Designation: D 1129 – 04

An American National Standard

Standard Terminology Relating to Water[1, 2]

This standard is issued under the fixed designation D 1129; 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.

This standard has been approved for use by agencies of the Department of Defense.

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.

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

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.

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

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

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

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

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

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.

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

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

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

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

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.

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

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

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.

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

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

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

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

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

data traceability, *n*—the ability to verify data by having access to, and documentation of, all prior information used to generate it and needed for its interpretation.

dispersion staining, *n*—the color effects produced when a transparent object, immersed in a liquid having a refractive index near that of the object is viewed under the microscope by a transmitted light and precise-aperture control.

dissolved matter, *n*—that matter, exclusive of gases, which is dispersed in water to give a single homogeneous liquid phase.

duplicate sample, *n*—one of two (2) representative portions taken from the same sample or sample source.

[1] This terminology is under the jurisdiction of ASTM Committee D19 on Water and is the direct responsibility of Subcommittee D19.02 on General Specifications, Technical Resources, and Statistical Methods.

Current edition approved March 1, 2004. Published April 2004. Originally approved in 1950. Last previous edition approved in 2003 as D 1129 – 03a.

[2] A Summary of Changes section appears at the end of this terminology.

electrical conductivity, *n*—the reciprocal of the resistance in ohms measured between opposite faces of a centimetre cube of an aqueous solution at a specified temperature.

equivalent per million (epm), *n*—a unit chemical equivalent weight of solute per million unit weights of solution.

fixed matter, *n*—residues from the ignition of particulate or dissolved matter, or both.

flow-proportioned sample, *n*—a sample obtained by collecting an aliquot volume in proportion to the rate of flow of the stream sampled.

ghosting, *n*—a gas-chromatographic interference, showing as a peak, which appears at the same elution time as a component from previous injection.

hardness, *n*—the polyvalent-cation concentration of water (generally calcium and magnesium).

hydrogen cycle, *n*—the operation of a cation-exchange cycle wherein the removal of specified cations from the influent water is accomplished by exchange with an equivalent amount of hydrogen ion from the exchange material.

internal standard, *n*—a material present in or added to samples in known amount to serve as a reference measurement.

ion exchange, *n*—a reversible process by which ions are interchanged between an insoluble material and a liquid with no substantial structural changes of the material.

ion-exchange capacity (volume basis), *n*—the number of milliequivalents of exchangeable ions per millilitre of backwashed and settled bed of ion-exchange material in its standard form.

ion-exchange capacity (weight basis), *n*—the number of milliequivalents of exchangeable ions per dry gram of ion-exchange material in its standard form.

ion-exchange material, *n*—a water insoluble material that has the ability to exchange reversibly certain ions in its structure, or attached to its surface as functional groups, with ions in a surrounding medium.

ion-exchange membrane, *n*—an ion-exchange material in a form suitable for use as a barrier between two fluids.

ion-exchange particle, *n*—an ion-exchange material in the form of spheroids or granules with an average diameter less than 10 mm.

ion-exchange resin, *n*—a synthetic, organic-ion-exchange material.

matrix, *n*—substance in which the analyte or property exists.

measurement, *n*—set of operations having the object of determining a numeric value or non-numeric characteristic.

measurement quality objective, *n*—the precision, accuracy, and detection requirements for measurement data, based on the intended use of that data.

measurement traceability, *n*—property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties.

NOTE 3—The concept is often expressed by the adjective *traceable*.

NOTE 4—The unbroken chain of comparisons is called a *traceability chain*.

membrane filter, *n*—a thin, nonfibrous filtration medium for fluids, with mean pore size larger than 0.01 μm in diameter, with which particles larger than the rated pore size are retained at or near the delivery surface.

minimum determinability, *n*—the lowest value that can be determined within the stated precision of a method expressed quantitatively in the same dimension that is used for reporting results of the test.

mixed bed, *n*—a physical mixture of anion-exchange and cation-exchange materials.

monitoring, *v*—the continual sampling, measuring, recording, and/or signaling, of the characteristics of water or waterborne material.

multiple laboratories operational precision, *n*—the standard deviation of the results of a series of determinations by several laboratories employing the method with its associated sample container preparation, collection, splitting, preservation, transmission, and storage on a homogeneous sample.

neat petroleum, *n*—oil visibly free of contaminants.

noise, *n*—an extraneous electronic signal that effects baseline stability.

nuclide, *n*—an atomic species characterized by the constitution of its nucleus, specifically by the number of protons and neutrons.

odor-intensity index, *n*—the number of times the concentration of the original sample is halved by addition of odor-free water to obtain the least definitely perceptible odor.

odor threshold number, *n*—the greatest dilution of the sample with odor-free water to yield the least definitely perceptible odor.

operating cycle, *n*—an ion-exchange process consisting of a backwash, regeneration, rinse, and service run.

oxidation-reduction potential, *n*—the electromotive force developed by a noble metal electrode immersed in the water, referred to the standard hydrogen electrode.

oxygen demand, *n*—the amount of oxygen required, under the specified test conditions for the oxidation of waterborne organic and inorganic matter.

parametric system, *n*—a system that uses the response of a sensor to produce an output that is correlatable with the selected parameter.

particulate matter, *n*—that nonliquid matter, exclusive of gases, which is heterogeneously dispersed in water.

pH, *n*—the negative logarithm of the hydrogen-ion activity in an aqueous solution, or, the logarithm of the reciprocal of the hydrogen-ion activity.

phenolic compounds, *n*—hydroxy derivatives of benzene and its condensed nuclei.

precision, *n*—the degree of agreement of repeated measurements of the same parameter expressed quantitatively as the standard deviation computed from the results of a series of controlled determinations.

primary standard, *n*—standard that is designated or widely acknowledged as having the highest metrological qualities and whose value is accepted without reference to other standards of the same quantity.

NOTE 5—The concept of primary standard is equally valid for base quantities and derived quantities.