

reducing agent a substance that has the potential to reduce another substance (642)

reduction a chemical change in which electrons are gained, either by the removal of oxygen, the addition of hydrogen, or the addition of electrons (633)

reduction potential the decrease in voltage that takes place when a positive ion becomes less positive or neutral or when a neutral atom becomes negative ion (662)

rem the quantity of ionizing radiation that does as much damage to human tissue as 1 roentgen of high-voltage X rays does (693)

resonance the bonding in molecules or ions that cannot be correctly represented by a single Lewis structure (189)

reversible reaction a chemical reaction in which the products re-form the original reactants (266, 589)

roentgen a unit of radiation dose of X rays or gamma rays that is equal to the amount of radiation that will produce 2.58×10^{-4} of ions per kilogram of air at atmospheric pressure (693)

S

salt an ionic compound that forms when a metal atom or a positive radical replaces the hydrogen of an acid (231, 489)

saponification a chemical reaction in which esters of fatty acids react with a strong base to produce glycerol and a fatty acid salt; the process that is used to make soap (754)

saturated hydrocarbon an organic compound formed only by carbon and hydrogen linked by single bonds (716)

saturated solution a solution that cannot dissolve any more solute under the given conditions (409)

scientific method a series of steps followed to solve problems, including collecting data, formulating a hypothesis, testing the hypothesis, and stating conclusions (29)

scientific notation a method of expressing a quantity as a number multiplied by 10 to the appropriate power (50)

scintillation counter an instrument that converts scintillating light into an electrical signal for detecting and measuring radiation (694)

self-ionization of water a process in which two water molecules produce a hydronium ion and a hydroxide ion by transfer of a proton (499)

semipermeable membrane a membrane that permits the passage of only certain molecules (452)

shielding a radiation-absorbing material that is used to decrease radiation leakage from nuclear reactors (698)

SI Le Système International d'Unités, or the International System of Units, which is the measurement system that is accepted worldwide (33)

significant figure a prescribed decimal place that determines the amount of rounding off to be done based on the precision of the measurement (46)

single bond a covalent bond in which two atoms share one pair of electrons (185)

single-displacement reaction a reaction in which one element or radical takes the place of another element or radical in a compound (281)

solid the state of matter in which the volume and shape of a substance are fixed (8)

solubility the ability of one substance to dissolve in another at a given temperature and pressure; expressed in terms of the amount of solute that will dissolve in a given amount of solvent to produce a saturated solution (410)

solubility product constant the equilibrium constant for a solid that is in equilibrium with the solid's dissolved ions (613)

soluble capable of dissolving in a particular solvent (401)

solute in a solution, the substance that dissolves in the solvent (402)

solution a homogeneous mixture of two or more substances uniformly dispersed throughout a single phase (402)

solution equilibrium the physical state in which the opposing processes of dissolution and crystallization of a solute occur at equal rates (408)

solvated describes a solute molecule that is surrounded by solvent molecules (415)

solvent in a solution, the substance in which the solute dissolves (402)

specific heat the quantity of heat required to raise a unit mass of homogeneous material 1 K or 1°C in a specified way given constant pressure and volume (532)

spectator ions ions that are present in a solution in which a reaction is taking place but that do not participate in the reaction (439)

spin quantum number the quantum number that describes the intrinsic angular momentum of a particle (110)

standard electrode potential the potential developed by a metal or other material immersed in an electrolyte solution relative to the potential of the hydrogen electrode, which is set at zero (663)

standard solution a solution of known concentration, expressed in terms of the amount of solute in a given amount of solvent or solution (517)

standard temperature and pressure for a gas, the temperature of 0°C and the pressure 1.00 atm (364)

strong acid an acid that ionizes completely in a solvent (474)

strong electrolyte a compound that completely or largely dissociates in an aqueous solution, such as soluble mineral salts (442)

structural formula a formula that indicates the location of the atoms, groups, or ions relative to one another in a molecule and that indicates the number and location of chemical bonds (185, 712)

structural isomers two or more compounds that have the same number and kinds of atoms and the same molecular weight but that differ in the order in which the atoms are attached to one another (713)