by sedimentation. **D6161**

Clark degree, *n*—number of grains of substance per one British imperial gallon of water expressed CaCO3. Concentration in Clark or English degree is calculated by dividing concentration in calcium carbonate equivalents by 14.3. One grain weighs 1/7000 lb and one imperial gallon of water weighs 10 lbs at 25°C. (See Table 1 of Terminology D6161.) **D6161**

classic gully, *n*—channel that is formed by gully erosion and is not interrupted by mechanical tillage operations to fill the resulting void. Gully depth can exceed 30 m. (See **gully erosion**.) **D4410**

clay size (fluvial sediment), *n*—0.00024 to 0.004 mm in diameter. **D4410**

cleaning-in-place—see **CIP**. **D6161**

clear well, *n*—collection basin that houses filtered or clarified water. **D6161**

Clostridium perfringens, *n—in this test method, C. perfringens* is defined as an obligate anaerobic gram-positive, spore forming, nonmotile bacillus, 0.9–1.3 by 3.0–9.0 µm in size that ferments sucrose, ferments lactose with stormy gas production, does not ferment cellobiose, and produces acid phosphatase. *C. perfringens* also produces toxins that cause gas gangrene and gastroenteritis. **D5916**

coagulant, *n*—chemical added in water and wastewater applications to cause destablization of suspended particles and subsequent formation of flocs that adsorb, entrap, or otherwise bring together suspended matter that is so fine, it is defined as colloidal. Compounds of iron and aluminum are generally used to form flocs to allow removal of turbidity, bacteria, color, and other finely divided matter from water and waste water. **D6161**

coagulation, *n*—agglomeration of colloidal or finely divided suspended matter caused by the addition to the liquid of an appropriate chemical coagulant, by biological processes, or by other means (see also **agglomeration**). **D4410**

coalescing, *v*—separation of mixtures of immiscible fluids (such as oil and water) based on different specific gravities and surface tensions. Coalescence occurs whenever two or more droplets collide and remain in contact and then become larger by passing through a coalescer. The enlarged drops then separate out of solution more rapidly. **D6161**

cobble size (fluvial sediment), *n*—64 to 256 mm in diameter. **D4410**

co-current flow, *n*—flow pattern through a membrane in which the fluids on the upstream and downstream sides of the membrane move parallel to the membrane surface and in the same directions. (See FIG 1 of Terminology D6161.) **D6161**

chemical oxygen demand (COD), *n*—amount of oxygen required under specified test conditions for the oxidation of water borne organic and inorganic matter. **D6161**

cohesive sediments, *n*—that material whose resistance to initial movement or erosion depends upon the strength of the bond between particles. **D4410**

coliform bacteria, *n*—particular group of bacteria primarily found in human and animal intestines and wastes. **D6161**

coliphage, *n*—bacterial virus capable of plaquing on the wide-range *E. coli* host strain used in this assay. **D6734**

collaborator, *n*—technically competent body (organization or firm, public or private) that undertakes aspects of the manufacture, or characterization, of the (certified) RM on behalf of the RM producer, either on a contractual (as a subcontractor) or voluntary basis. **D6808**

collocated samples, *n*—independent samples collected as close as possible to the same point in space and time and intended to be identical. **D5612**

colloid, *n*—substance of very fine particle size, typically between 0.1 and 0.001 μm in diameter suspended in liquid or dispersed in gas. A system of at least two phases, including a continuous liquid plus solid, liquid or gaseous particles so small that they remain in dispersion for a practicable time. **D6161**

colloidal suspension, *n*—any material in suspension (for example, silica) with a nominal particle size less than 100 nm. **D5544**

colloids (fluvial sediment), *n*—smaller than 0.00024 mm in diameter. **D4410**

colluvial deposits, *n*—that material accumulated along valley margins by mass movements from the adjacent hillsides. **D4410**

colony forming unit (CFU), *n*—unit used in the measure of total bacterial count (TBC). **D6161**

combination electrode, *n*—electrochemical apparatus that incorporates an ion-selective electrode and a reference electrode in a single assembly thereby avoiding the need for a separate reference electrode. **IUPAC, D4127**

combined available chlorine—see **CAC**. **D6161**

combined residual chlorine, *n*—residual consisting of chlorine combined with ammonia nitrogen or nitrogenous compounds. **D1253**

compaction, *n*—in crossflow filtration, the result of applied pressure and temperature compressing a polymeric membrane which may result in a decline in flux. **D6161**

completely mixed (perfectly mixed) flow, *n*—flow through a membrane module in which fluids on both the upstream and downstream sides of the membrane are individually well mixed. (See Fig. 1 of Terminology D6161.) **D6161**

complexometric titration—see **titration**. **D4127**

composite membrane, *n*—membrane having two or more layers with different physical or chemical properties. Membrane manufactured by forming a thin desalinating barrier layer on a porous carrier membrane. **D6161**

composite sample, *n*—a combination of two or more samples.

composite sample, *n*—sample formed by combining two or more individual samples or representative portions of the samples. **D4410**

composite sample—a series of grab samples integrated into a single sample or a sample collected at specific time intervals and integrated into a single sample. The goal of a composite sample is to characterize a process weighted average in proportion to process parameters. **D3370**

compostable plastic, *n*—plastic that undergoes degradation by biological processes during composting to yield CO2, water, inorganic compounds, and biomass at a rate consistent with other known compostable materials and leave no visible, distinguishable or toxic residue. **D6888**

composting, *v*—managed process that controls the biological decomposition and transformation of biodegradable materials into a humus-like substance called compost: the aerobic mesophilic and thermophilic degradation of organic matter to make compost; the transformation of biologically decomposable material through a controlled process of biooxidation that proceed through mesophilic and thermophilic phases and results in the production of carbon dioxide, water, minerals, and stabilized organic matter (compost or humus). **D6888**

DISCUSSION—Composting uses a natural process to stabilize mixed decomposable organic material recovered from municipal solid waste, yard trimmings, biosolids (digested sewage sludge), certain industrial residues, and commercial residues.

compression rate, *n*—rate at which the air is compressed in the sample container and is a function of the speed at which the sampler is lowered in the sampling vertical. **D6326**

concentrate, *n*—stream exiting a crossflow membrane device that has increased concentration of solutes and particles over the feed stream; portion of the feed stream that does not pass through the membrane. The stream in which dissolved solids or particulates, or both, are concentrated in a membrane separation process. **D6161**

concentrate recycle, *n*—technique for improving recovery in which a fraction of the concentrate is recycled through the membrane system. **D6161**

concentrate, reject, or brine, *n*—that portion of feed that does not pass through the membrane. **D5089**

concentrate (reverse osmosis), *n*—the residual portion of an aqueous solution applied to a membrane.

concentration, *n*—actual amount of a substance in a given volume of solution. When measuring ionic concentrations by electrode, a distinction is made between the concentration of the free, unbound ion, and total concentration that includes ions bound to complexing agents. **D4127**

concentration factor (CF), *n*—ratio of the concentration of a component in the retenate (concentrate, brine) to the concentration of the same component in the feed: **D6161**

$$CF = \frac{C_B(\text{brinewater concentration})}{C_F(\text{feedwater concentration})} = \frac{1}{1 - \text{concentration}}\ (\text{approximation})$$

concentration of sediment (by mass), *n*—ratio of the mass of dry sediment in a water-sediment mixture to the mass of the mixture. **D4410**

concentration polarization, *n*—increase of the solute concentration over the bulk feed solution that occurs in a thin boundary layer at the feed side of the membrane surface, resulting from the removal of the solvent. Concentration profile that has a higher level of solute nearest to the upstream membrane surface compared with the more-or-less mixed bulk fluid far from the membrane surface. **D6161**

concentration, sediment, *n*—ratio of the mass of dry sediment

in a water-sediment mixture to the volume of the water-sediment mixture. Refer to Practice D3977. **D4411**

concentration standard, *n*—standardizing solution whose value is reported in terms of total concentration of the ion of interest. If the electrode is calibrated using pure-concentration standards and measurements made on untreated samples, results must be corrected for the sample ionic strength and the presence of complexing agents. More commonly, a reagent is added to all standards and samples before measurement to fix the ionic strength, thus avoiding the need for correction. **D4127**

concentration (volume), *n*—ratio of the volume of dry sediment to the volume of the water-sediment mixture. **D4410**

concentrator column, *n*—ion exchange column used to concentrate the ions of interest and thereby increase method sensitivity. **D5542**

concentrator column, *n*—ion exchange column used to concentrate the ions of interest and thereby increase method sensitivity. **D5996**

condensation particle counter (CPC), *n*—instrument for detecting very small aerosol particles in a size range from approximately 10 nm to 2 to 3 μm. The CPC cannot differentiate between particles of varying size within this size range; it reports the number of particles with a size greater than that defined by its detection efficiency curve. Detection is independent of particle composition. **D5544**

conductivity, *n*—property of a substance's (in this case, water and dissolved ions) ability to transmit electricity. The inverse of resistivity. Measured by a conductivity meter, and described in microsiemens/cm or micromhos/cm, μS/cm. **D6161**

confirmed identification, *n*—to confirm a tentative identification, both the GC retention time and the mass spectrum of a compound shall uniquely match those of a reference compound as demonstrated by co-injection of the authentic standard with the tentatively identified compound. **D4128**

contaminant, *n*—any foreign substance present that will adversely affect performance or quality. **D6161**

contaminated run-off, *n*—rain water that has collected oily contaminants from the surfaces it came in contact with and may appear in the influent to a separator. Unlike a release, the level of contamination in this case is much lower. **D6104**

contaminated run-off, *n*—rain water that has collected oily contaminants from the surfaces it came in contact with and may appear in the influent to a separator. Unlike a release, the level of contamination in this case is much lower. **D6157**

continuing instrument quality control—measurements taken to ensure that an instrument responds in the same manner subsequent to its calibration. **D7282**

continuous deionization, *n*—deionization process that does not require regular interruptions in service to discharge ionic materials collected from the water being processed. **D6161**

continuous electrodeionization (CEDI) device, *n*—device that removes ionized and ionizable species from liquids using electrically active media and using an electrical potential to influence ion transport in which the ionic transport properties of the active media are a primary sizing parameter. CEDI devices typically comprise semipermeable ion exchange membranes and permanently charged ion exchange media. Examples include continuous deionization, electrodiaresis, and packed-bed or filled-cell electrodialysis. **D6807**

continuous electrodeionization (CEDI) device—a device that removes ionized and ionizable species from liquids using electrically active media and using an electrical potential to influence ion transport, where the ionic transport properties of the active media are a primary sizing parameter. The CEDI devices typically comprise semipermeable ion-exchange membranes and permanently charged ion-exchange media. Examples include continuous deionization, electrodiaresis, and packed-bed or filled-cell electrodialysis. **D6529**

continuous wave system, *n*—electronic positioning system in which the signal transmitted between the transmitter and responder stations travels as a wave having constant frequency and amplitude. **D5906**

contracted weirs, *n*—contractions of thin-plate weirs refer to the widths of weir plate between the notch and the sidewalls of the approach channel. In fully contracted weirs, the ratio of the notch area to the cross-sectional area of the approach channel is small enough for the shape of the channel to have little effect. In suppressed (full-width) rectangular weirs, the contractions are suppressed, and the weir crest extends the full width of the channel. **D5640**

control, *n*—physical properties of a channel that determine the relationship between the stage and discharge of a location in the channel. **D5674**

control analyses, *n*—the determination of specific parameters used as criteria for proper operation of a system.

control block, *n*—group of devices having a common piping and control system. **D6161**

conversion (Y), *n*—product water flow rate divided by feed water flow rate. Also called recovery; given as fraction or decimal. See **recovery**. **D6161**

conversion factors, *n*—see Table 1 of Terminology D6161. **D6161**

conveyance (K), *n*—measure of the carrying capacity of a channel and has dimensions of cubic feet per second or cubic metres per second. Conveyance is computed as follows: **D5130**

$$K = \frac{1.486}{n} AR^{2/3}$$

where:

n = the Manning roughness coefficient,
A = the cross-section area, ft^2 (m^2), and
R = the hydraulic radius, ft (m).
1.486 = 1.00 SI unit

conveyance, (K), *n*—measure of the carrying capacity of a channel cross section, or parts of a cross section, and has units of cubic feet per second or cubic metres per second. Conveyance is computed as follows: **D5129**

$$K = \frac{*1.486}{n} AR^{2/3}$$

where:

n	=	the Manning roughness coefficient,
A	=	the cross-section area, ft^2 (m^2),
R	=	the hydraulic radius, ft (m), and
*in SI units	=	1.0

The following subscripts refer to specific conveyances for parts of a cross section:

K_a, K_b	=	conveyances of parts of the approach section to either side of the projected bottom width of the contracted section (see Fig. 2 of D5129). K_d is always the smaller of the two,
K_d	=	conveyance at the upstream end of the dikes,
K_i	=	conveyance of subsection i,
K_q	=	conveyance of the part of the approach section corresponding to the projected bottom-width, and
K_T	=	total conveyance of cross section.

conveyance (K), *n*—measure of the carrying capacity of a channel and having dimensions of cubic feet per second. **D5243**

DISCUSSION—Conveyance is computed as follows:

$$K = \frac{1.486}{n} R^{2/3} A$$

where:

n	=	the Manning roughness coefficient,
A	=	the cross section area, in ft^2 (m^2), and
R	=	the hydraulic radius, in ft (m).
1.486	=	1.00 SI unit

conveyance (K), *n*—measure of the carrying capacity of a channel without regard to slope and has dimensions of cubic feet per second. Conveyance is computed as follows: **D5388**

$$K = \frac{1.49}{n} A R^{2/3}$$

core, *n*—vertical column of sediment cut from a parent deposit. **D4823**

core catcher, *n*—device (see Fig. 2) that grips and supports the core while the sampler is being pulled from the sediment and hoisted to the water surface. **D4823**

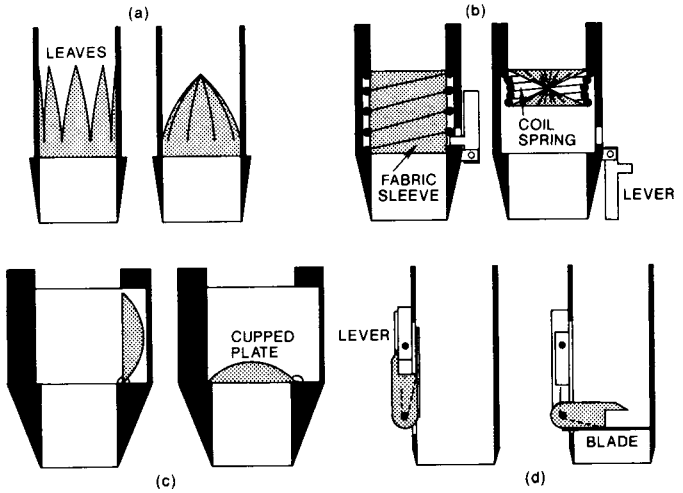
core conveyor, *n*—device (see Fig. 3) for reducing friction between a core and the inside surface of a core barrel. **D4823**

core-barrel liner, *n*—rigid, thin-wall tube mounted inside the barrel of a core sampler. During the core-cutting process, sediment moves up inside the liner. **D4823**

core sampler, *n*—instrument for collecting cores. **D4823**

corrosion, *n*—deterioration of the metal by reaction with its environment. **D4778**

corrosion product sampler, *n*—device used to collect integrated samples of filterable and (as an option) nonfilterable matter. It consists of a flow totalizer that accurately measures the amount of sample passing through the device and a 0.45-µm pore size membrane filter. Adding a second filter for ion exchange resin impregnated membranes allows for collecting nonfilterable matter. **D6301**

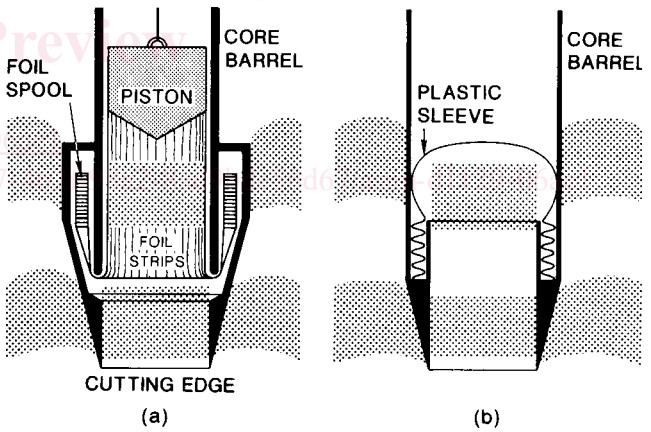


NOTE 1—(*a*) The leaves separate during penetration and then close during retrieval. Strips of gauze can be woven around the leaves to provide additional support. (See Note 2.) (*b*) The lever trips down during retrieval to release the spring and twist the fabric sleeve shut. (See Note 3.) (*c*) The cupped plate drops during retrieval to block the entrance and support the core. (See Note 2.) (*d*) The lever releases the spring-loaded blade which pivots downward to hold the core. (See Note 2.)

NOTE 2—Source: Sachs, P. L., and Raymond, S. O., "A New Unattached Sediment Sampler," *Journal of Marine Research*, Vol 23, 1965, pp. 44–53.

NOTE 3—Source: Bouma, A. H., *Methods for the Study of Sedimentary Structures*, Wiley-Interscience, New York, NY, 1969, pp. 301–378.

FIG. 2 Core Catchers



NOTE 1—(*a*) Strips of metal foil slide up through the core barrel as the cutting edge advances downward. (See Note 2.) (*b*) The plastic sleeve unfolds from pleats stored near the cutting edge. This sleeve surrounds the core as the barrel moves down. (See Note 3.)

NOTE 2—Source: Carrigan, P. H., Jr., "Inventory of Radionuclides in Bottom Sediment of the Clinch River Eastern Tennessee," U.S. Geological Survey Professional Paper 433-I, U.S. Government Printing Office, Washington, DC, 1969.

NOTE 3—Source: Sachs, P. L., and Raymond, S. O., "A New Unattached Sediment Sampler," *Journal of Marine Research*, Vol 23, 1965, pp. 44–53.

FIG. 3 Core Conveyors

corrosion products, *n*—products that result from chemical or electrochemical reaction between a metal and its environment.

corrosion products, *n*—products that result from chemical or electrochemical reaction between a metal and its environment. **D6161**

corrosion products—a result of chemical or electrochemical reaction between a metal and its environment. **D887**

cosine response, *n*—ability of a meter, placed at an angle to the oncoming flow, to sense the component of velocity parallel to its axis. **D5089**

counter background, *n*—in the measurement of radioactivity, the counting rate resulting from factors other than the radioactivity of the sample and reagents used. **D1890**

DISCUSSION—Counter background varies with the location, shielding of the detector, and the electronics; it includes cosmic rays, contaminating radioactivity and electrical noise.

counter beta-particle efficiency, *n*—in the measurement of radioactivity, that fraction of beta particles emitted by a source which is detected by the counter. **D1890**

counter-current flow, *n*—flow through a membrane module in which the fluid on the upstream and downstream sides of the membrane move parallel to the membrane surface but in the opposite direction. (See Fig. 1 of Terminology D6161.) **D6161**

counter efficiency, *n*—in the measurement of radioactivity, that fraction of the disintegrations occurring in a source which is detected by the counter. **D1890**

crest, *n*—bottom of the overflow section or notch of a rectangular weir. **D5242**

crest, *n*—horizontal plane surface of the weir. **D5614**

crest, *n*—in rectangular thin-plate weirs, the horizontal bottom of the overflow section; in broad-crested weirs and flumes, the plane, level floor of the flow section. **D5640**

criterion of detection, *n*—minimum quantity that shall be observed before it can be stated that a substance has been discerned with an acceptable probability that the statement is true (see Practice D4210). **D4841**

critical flow, *n*—open channel flow in which the energy, expressed in terms of depth plus velocity head, is a minimum for a given flow rate and channel. The Froude number is unity at critical flow. **D5614, D4410**

critical flow, *n*—open channel flow in which the energy expressed in terms of depth plus velocity head, is a minimum for a given flowrate and channel. The Froude number is unity at critical flow. **D5390**

critical flow, *n*—open channel flow in which the energy, expressed in terms of depth plus velocity head, is a minimum for a given flow rate and channel. The Froude number is unity at critical flow. **D5614**

critical flow, *n*—open-channel flow in which the energy, expressed in terms of depth plus velocity head, is a minimum for a given flow rate and channel. **D5640**

DISCUSSION—The Froude number is unity at critical flow.

critical level, *n*—with a specified level of confidence (for example, 95 % or 99 %), the lowest result that indicates the presence of an analyte.

DISCUSSION—Specifically, the lowest result that is statistically different from zero. This term originates with the publications of Lloyd Currie (Anal. Chem. 40 (1968) 586; ISO 11843–1:1997). A critical level is dependent on the analyte of interest, the analytical method, and the matrix. The U.S. Environmental Protection Agency's Method Detection Limit (MDL) (Federal Register 40 CFR, Part 136, Appedix B, 7–1–99 edition) is an example of a critical level.

cross flow, *n*—flow through a membrane module in which the fluid on the upstream side of the membrane moves parallel to the membrane surface and the fluid on the downstream side of the membrane moves away from the membrane in the direction normal to the membrane surface. (See Fig. 1 of Terminology D6161.) **D6161**

crossflow membrane filtration, *n*—separation of the components of a fluid by semipermeable membranes through the application of pressure and flow parallel to the membrane surface. Includes the processes of reverse osmosis, utrafiltration, anofiltration, and microfiltration. **D6161**

cross-section area (A), *n*—area of the water below the high-water surface elevations that are computed by assuming a straight-line interpolation between elevations on each bank. The area is computed as the summation of the products of mean depth multiplied by the width between stations of the cross section. **D5130**

cross-section area (A), *n*—area at the water below the water-surface elevation that it computed. The area is computed as the summation of the products of mean depth multiplied by the width between stations of the cross section. **D5388**

cross sectional area (A), *n*—area occupied by the water. **D5243**

cross sections (numbered consecutively in downstream order), *n*—representative of a reach of channel and are positioned as nearly as possible at right angles to the direction of flow. They must be defined by coordinates of horizontal distance and ground elevation. Sufficient ground points must be obtained so that straight-line connection of the coordinates will adequately describe the cross-section geometry. If major breaks in the high-water profile are evident, cross sections should be located at the breaks. **(D5130**

cross sections (numbered consecutively in down-stream order), *n*—The approach section, Section 1, is located one culvert width upstream from the culvert entrance. Cross Sections 2 and 3 are located at the culvert entrance and the culvert outlet, respectively. Subscripts are used with symbols that represent cross sectional properties to indicate the section to which the property applies. For example, A_1 is the area of Section 1. Items that apply to a reach between two sections are identified by subscripts indicating both sections. For example, $h_{f1\text{-}2}$ is the friction loss between Sections 1 and 2. **D5243**

cross sections (numbered consecutively in downstream order), *n*—representative of a reach and channel and are positioned as nearly as possible at right angles to the direction of flow. They must be defined by coordinates of horizontal distance and ground elevation. Sufficient ground points must be obtained so that straight-line connection of the coordinates will adequately describe the cross-section geometry. **D5388**

crud deposition, *n*—deposition on interior surfaces of sample