

APPENDIX II

GLOSSARY

Technical terms not in ordinary use, and words used in the Manual in a special sense, are defined below. Definitions given in Standard D 1129¹ are not repeated here.

- Absorption*—Assimilation of molecules of other substances into the physical structure of a liquid or solid without chemical reaction.
- Absorption, radiation*—1. The process whereby the number of particles or photons emerging from a body is reduced relative to the number entering, as a result of interactions of the particles with the body.
2. The process whereby part or all of the energy of a particle or of electromagnetic radiation is lost while traversing a body of matter.
- Absorption tower*—A vertical structure for carrying out an absorption process.
- Acid*—A compound which dissociates in water solution to furnish hydrogen ions.
- Acid anhydride*—An oxide which will form an acid when united with water.
- Acid mine drainage*—Acidic drainage from bituminous coal mines, containing a high concentration of acidic sulfates, especially ferrous sulfate.
- Acid radical*—The anion in equilibrium with the hydrogen ion of an acid.
- Acidify*—To make acidic by the addition of acid or acid salt.
- Acidimetry*—The art of determining the acidity of aqueous solutions.
- Activation*—The process of inducing radioactivity in a material through nuclear bombardment, especially by neutrons.
- Activation analysis*—A method of chemical analysis, especially for trace quantities, based on the detection of characteristic radionuclides following nuclear bombardment.
- Adsorption*—Physical adhesion of molecules to the surfaces of solids without chemical reaction.
- Aerobic*—Living only in the presence of free oxygen.
- Agglomerate*—To gather together into a larger mass or cluster; to coalesce.
- Albuminoid*—Any of a number of substances resembling the true proteins such as collagen and keratin. A protein in its broad sense.
- Algae*—Simple forms of aquatic plant life which multiply only by division, but contain chlorophyll and use sunlight for photosynthesis.
- Aliquot*—A measured fraction of the known total volume of a solution.
- Amorphous*—Structure without crystalline components; having no determinate shape.
- Amperometrically*—Determined by measurement of electric current flowing or generated, rather than by voltage measurement.
- Anaerobic*—Living in the absence of free oxygen.
- Analysis, chemical*—Determination of the chemical elements or constituents of a compound or mixture. Also a statement of the results of such a determination.
- Angstrom unit*—A measurement of length usually applied to light or other radiation wavelengths— 0.0001μ , cm/ 10^8 .
- Anion*—A negatively charged ion resulting from dissociation of molecules in aqueous solution.
- Anode*—The positive pole in an electrolytic cell which attracts negatively charged particles or ions (anions).
- Anthrax*—A malignant infectious disease of cattle, sheep, and other animals, and of man, caused by *Bacillus anthracis*.
- Arc, visible*—An electrical discharge in which radiation of wavelengths discernible by the normal human eye is produced.
- Arthropods*—Animals with articulate body and limbs.
- Ascarite*—A proprietary absorbent for carbon dioxide consisting of asbestos fibers impregnated with dehydrated sodium hydroxide.
- Aspirator*—A type of suction pump operated from a laboratory water tap.
- Autotrophs*—Microorganisms which utilize inorganic materials for energy and obtain carbon from the carbon dioxide of the atmosphere.
- Background, instrument*—Undesired counts or responses due to cosmic rays, local contami-

¹ See p. 392.

- nating radioactivity, electronic noise, and the like. Background is sometimes used to refer to the radiation causing the undesired response.
- Backwash**—Reversed flow of liquid for cleaning or the discharge from such an operation.
- Bacteria**—One-celled microscopic organisms.
- Bacteria, iron**—Bacteria which assimilate iron and excrete its compounds in their life processes, thereby contributing to corrosion.
- Bacteria, non-pathogenic**—Bacteria which do not induce disease in man or the higher animals.
- Bacteria, pathogenic**—Microorganisms that produce disease.
- Bacteria, sulfate-reducing**—Bacteria which assimilate oxygen from sulfate compounds, thereby reducing them to sulfides.
- Bacteriophage**—A viral agent that dissolves specific bacterial cells.
- Balance, water**—A material account of the weight of water entering and leaving an industrial installation or process.
- Basic**—Alkaline.
- Beam trap**—A device on an X-ray-diffraction camera for absorbing the undiffracted primary X-ray beam after it has passed through the sample.
- Biota, stream**—The collective animal and plant life of a stream.
- Birefringence**—The difference between the maximum and minimum index of refraction of a crystal.
- Blanket**—A layer of material outside the core of a reactor in which fissionable materials are produced through neutron activation.
- Blowdown**—Draining off a portion of the liquid in a vessel, usually to reduce the concentration of the remaining liquid.
- BOD**—Biochemical oxygen demand of a water—the oxygen required for oxidation of the soluble organic matter by bacterial action in the presence of oxygen.
- Bovine tuberculosis**—An infectious disease affecting any of various tissues of the body due to the tubercle bacillus and characterized by the production of tubercles.
- Brine**—Concentrated solution, especially of chloride salts.
- Bromination**—Chemical treatment with bromine.
- Brucellosis**—Infection with bacteria of the *Brucella* group, frequently causing abortions in animals and undulant fever in man.
- Buffer**—A substance which tends to resist changes in pH of a solution.
- Buffered water**—Water containing dissolved or suspended material which resists changes in the pH of the water.
- Calibration**—The process of standardizing.
- Carbonate hardness**—That hardness in a water caused by bicarbonates and carbonates of calcium and magnesium.
- Carryover**—Entrainment of liquid or solid particles from the boiling liquid in the evolved vapor; also the particles so entrained.
- Cathode**—The negative pole of an electrolytic cell which attracts positively charged particles or ions (cations); the negative electrode of a vacuum tube.
- Cathodic protection**—Reduction or prevention of corrosion of a metal surface by making it cathodic by use of sacrificial anodes or impressed currents.
- Cation**—A positively charged ion resulting from dissociation of molecules in solution.
- Cavitation**—The formation of cavities in a liquid by rapid movement over confining or impelling surfaces and the subsequent collapse of these cavities; the destruction of metal surfaces as a result of cavitation in the liquid.
- Centrifuge**—A device for separating the lighter and heavier portions of a fluid by centrifugal force.
- Chamber, ionization**—An instrument whose response to radiation is due only to collection of the ions formed by the interaction of the radiation with the chamber materials.
- Chelating agents**—Chemical compounds which have the property of withdrawing ions into soluble complexes.
- Chlorinator**—A machine for feeding either liquid or gaseous chlorine to a stream of water.
- Coagulation**—The coalescence of fine particles to form larger particles.
- Collimator tube**—A device for defining the path of rays, such as light or X-rays.
- Colloidal**—Matter of very fine particle size, usually in the range of 10^{-5} to 10^{-7} cm in diameter.
- Colorimeter**—A device for measuring or comparing colors or colored solutions.
- Colorimeter, photoelectric cell**—A colorimeter which measures the light transmitted through a solution by the response of a photoelectric cell.
- Colorimetric determination**—An analytical procedure based on measurement, or comparison with standards, of color naturally present in samples or developed therein by addition of reagents.
- Combinations, molecular**—Possible mutual arrangements of the known proportions of anions and cations present in a mixture.
- Combinations, probable**—The most likely manner, in the judgment of the analyst, in which the ions of a solution or the constituents of a deposit are combined into compounds in the original sample.
- Combining weight**—The relative or equivalent weight of an element or compound which

- enters into combination with another element or compound.
- Comparator*—A device for comparing colored or turbid solutions against standard solutions' light filters under favorable lighting conditions.
- Complexes*—Compounds formed by the union of two or more simple salts.
- Composition, elemental*—Describing a substance in terms of atoms of which it is composed.
- Concentration*—The process of increasing the dissolved solids per unit volume of solution, usually by evaporation of the liquid; the amount of material dissolved in a unit volume of solution.
- Concentration, maximum permissible*—The concentration of a specific radionuclide, or a mixture of radionuclides, allowed in an environmental medium, such as air or water.
- Condensate*—Liquid (water) obtained by evaporation and subsequent condensation.
- Condenser*—An apparatus for removing heat from a gas (steam) so as to cause the gas to revert to the liquid state (water).
- Cooling coil*—A coil of pipe or tubing to contain a flowing stream of hot liquid which is cooled by heat transfer to a cold liquid outside.
- Cooling tower*—Hollow, vertical structure with internal baffles to break up falling water so that it is cooled by upward-flowing air and evaporation from the extended surface of the water.
- Corrosion*—Chemical attack, as of metals, by which the metal is converted to a compound and thus deteriorated.
- Corrosion, electrochemical*—Corrosion resulting from the flow of an imposed or self-induced electric current.
- Counter, proportional*—An instrument whose response to radiation is based upon the collection of the ions formed by the interaction of the radiation with the counter materials, *plus* a proportionate number of secondary ions formed by gas amplification.
- Cross-section*—The probability, per unit flux and per unit time, that a given nuclear reaction will occur.
- Crustaceae*—Aquatic animals having a shell.
- Culture*—Any organic growth which has been intentionally developed by use of a suitable food and environment.
- Culture medium*—A food substance for growing organic life for study.
- Curie*—The unit of quantity of radioactive material, defined as that quantity of a nuclide in which the number of disintegrations is 3.7×10^{10} per second.
- Deaeration*—The process of removing air from a liquid in which it is dissolved.
- Decantation*—Separation of a liquid from solids, or from a higher density liquid, by carefully pouring off the upper layer after the heavier material has settled.
- Decay, heat*—The heat produced in or by radioactive material through absorption of the disintegration energy.
- Decay, radioactive*—Radioactive disintegration.
- Decompose*—To separate into simpler substances or to change the form or quality of a substance by chemical action; to decay or rot.
- Degas*—To remove a gas from a liquid or solid.
- Dehydrated*—Freed from, or lacking, water.
- Dehydration*—Process of removing water, such as roasting, desiccation, etc.
- Dendrite*—A tree-like crystalline structure within a solid material.
- Density*—Weight per unit volume.
- Deposit, water-formed*—Material formed or deposited on the walls of a water-containing vessel.
- Descale*—To remove a solid scale layer from its supporting surface.
- Desuperheating*—Removing sensible heat from a gas (steam) to reduce its temperature.
- Detergent*—A cleansing and dispersing agent which, like soap, removes a film from its supporting structure by other means than solvent or chemical action.
- Diaphragm*—A flexible partition between two chambers.
- Diatom*—Single-celled marine animal having a coating or sheath consisting principally of silica.
- Diatomaceous*—Made up of the skeletal remains of diatoms.
- Diatomaceous earth*—A fine, siliceous earth consisting mainly of the cell walls of diatoms.
- Diffraction*—Bending a beam of light, and so separating it into its colored components, by passing it through a medium of different density or by grazing it across a grating.
- Diffraction, angle of*—The angle through which a beam of light is bent as it passes through a substance of different density.
- Diffraction*—A prism or grating which will cause light rays to bend.
- Digestion*—Prolonged solution of, or reaction with, a solid by a liquid.
- Dilution*—The addition of more solvent to a solution.
- Disintegration, radioactive*—A spontaneous nuclear transformation characterized by the emission of energy from the nucleus.
- Dissolved matter*—The material in solution in a liquid.
- Dolomitic lime*—Lime containing 30 to 50 per cent magnesium and 70 to 50 per cent cal-

- cium oxide as contrasted with a lime containing 95 to 98 per cent calcium oxide.
- Dose*—A measure of the amount of radiation energy absorbed per unit mass.
- Dosimeter*—Any instrument which measures radiation dose, especially a small ionization chamber in which accumulated electrical charge, rather than current or events, is measured.
- Dry pipe*—The horizontal pipe within a boiler through which generated steam is discharged. By multiple changes in direction of steam flow, it serves to separate water droplets from the steam.
- Eductor*—A mechanical device combining a high-velocity fluid jet, a venturi, and a side arm for pumping gas or liquid in through the side arm and discharging it with the effluent jet; frequently used as a vacuum pump.
- Efficiency, detector*—A measure of the probability that an event will be recorded when a radiated particle or photon passes into a detector. It is usually measured by the fraction or per cent recorded.
- Efficiency, over-all*—The response of a detector to a radiation source, defined as the fraction of emitted radiation particles or quanta recorded by the detector.
- Effluent*—A liquid, solid, or gaseous product, frequently waste, discharged or emerging from a process.
- Electrolyte*—A substance which dissociates into two or more ions when it is dissolved in water.
- Electrolyze*—To decompose a compound, either liquid, molten, or in solution, by an electric current.
- Embrittlement, caustic*—Intergranular failure of boiler steel resulting from the combination of a stress beyond the yield point of the steel and attack by a concentrated caustic solution.
- Encrusting*—Capable of forming a hard coating or scale.
- Encrusting solids*—Dissolved solids which, when concentrated by evaporation, will precipitate as a hard coating or scale on heat-transfer surfaces.
- End point*—The stage in a titration when equivalence is attained as revealed by a change that can be observed or measured such as color development, formation of precipitate, or attainment of specified pH.
- End point, electrometric*—The stage in a titration when equivalence is reached as revealed by attainment of a specified pH or change in current flow measured by a glass electrode.
- End point, methyl-orange*—The stage in an acid-base titration when equivalence is attained as revealed by change in color of methyl-orange indicator.
- End point, phenolphthalein*—The stage in an acid-base titration when equivalence is attained as revealed by change in color of phenolphthalein indicator.
- Energy, disintegration*—The energy released in radioactive decay.
- Entrainment*—The carrying over of drops of liquid from an evaporator or boiler due to the vapor velocity being greater than the rate of settling of the drops.
- Enzyme*—A catalyst produced by living cells.
- Equalizing basin*—A holding basin in which, by retention, variations in flow and composition of a liquid are averaged out.
- Equivalent, chemical*—The weight in grams of a substance which combines with or displaces one gram of hydrogen, obtained by dividing the formula weight by the valence.
- Erosion*—The wearing away of a solid substance by repeated impact action of a solid, liquid, or gas.
- Etiologic agent*—Causative agent, such as a bacterium which induces a specific disease.
- Evaporated*—A liquid converted to its vapor by the application of heat or reduced pressure.
- Evaporator*—An apparatus in which a solution is converted to a vapor and a more concentrated solution, the relatively pure vapor usually being condensed for re-use.
- Evaporator, single-effect*—An evaporator in which the liquid is subjected to only one evaporating step.
- Evaporator, multiple-effect*—A series of single-effect evaporators so connected that the vapor from one effect is the heating medium for the next.
- Evaporator salines*—The concentrated solution effluent from evaporators; also the salts in such a solution.
- Evapotranspiration*—Transfer of moisture to the atmosphere by plant life, occurring as a result of the processes of evaporation and photosynthesis.
- Evolution*—The escape or liberation of a gas.
- Excited*—Stimulated, by applied energy, into an unstable or metastable state, such as in the formation of ions from neutral atoms.
- Extraction*—The process of dissolving and separating out specific constituents of a sample by treatment with solvents specific for those constituents.
- Eye piece*—The lens or lens system to which an observer applies his eye in using an optical instrument.
- Fallout*—Radioactive debris, usually from a nuclear detonation, which has been deposited on the earth after having been air-borne. Special forms of fallout are "dry fallout" (or "dust-out"), "rainout," and "snowout."

Fauna—Animals, or animal life.

Ferrobacillus ferrooxidans—An autotrophic bacterium which oxidizes ferrous iron under acid conditions.

Filamentous—Having the shape of a fine thread-like body or structure.

Film badge—An appropriately packaged photographic film for detecting radiation exposure of personnel.

Filter plant—The portion of a plant containing the equipment employed to strain water for the removal of suspended solids.

Filtrate—The liquid which has passed through a filter.

Filtration—The process of separating solids from a liquid by means of a porous substance through which only the liquid passes.

Fission—The splitting of a nucleus into two more or less equal fragments, usually as a result of the capture of a bombarding particle, especially a neutron. In addition to the two fragments, neutrons and gamma rays are usually emitted during fission.

Fission products—The nuclides produced by the fission of a heavy element nuclide such as uranium-233, uranium-235, or plutonium-239.

Flame photometer—Apparatus for giving a reproducible amount of emitted light for a given concentration of element in the test solution, and for determining the intensity of such emission as a function of concentration of the element without excessive interference from other emitted light.

Flashing—The conversion of a portion of a hot liquid under pressure to its vapor by release of the pressure.

Floc—A felted mass formed in a liquid medium by the aggregation of a number of fine suspended particles.

Flora—Plants, or plant life.

Flow cells—A sensing element or combination of elements, such as electrodes, immersed in a flowing liquid or gas for the purpose of measuring continuously some property of the fluid, such as electrical conductivity.

Flow diagram—The diagrammatic representation of a works process, showing the sequence and interdependence of the successive stages.

Flumed—The transportation of solids by suspension or flotation in flowing water.

Fluorescence—The absorption of radiation at one wavelength or range of wavelengths and its re-emission as radiation of longer, visible wavelengths.

Flux—The number of particles or photons passing through a surface per unit time; for electromagnetic radiation, the energy passing through a surface per unit time.

Fluxing—Addition of a low-melting compound

to a substance to decrease fusion temperature of the mixture.

Geiger-Mueller tube—A gas-filled chamber with electrodes operated at a voltage such that a discharge triggered by a primary ionization event will increase until stopped by reduction of the electric field. The size of the response is independent of the unit amount of primary ionization.

Geometry—The average solid angle at the source subtended by the aperture or sensitive volume of a detector, divided by 4π . Geometry is frequently (but loosely) used to denote over-all counting efficiency.

Glass electrode—An electrode consisting of a thin glass membrane separating solutions of known and unknown pH value, the potential difference between the two sides being measured for determining the pH of the unknown.

Grain per gallon—A measure of solution concentration—17.1 ppm.

Grating—A band of equidistant, parallel, straight lines ruled on a suitable surface for systematically dispersing polychromatic light into its separate wavelength components.

Gravimetric—Measured by weight.

Ground water—Water derived from wells or springs, not surface water from lakes or streams.

Gases, half-bound—Gases, such as carbon dioxide, which are evolved by decomposition of unstable ions upon heating.

Half-life—The average time required to reduce the amount of a particular radionuclide to half its original value through radioactive disintegration.

Heat exchanger—A mechanical device by which heat is transferred from a flowing fluid within tubes to another outside the tubes.

Heat transfer—The process of removing heat from a hot body or fluid to another, usually through an intervening wall.

Heater, feedwater—A heat exchanger for raising the temperature of feedwater.

Heterotrophs—Microorganisms which must obtain carbon from organic compounds.

Homogeneous—Of uniform composition throughout.

Hot-well, condenser—Reservoir at the bottom of a condenser shell for collecting condensed water.

Humidity—The concentration of water vapor in an atmosphere.

Hydrazine—An ammonium compound, N_2H_4 , which is used as an oxygen scavenger in boiler water.

Hydrometer—A buoyant instrument with graduated stem for measuring the specific gravity of liquids.

- Hydroponics*—Growth of plants in nutrient solution rather than in earth.
- Hygroscopic*—Tending to absorb moisture from the atmosphere.
- Hypochlorite solution*—Bleaching or sterilizing solution containing $(OCl)^-$ ion.
- Incubation*—Maintenance of viable organisms in nutrient solution at constant temperature for controlled growth or reproduction.
- Index of refraction*—Ratio of the velocity of light in the substance in question to the velocity of light in a vacuum.
- Indicator*—Substance which gives a visible change, usually of color, at a desired point in a chemical reaction.
- Inoculate*—To introduce a small amount of substance into a solution for observation of its effect such as growth or crystal formation.
- Intensity, line-spectra*—Intensity of the characteristic lines in the spectrum of an excited element.
- Interfering substances*—Materials which restrict or prevent a desired reaction, or contaminate the product.
- Iodimetry*—Measurement by consumption or reaction of iodine, usually in solution.
- Ion*—An atom or radical in solution carrying an integral electrical charge either positive (cation) or negative (anion).
- Ion exchange*—A process by which certain ions of given charge may be absorbed from solution and replaced in the solution by other ions of similar charge from the absorbent.
- Isotropic*—Having the same optical properties in all directions.
- Kjeldahl determination*—The chemical determination of nitrogen by which organic material is decomposed and its nitrogen converted to ammonia.
- Latent energy*—The energy (heat) required for a change of state at constant temperature, as the thawing of ice into water or the evaporation of water into steam.
- Lattice*—The uniform, three-dimensional arrangement of atoms or ion groups in a crystal.
- Leach*—To dissolve certain constituents from a larger mass by a slow washing operation.
- Lignin*—The major non-cellulose constituent of wood.
- Macro*—Large, as compared with micro (small).
- Macro sample*—One large enough to be weighed accurately on an analytical balance.
- Macrochemical*—On a normal scale of weights and volumes, as opposed to microchemical.
- Membrane, porous*—A barrier, usually thin, which permits the passage only of particles up to a certain size or of special nature.
- Metabolism*—The process by which food is used and wastes are formed in living matter.
- Methemoglobinemia*—Condition resulting from intake of excessive quantities of nitrate (blue babies).
- Microbiological*—Pertaining to very small living matter and its processes.
- Microbiota*—Microscopic plants and animals.
- Microchemical*—Chemical reactions on a very small scale.
- Microorganism*—Minute living matter.
- Microscopic*—Minute, very small; pertaining to a microscope.
- Microscopy, chemical*—Identification by microscopic observation of both chemical reactions and optical properties.
- Moderator*—Material used in a nuclear reactor to slow neutrons from the high energies at which they are released. Moderators are usually materials of high scattering cross-section, low atomic weight, and low absorption cross-section.
- Molds*—Filamentous fungi composed of many cells.
- Monitoring, radioactive*—Periodic or continuous determination of the amount of ionizing radiation or radioactive contamination present in any area, as a safety measure for health protection.
- Mother liquor*—A solution substantially freed from undissolved material by filtration, decantation, or centrifuging.
- MPC*—Maximum permissible concentration. See Concentration, maximum permissible.
- Nephelometry*—Measurement of the light scattered by turbid liquids.
- Nessler tubes*—Matched cylinders with strain-free, clear-glass bottoms for comparing color density or opacity.
- Nesslerization*—A process for determining ammonia by its reaction with a mercury complex in alkaline solution.
- Neutralization*—Reaction of acid or alkali with the opposite reagent until the hydrogen ions are approximately equal to the hydroxyl ions in the solution.
- Neutron activation analysis*—Activation analysis using neutrons as the bombarding particle.
- Nitrobacter*—A genus of bacteria that oxidize nitrite to nitrate.
- Nitrogen, organic*—Nitrogen combined in organic molecules such as proteins, amines, and amino acids.
- Nitrosomonas*—A genus of bacteria that oxidize ammonia to nitrite.
- Noncarbonate hardness*—Hardness in water caused by chlorides, sulfates, and nitrates of calcium and magnesium.
- Non-condensable*—Gaseous matter not liquefied or dissolved under the existing conditions.
- Non-referee*—A method of test featuring speed

- and practical usefulness rather than high accuracy, which is used for process control and general information rather than in settlement of disputed test results.
- Nuclide**—A species of atoms with a given nuclear constitution, described by the number of protons Z , the total number of nucleons (protons plus neutrons) A , and (if necessary) the energy state. Usually only atoms capable of existing for a time of the order of 10^{-10} seconds or longer are considered to be nuclides.
- Nutrient**—Food.
- Objective**—The lens, or set of lenses, opposite the eyepiece in a microscope, which forms an image of the specimen.
- Occlusion**—An absorption process in which one material adheres strongly to another, usually a solid.
- Opacity**—The ratio of transmitted to incident light.
- Orientation**—The relative position of particles with respect to one another or to a reference point.
- Orientation, crystal**—The geometric relationship between the optical axes and an external reference.
- Orifice**—A restricted opening of known dimensions, usually for limitation or measurement of fluid flow.
- Oxidation**—Reaction of a substance with oxygen; loss of electrons by one element to another element.
- Oxide**—A chemical compound of a metal, or group of elements which act in common as a metal, with oxygen.
- Oxide, basic**—An oxide which forms hydroxide on reaction with water.
- Oxygen demand**—Oxygen required for oxidation of inorganic matter, or for stabilization of decomposable organic matter by aerobic bacterial action.
- Pathogenic**—Causing disease.
- Pathogens**—Pathogenic or disease-producing organisms.
- Photometer**—An instrument which measures the intensity of light or degree of light absorption.
- Photon**—The smallest unit of electromagnetic radiation. The term *photon* is most commonly used in reference to the particulate aspect of electromagnetic radiation. A photon of radiation frequency ν has an energy $h\nu$ and a momentum $h\nu/c$, where c is the velocity of light in vacuo.
- Photosynthesis**—Formation of chemical compounds in chlorophyll-containing tissues of plants exposed to light.
- Physical tests**—Determinations based on observation or measurement of physical properties.
- Pollution**—The result of discharging normally foreign material into ground or surface water.
- Polyphosphate**—Molecularly dehydrated orthophosphate.
- Precipitate**—An insoluble compound formed by chemical reaction between two or more normally soluble compounds in solution.
- Priming**—A carry-over of water with a sudden generation of steam, like the bumping which sometimes occurs when water is boiled in an open vessel.
- Process, hot-flow**—Addition of chemicals to hot water (200–212 F) passing slowly through a reaction tank.
- Proliferation**—The growth or production by multiplication of parts as in budding or cell division.
- Protozoa**—Microscopic, one-celled animals.
- Purity, steam**—An inverse measure of the non-water (salts, solids, oil) constituents of steam.
- Quality, steam**—An inverse measure of the entrained, unevaporated moisture in steam.
- Qualitative**—Pertaining to the nature of component parts rather than to the amount of such components present.
- Quench**—To cool a material suddenly; halt abruptly a process or reaction.
- Radiation**—The emission and propagation of energy through space or through a material medium; also the energy so propagated.
- Radioactivity**—Spontaneous nuclear disintegration with emission of particulate or electromagnetic radiations.
- Radionuclide**—A radioactive nuclide.
- Radiotracer**—A tracer which is detected by means of its radioactivity.
- Rainout**—See Fallout.
- Reactant**—A substance which undergoes chemical change in contact with another substance.
- Reactor**—An assembly capable of sustaining a fission chain reaction.
- Reconstitution**—The restoration of the original characteristics of a specific water.
- Recycled**—Having flowed more than once through the same series of processes, pipes, or vessels.
- Referee method**—A method of test, usually of the highest accuracy available, which is used by mutual consent of contracting parties for establishing an acceptable value or quality in settlement of disputed test results.
- Refractory**—Heat-resistant; fusible with difficulty.
- Regeneration**—Restoration of water-treating power to an ion exchanger.
- Rehydration**—Recombination of water with a molecule of a chemical compound.
- Reprecipitation**—Dissolving a precipitate and then re-forming it by repetition of the pre-

- vious procedure. (Used as a purification step in analysis.)
- Residue*—That which remains after a part has been separated or otherwise treated.
- Resolving power*—Capacity of an optical system to distinguish adjacent images.
- Riparian*—Of, pertaining to, or situated, or dwelling on the bank of a river or other body of water.
- Rotifera*—Minute, many-celled aquatic animals.
- Runoff*—Water flowing to a stream as a result of rainfall or melting snow.
- Saprophytic organism*—Any organism living on dead or decaying matter.
- Scintillation*—The production of light photons by the interaction of radiation with a suitable material.
- Sedimentation*—Gravitational settling of solid particles in a liquid system.
- Self-absorption*—The absorption of radiation particles or photons in the source itself.
- Sequester*—To form a stable, water-soluble complex.
- Settling basin*—Reservoir receiving water after chemical mixing to permit settling of the floc.
- Shielding*—Material used to prevent or reduce the passage of radiation particles or photons.
- Slimes*—Substances of viscous organic nature, frequently derived from microbiological growth.
- Sludge blanket*—A horizontal layer of solids hydrodynamically suspended within an enclosed body of water.
- Softener, base-exchange*—Water softener using an ion-exchange material.
- Softener, lime-soda*—Water softener using calcium hydrate and sodium carbonate as the reacting chemicals.
- Solubility*—Degree to which a substance will dissolve in a particular solvent.
- Solutes*—Substances which are dissolved in a liquid.
- Solid solution*—Mixture of two or more isomorphous substances in a single crystal form.
- Species*—A classification group having only minor details of difference among themselves.
- Specific gravity*—Ratio of the weight of any volume of a substance to the weight of an equal volume of water at 4°C.
- Spectrograph*—Instrument used for photographing a spectrum.
- Spectrophotometry*—Quantitative measurement with a photometer of the quantity of light of any particular wavelength absorbed by a colored solution, or emitted by a sample subjected to some form of excitation such as a flame, arc, or spark.
- Spectroscope*—Instrument used to view spectra emitted by bodies or substances.
- Spectroscopy*—Application of spectroscope to investigation of chemical composition.
- Spore*—A minute resistant body within bacteria, considered as a resting stage of bacteria.
- Spray ponds*—Ponds or basins in which cooling water is pumped and sprayed through nozzles, thereby reducing the water temperature by evaporation.
- Stage, mechanical*—The device used to manipulate a specimen under the lens of a microscope for examination.
- Standardization*—The manipulations necessary to bring a preparation to an established or known quality; for example, the preparation and adjustment of a standard solution in volumetric analysis.
- Staphylococci*—A genus of sphere-shaped, pus-forming bacteria.
- Statistical uncertainty*—That portion of the uncertainty of a radioactivity determination due to the random variation in the disintegration process.
- Stoichiometric*—The fixed weight ratios in which elements combine into chemical compounds.
- Streptococci*—A genus of sphere-shaped bacteria forming chains of cells; produce pus.
- Strongly basic acid absorber*—An ion-exchange resin in which the hydroxyl ion exhibits a very low exchange potential.
- Sulfuritic material*—Compounds of sulfur and iron represented by the formula FeS_2 .
- Superheater*—A heat exchanger in which steam is heated above the equilibrium temperature corresponding to the operating pressure.
- Supernatant*—The liquid standing above a sediment or precipitate.
- Survey meter*—A portable instrument for detecting and measuring radiation under varied physical conditions.
- Thermal shock*—A stress-strain condition set up by a sudden change in temperature.
- Titration*—The determination of a constituent in a solution by the measured addition of a reactive, standard solution of known strength until the reaction is completed.
- Titer*—The concentration of a dissolved substance as determined by titration.
- Tracer*—A foreign substance mixed with or attached to a given substance to enable the distribution or location of the latter to be determined subsequently.
- Tritium*—A radioactive hydrogen isotope of atomic weight 3.
- Tube bank*—A large number of metal tubes set parallel and close together, as in a boiler.
- Tube failure*—Leakage or bursting of tubes resulting from corrosion, overheating, etc.
- Tuberculation*—A type of corrosion in which the corrosion products form blisters or nodules.

- Turbidimeter*—Instrument for determining the quantity of matter, in the form of fine suspended particles, in a liquid.
- Turbidity*—The reduction of transparency of a liquid due to the scattering of light by suspended particles.
- Undulant fever*—An irregular, relapsing fever, with swelling of joints, spleen, and rheumatic pains caused by *Brucella* organisms.
- Vacuum deaeration*—Equipment operating under vacuum to remove dissolved gases from water in the cold.
- Vacuum-return system*—A system whereby a vacuum is applied to the return pipes to facilitate the flow of condensate back to the boiler.
- Viable*—Living and potentially reproductive.
- Virus*—Submicroscopic infectious agent.
- Volatile*—Capable of being readily evaporated at relatively low temperature.
- Volatilize*—To convert into a gas or vapor.
- Volumetric*—Pertaining to measurement by volume, as opposed to gravimetric.
- Waste*—Any material which is of no further utility to the particular process involved.
- Water of crystallization*—Water which is an integral constituent of crystals or hydrated salts.
- Water hammer*—A sharp, hammer-like blow caused by the sudden stoppage of water flow in a long pressure conduit due to the rapid closing of valves. It may also be caused by the sudden collapse of steam bubbles upon entering cold water.
- Weakly basic acid absorber*—An ion-exchange resin in which the hydroxyl ion exhibits an exceedingly high exchange potential.
- Weir boxes*—Dams over which, or through a notch in which, the liquid carried by a horizontal open channel is constrained to flow for measurement.
- Westphal*—A type of weighing balance for determining the specific gravity of liquids and solids.
- X-ray diffraction*—A method of identifying crystalline substances by means of the scattering of X-rays by the constituent atoms to form characteristic patterns.
- Yeasts*—Broad group of fungal microorganisms causing fermentation.
- Zeolite*—A group of hydrated aluminum complex silicates, either natural or synthetic, with cation-exchange properties.
- Zeolite, regenerating*—A zeolite capable of being regenerated or converted to its original form by brine treatment.
- Zeolite softeners*—Equipment containing zeolite for softening water.