

*Containing the Words Generally Used in Chemistry,  
and Many of the Terms Used in the Related  
Sciences of Physics, Medicine, Engineering,  
Biology, Pharmacy, Astrophysics,  
Agriculture, Mineralogy, etc.*

*Based on Recent Scientific Literature*

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**ROGER GRANT**

*M.A., D. de l'U., Ph.D., C. Chem., M.R.S.C. Consultant*

**CLAIRE GRANT**

*M.B., B.S., M.R.C.P.E. Medical Practitioner*

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**mirrors** (1) mica. (2) muscovite.  
**MIS** Management information system.  
**misce** Latin for "mix."  
**mischmetal** (1) A mixture of rare-earth metals. (2) Commercial cerium (40–75% Ce) with La, Nd, Pr, etc., and sometimes 1–5% Fe; used for pyrophoric alloys. Cf. *Auer metal*.  
**mischzinn** (German: "mixed tin") The alloy Sn 54.4, Pb 41.9, Sb 3.6%; used to prepare solders.  
**miscibility** The ability of certain liquids to mix in all proportions. **m. gap** The temperature range in which certain normally miscible liquids will not mix.  
**miscible** Capable of mixing or dissolving in all proportions.  
**im ~** Not able to mix.  
**miso** An edible fermented soybean paste. Cf. *kogi*.  
**mispickel**  $\text{FeS}_2 \cdot \text{FeAs}_2$ . A native iron ore.  
**Mississippian** See *geologic eras*, Table 38.  
**mist** (1) Fog. Cf. *colloidal systems*. (2) Pharmaceutical abbreviation for mixture.  
**mistletoe** The leaves and young twigs of *Phoradendron flavescens*; an antispasmodic and narcotic. Cf. *viscum*.  
**mistura** Mist. Latin for "mixture"; used in pharmacy.  
**Mitchell, Peter Dennis (1920– )** British chemist. Nobel prize winner (1978), noted for work on chemiosmotic reactions.  
**mitochondrion** A double-membrane structure in the living cell, which plays a role in the chemical changes involved in respiration.  
**mitosis** Division of somatic cells, as part of cell regeneration and growth. The number of chromosomes remains the same. See *diploid*, *karyokinesis*. Cf. *meiosis*.  
**mitragynine**  $\text{C}_{23}\text{H}_{30}\text{O}_4\text{N}_2 = 398.5$ . Mitragyne. An alkaloid, m. 106, from *Mitragyna speciosa* (Rubiaceae).  
**Mitscherlich** M., Eilhardt (1794–1863) German chemist. **M. desiccator** A desiccator, with side tubes for evacuation. **M. eudiometer** A closed glass buret, with platinum electrodes at one end and a glass stopcock at the other. **M. law** (1) The law of *isomorphism*, q.v., which is not rigidly correct: The same number of atoms of similar elements combined in the same way produce an identical crystalline structure. (2) The spectra of isomorphous substances are similar.  
**mitsubaene**  $\text{C}_{15}\text{H}_{24} = 204.4$ . A sesquiterpene for *Cryptotaenia japonica*, mitsuba-zeri (Umbelliferae), Japan.  
**mix** (1) To intermingle. (2) A physical mixture of substances, applied to rubber, etc.  
**mixed** **m. crystal** A crystal of 2 isomorphous substances, which crystallize in the same system. **m. ester** An ester  $\text{R}-\text{COO}-\text{R}'$ , in which the 2 radicals, R and R', are different. **m. ether** An  $\text{R}-\text{O}-\text{R}'$  ether, in which the radicals, R and R', are different. **m. infection** The invasion by and growth of 2 or more microorganisms in the animal body. **m. ketones** A ketone of the type  $\text{R}-\text{CO}-\text{R}'$ . **m. salt** A salt derived from a polyvalent acid, in which the H atoms are replaced by different metals, as  $\text{KNaNH}_4\text{PO}_4$ .  
**mixer** Equipment for incorporating one or more materials

particles or ions in a nonconducting medium, and so to impart rapid and violent motion to the dispersed particles. Used to desulfurize fuel oils. **freezing ~** A m. of salts with water or ice which produces low temperatures. **law of ~** Law of *alligation*.  
**mixture (2)** Mistura. A pharmaceutical preparation.  
**mks system** Meter-kilogram-second system. A technical system of measurements recommended by the International Electrotechnical Commission (1938) as simpler than the cgs system. Subsequently rationalized and expanded to become the internationally used SI system.  
**ml\*, ml\*** Abbreviation for milliliter.  
**mm** Abbreviation for millimeter = 1/1,000 m. **mm<sup>2</sup>** Abbreviation for square millimeter. **mm<sup>3</sup>** Abbreviation for cubic millimeter.  
**mμ** Former symbol for millimicron,  $10^{-9}$  m; superseded (SI system) by nm.  
**μm** Former symbol for micromicron,  $10^{-12}$  m; superseded (SI system) by pm.  
**mmf** Abbreviation for magnetomotive force.  
**mmm** Former symbol for millimicron; superseded (SI system) by nm.  
**Mn** Symbol for manganese.  
**Mo** Symbol for molybdenum.  
**m.o., MO** Abbreviation for molecular orbital.  
**mobile** Changing position; moving.  
**mobility** (1) The motion of atoms, molecules, ions, or colloidal particles. The mobility,  $\alpha$ , of an ion in a liquid;  $\alpha = 1.037 \times 10^{-5} \lambda t$ , where  $\lambda$  is the equivalent conductivity, and  $t$  the transport number of the ion. (2) The visible motion of colloidal particles and microorganisms. Cf. *Brownian motion*.  
**mobilometer** A viscometer in which the time is noted for a disk to fall through a column of the liquid under investigation; used for oils and liquid foods.  
**mocha** See *coffee*. **m. stone** Moss agate.  
**mochyl alcohol**  $\text{C}_{26}\text{H}_{46}\text{O} = 374.6$ . An alcohol, m. 234, from mochi (Japanese birdlime).  
**mock** **m. gold** Pyrites. **m. lead** Sphalerite. **m. ore** Sphalerite. **m. silver** Britannia metal. **m. vermilion** Lead chromate.  
**mock-up** A nonworking model of an apparatus or plant intended to show the layout and method of operation.  
**mode** (1) The actual composition of a substance, e.g., rock, as compared with its norm, q.v. (2) Term. One of three basic control methods used by conventional instrumentation: *proportional control* (corrective action is proportional to the difference between desired and actual values, that is, the error); *reset action* (correction is proportional to both the magnitude and duration of the error); and *derivative action* (correction is proportional to the rate of change of the error). (3) In statistics, the value of highest frequency, corresponding to the peak value of a normal distribution curve.  
**Modecate** Trademark for fluphenazine hydrochloride.  
**modeccin** A toxin from the passion flower plant.  
**model** (1) A geometrical arrangement by which an idea or

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aluminum, containing Sn 73, Zn 21, Pb 5%. **silver** ~ See *silver solder*. **soft** ~ A s. that fuses below red heat; as, Sn + Pb; *lead s. (above), fusible s.* **zinc** ~ An alloy: Sn 5, Pb 3 pts.

**soldering** (1) Uniting metallic pieces by heat with or without an alloy (solder) and flux (borax). (2) In commerce, soft (as distinct from hard) solders. S. differs from *brazing* and fusion *welding*, q.v. **autogenous** ~ Uniting metal surfaces by interdiffusion, without a more fusible alloy. **fusing** ~ Uniting metal surfaces by filling all intervening space with a completely fused solder. **sweating** ~ S. in which the solder is heated near its melting point and adheres.

**olenhofen stone** A fine-grained, porous limestone; contains clay.

**olenoid** A hollow cylinder, wound with resistance wire; used to produce fields of electric force, as to operate a valve.

**olfatara** A volcanic vent from which sulfur is obtained.

**olferino** Fuchsin.

**olid** (1) A substance of definite shape, and relatively great density, low internal enthalpy, and great cohesion of its molecules. It may be homogeneous (as crystals and solid solutions) or heterogeneous (as amorphous and colloidal substances). s. **solution** (1) Sosoloid. A homogeneous, s. mixture of substance; as, glass. (2) A s. solution of a solid, liquid, or gas in a solid. s. **state** Describing electronic components that utilize electronic and magnetic properties of solids.

**olidago** Goldenrod. The dried herb of *Solidago odora* (Compositae); a carminative.

**olidify** To change into the solid state.

**olidifying point** Freezing point.

**olidus** In a temperature-concentration diagram for both solid and liquid solutions whose concentrations differ, the s. curve relates to the solid phase, and the *liquidus* to the liquid phase.

**oliquid** Suspension. A dispersed system of a solid phase in a liquid phase.

**oln.** Abbreviation for solution.

**olodization** Dealkalization. Removal of alkali from soils by degradation.

**olozone** Trademark for a brand of hydrogen peroxide.

**olubility** The extent to which a substance (solute) mixes with a liquid (solvent) to produce a homogeneous system (solution). The classification used by the United States Pharmacopeia is shown in Table 85. **apparent** ~ The total amount of undissociated and dissociated portions of a substance dissolved in a liquid. **degree of** ~ The concentration of a saturated solution at a given temperature. S. generally increases with increase in temperature. **molar** ~  $c/M$ , where  $c$  is the g/L and  $M$  the molecular weight. **real** ~ The amount of undissociated solute in a liquid. s. **curve** A graph obtained by plotting the amount of dissolved substance in a saturated solution against the

temperature. s. **exponent**  $p$  or  $p_s = \log 1/S$ . Cf. *pH*. s. **product**  $S = [M^+] \times [X^-]/[MX]$ , where the brackets indicate the concentrations of the components of the dissociation equilibrium:  $MX = M^+ + X^-$ . If  $[M^+] \times [X^-]$  exceeds  $S$ ,  $MX$  will precipitate; and vice versa. E.g., NaCl is precipitated from concentrated solutions by HCl gas.

**soluble** Capable of mixing with a liquid (dissolving) to form a homogeneous mixture (solution). Cf. *solubility, solution*. s. **barbital** Sodium *barbitone*. s. **cotton** Nitrocellulose. s. **glass** Sodium silicate. s. **mercury**  $NH_2Hg_2NO_3 = 479.2$ . Hahnemann's mercury. Black precipitate on adding ammonia to mercurous nitrate. s. **starch** See *starch soluble*. s. **tartar** Ammonium potassium tartrate\*. s. **tartrate** Potassium tartrate.

**solum** A damp-resisting layer of material installed on the ground under a floor, e.g., bitumen.

**solute** A substance that mixes with or dissolves in a solvent to produce a solution.

**solution** (1) Dissolution. The mixing of a solid, liquid, or gaseous substance (solute) with a liquid (the solvent), forming a homogeneous mixture from which the dissolved substance can be recovered by physical processes. (2) The homogeneous mixture formed by the operation of s. **anisotonic** ~ Any nonisotonic s.; as, a hypotonic or hypertonic s. **aqueous** ~ A s. in which water is the main solvent. **buffer** ~ A s. of acid or basic salts that can neutralize either acids or bases without appreciable change in hydrogen-ion concentration. **centinormal** ~ A s. containing 0.01 equivalents per liter. **chemical** ~ A s. in which solute and solvent react to form a compound that dissolves in the solvent and cannot be recovered by distillation. Cf. *physical solution*. **colloidal** ~ A macroscopically homogeneous, microscopically heterogeneous, system of minute particles (colloid, dispersed phase) suspended in a liquid (continuous phase, medium). Cf. *colloid*. **concentrated** ~ A s. in which the solute content is relatively great. **decinormal** ~ A s. that contains 0.1 equivalents per liter. **dilute** ~ A s. in which the solute is relatively small in quantity. **gram molecular** ~ Molar s. **heat of** ~ See *heat of solution*. **hypertonic** ~ A s. whose osmotic pressure is greater than that of blood serum. **hypotonic** ~ A s. whose osmotic pressure is less than that of blood serum. **ionic** ~ A s. whose ions of the solute are surrounded by oriented molecules of the solvent. **isotonic** ~ A s. having an osmotic pressure equal to that of blood serum; as, 0.9% w/v sodium chloride s. **molar** ~ A s. containing 1 g molecule (mole) of substance per 1,000 g of s. **molar** ~ A s. containing 1 g molecule of substance per liter. Cf. *normal solution*. **molecular** ~ A true s. in which the molecules of solute are surrounded by molecules of solvent. Cf. *colloidal solution, ionic solution*. **normal** ~ A s. containing 1 gram equivalent per liter. **normal salt** ~ A s. containing 1 mole sodium chloride per liter. Cf. *isotonic*

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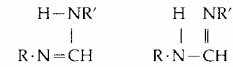
**Phar. D.** Abbreviation for Doctor of Pharmacy.  
**Phar. M.** Abbreviation for Master of Pharmacy.  
**pharmaceutic(al)** Pertaining to drugs. **p. chemistry** The analysis of drugs and isolation of their active constituents.  
**pharmacist** Apothecary. A druggist (U.S.) or chemist (U.K.).  
**pharmacodynamics** The study of the effects of drugs on living organisms.  
**pharmacognosy** The study of the identification, properties, and quality of crude drugs.  
**pharmacokinetics** The study of the time course of drug and metabolite concentrations in body fluids and excreta.  
**pharmacolite**  $\text{CaHAsO}_4 \cdot 2\text{H}_2\text{O}$ . A native arsenate.  
**pharmacology** The study of drugs, their origin and composition (*pharmacy*), identification (*pharmacognosy*), and effects on living organisms (*pharmacodynamics*).  
**pharmacopoeia, pharmacopeia** Official lists of drugs and chemicals issued by many countries. A p. contains a description of each drug, its composition, tests for identification and purity, and its medicinal doses. Substances listed are called "official" or "official," and must have the specified purity for medical use.  
 Aust.P.: *Oesterreichisches Arzneibuch*  
 BP: *British Pharmacopoeia*  
 Fr.P.: *Pharmacopée Française*  
 Ger.P.: *Deutsches Arzneibuch*  
 It.P.: *Farmacopea Ufficiale della Repubblica Italiana*  
 Jap.P.: *The Pharmacopoeia of Japan*  
 Neth.P.: *Nederlandse Farmacopee*  
 Nord.P.: *Nordic Pharmacopoeia*  
 Rus.P.: *State Pharmacopoeia of the USSR*  
 Span.P.: *Farmacopea Espanola*  
 Swiss.P.: *Pharmacopoeia Helvetica*  
 USP: *United States Pharmacopoeia*  
 USNF: *National Formulary (USA)*  
 In addition, there are in use:  
 Eur.P.: *European Pharmacopoeia* (EP is used in this dictionary.)  
 The *Extra Pharmacopoeia* (Martindale)  
 Cf. *formulary*.

**pharmacosiderite** A native arsenate of iron.  
**pharmacotherapy** The treatment of disease with drugs.  
**pharmacy** The art of preparing drugs for medicinal use.  
**phase** (1) A solid, liquid, or gaseous, homogeneous substance, that exists as a distinct and mechanically separate portion in a heterogeneous system. Cf. *colloid, zone, micelle*. (2) The succession of electrical impulses of an alternating current. (3) A stage in the growth of microorganisms. (4) A subdivision of the changes occurring in protoplasm during *karyokinesis*, q.v. **activatory** ~ The active stage or rapid growth of organisms, especially bacteria. **continuous** ~ External or enclosing p. The surrounding (dispersion) medium in a heterogeneous mixture. See *colloid*. **discontinuous** ~ Dispersed p. **dispersed** ~ Internal or enclosed p. The solute or insoluble part of a colloidal solution, as distinct from the solvent. **dispersion** ~ Continuous p. **enclosed** ~ The discontinuous or separated medium in a heterogeneous mixture. **enclosing** ~ Continuous p. **inhibitory** ~ The passive stage or slow growth of an organism. **oriented** ~ Misnomer for *zone*, q.v. **suspended** ~ Enclosed p. **p. coefficient** See *symbols*, Table 88, Group B, on p. 566.  
**p. contrast microscopy** When light waves pass through an object whose refractive index is greater than that of its surroundings, they are retarded and emerge out of p. with those forming the background. If the p. difference is half the

of an alternating electric current. **p. reversal** The change of the components of an emulsion; thus, an emulsion of oil in water, converted into an emulsion of water in oil. **p. rule** Gibbs: A mathematical generalization of systems in equilibrium:  $F = C + 2 - P$ , where  $P$  is the number of phases,  $F$  the degrees of freedom,  $C$  the number of components.  $F = 0$  is invariant (a *point* on a diagram),  $F = 1$  is monovariant (a *line* on a diagram),  $F = 2$  is divariant (an *area* on a diagram). Thus, for water:

Solid = liquid  $C = 1, P = 2, F = 1$   
 Solid = liquid = vapor  $C = 1, P = 3, F = 0$

**phaselin** An enzyme from the bean of *Dikkas mexicana*, resembling papain.  
**phaseolin** The chief protein of the navy bean, *Phaseolus vulgaris*.  
**phaseoline** An alkaloid obtained from string beans, *Phaseolus vulgaris*.  
**phaseolunatin**  $\text{C}_{10}\text{H}_{17}\text{NO}_6 = 247.3$ . A cyanogenetic glucoside, m.144, from *Phaseolus lunatus*, lima bean (Leguminosae).  
**phaseomannite** Inositol.  
**phasine** A group of vegetable proteins from seeds, that agglutinate the red blood cells.  
**phasotropy** Dynamic isomerism in which the H atom of amidines and formazyl derivatives oscillates from one nitrogen to the other:



**Ph.C.** Abbreviation for Pharmaceutical Chemist.  
**Ph.D.** Abbreviation for Doctor of Philosophy.  
**Phe\*** Symbol for phenylalanine.  
**phellandrene**  $\text{C}_{10}\text{H}_{16} = 136.2$ .  $\alpha$ - ~ 1,5-*p*-Menthadiene. 5-Isopropyl-2-methyl-1,3-cyclohexadiene. A terpene from the seeds of water fennel, *Phellandrium aquitanium* (Umbelliferae); constituent of certain eucalyptus oils, elemi oil, and oil of water hemlock. Colorless, (+) and (-)-rotatory liquid, b.176.  
**phen-** (1)\* Indicating 1,10 phenanthroline as a ligand. (2) Prefix derived from phenyl, indicating a benzene derivative. (3) A suffix. See *-fen*.  
**phenacetin** Phenacetolin.  
**phenacetin**  $\text{C}_{10}\text{H}_{13}\text{O}_2\text{N} = 179.2$ . Acetophenetidin(e). acetophenetidide. White, bitter scales, m.135, insoluble in water; an analgesic and antipyretic. Usually used with aspirin and codeine as APC; use is limited by toxic effect on kidney (USP).  
**phenacetol** Phenoxy acetone.  
**phenacetolin**  $\text{C}_{16}\text{H}_{12}\text{O}_2 = 236.3$ . Phenacetin. An indicator (alkalies—red; acids—yellow).  
**phenacite**  $\text{Be}_2\text{SiO}_4$ . A native gem silicate.  
**phenacyl\*** 2-Oxo-2-phenylethyl†. The radical  $\text{PhCOCH}_2-$ . **p. alcohol** See *hydroxyacetophenone*. **p. bromide**  $\text{PhCOCH}_2\text{Br}$ . White powder, a reagent for hydroxy compounds.  
**phenacylidene\*** The radical  $\text{PhCOCH}=-$ .  
**phenacylidin**  $\text{C}_6\text{H}_4(\text{OMe})\text{NH} \cdot \text{CH}_2\text{COPh} = 241.3$ . Colorless powder, insoluble in water; an antipyretic in veterinary medicine.  
**Phenamine** Trademark for direct dyestuffs, for cotton and paper.  
**phenanthrahydroquinone**  $\text{C}_{14}\text{H}_8(\text{OH})_2 = 210.2$ . 9,10-Dihydroxyphenanthrene\*. A solid, m.146, soluble in water.



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