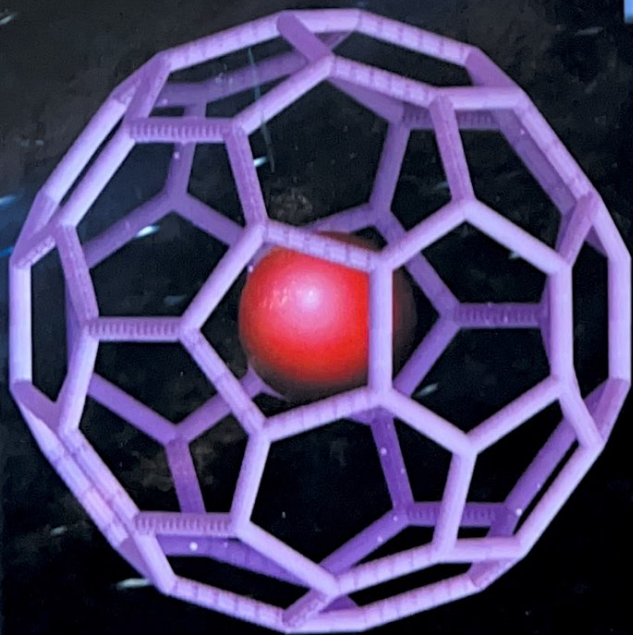


McGraw-Hill
Dictionary of
SCIENTIFIC
and
TECHNICAL
TERMS



Sixth Edition

On the cover: Representation of a fullerene molecule with a noble gas atom trapped inside. At the Permian-Triassic sedimentary boundary the noble gases helium and argon have been found trapped inside fullerenes. They exhibit isotope ratios quite similar to those found in meteorites, suggesting that a fireball meteorite or asteroid exploded when it hit the Earth, causing major changes in the environment. (Image copyright © Dr. Luann Becker. Reproduced with permission.)

McGraw-Hill Dictionary of Scientific and Technical Terms

Over the six editions of the Dictionary, material has been drawn from the following references: G. M. Garrity et al., *Taxonomic Outline of the Prokaryotes*, Release 2, Springer-Verlag, January 2002; D. W. Linzey, *Vertebrate Biology*, McGraw-Hill, 2001; J. A. Pechenik, *Biology of the Invertebrates*, 4th ed., McGraw-Hill, 2000; U.S. Air Force Glossary of Standardized Terms, AF Manual 11-1, vol. 1, 1972; F. Casey, ed., *Compilation of Terms in Information Sciences Technology*, Federal Council for Science and Technology, 1970; *Communications-Electronics Terminology*, AF Manual 11-1, vol. 3, 1970; P. W. Thrush, comp. and ed., *A Dictionary of Mining, Mineral, and Related Terms*, Bureau of Mines, 1968; *A DOD Glossary of Mapping, Charting and Geodetic Terms*, Department of Defense, 1967; J. M. Gilliland, *Solar-Terrestrial Physics: A Glossary of Terms and Abbreviations*, Royal Aircraft Establishment Technical Report 67158, 1967; W. H. Allen, ed., *Dictionary of Technical Terms for Aerospace Use*, National Aeronautics and Space Administration, 1965; *Glossary of Stinfo Terminology*, Office of Aerospace Research, U.S. Air Force, 1963; *Naval Dictionary of Electronic, Technical, and Imperative Terms*, Bureau of Naval Personnel, 1962; R. E. Huschke, *Glossary of Meteorology*, American Meteorological Society, 1959; *ADP Glossary*, Department of the Navy, NAVSO P-3097; *Glossary of Air Traffic Control Terms*, Federal Aviation Agency; *A Glossary of Range Terminology*, White Sands Missile Range, New Mexico, National Bureau of Standards, AD 467-424; *Nuclear Terms: A Glossary*, 2d ed., Atomic Energy Commission.

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burnt-on sand [MET] A mixture of sand and metal on the surface of a casting due to metal penetration of the sand mold. { 'bɜːnt ,ɒn ,sænd }

burnt plate oil [MATER] A material used to thin etching ink too heavy in body; made by boiling linseed oil and, at a certain temperature, igniting it. { 'bɜːnt ,plæt ,ɔɪl }

burnt shale [MIN ENG] Carbonaceous shale which has remained for a long period in a colliery tip and undergone spontaneous combustion and converted into a coppery slag material. Also known as oxidized shale. { 'bɜːnt 'ʃæl }

burnt velocity See burnout velocity. { 'bɜːnt vɛ'ləs-əd-ē }

burnup [NUCLEO] A measure of nuclear-reactor fuel consumption, expressed either as the percentage of fuel atoms that have undergone fission or as the amount of energy produced per unit weight of fuel. { 'bɜːn,ʌp }

burr [BOT] 1. A rough or prickly envelope on a fruit. 2. A fruit so characterized. [MET] A thin, ragged fin left on the edge of a piece of metal by a cutting or punching tool. { 'bɜːr }

burr ball See lake ball. { 'bɜːr ,bɔːl }

burr mill [FOOD ENG] A mill for grinding crops, in which two ribbed plates or disks rub or crush the material between them. { 'bɜːr ,mɪl }

burro [VERT ZOO] A small donkey used as a pack animal. { 'bɜːr-ə }

burrow [MIN ENG] A refuse heap at a coal mine. { 'bɜːr-ə }

bursa [ANAT] A simple sac or cavity with smooth walls containing a clear, slightly sticky fluid and interposed between two moving surfaces of the body to reduce friction. { 'bɜːr-sə }

bursa of Fabricius [VERT ZOO] A thymus-like organ in the form of a diverticulum at the lower end of the alimentary canal in birds. { 'bɜːr-sə əv fə'brɪʃ-əs }

Burseraceae [BOT] A family of dicotyledonous plants in the order Sapindales characterized by an ovary of two to five cells, prominent resin ducts in the bark and wood, and an intrastaminal disk. { 'bɜːr-sə'ræs-ē-ē }

burse [BOT] A purse or pouchlike receptacle. { 'bɜːr-sə-kəl }

bursitis [MED] Inflammation of a bursa. { 'bɜːr'sɪd-əs }

burst [COMMUN] 1. A sudden increase in the strength of a signal being received from beyond line-of-sight range. 2. A group of bits of characters that are transmitted together as a unit. 3. A group of errors that occur together in a communication and alter its content. 4. See color burst. [COMPUT SCI] 1. To separate a continuous roll of paper into stacks of individual sheets by means of a burster. 2. The transfer of a collection of records in a storage device, leaving an interval in which data for other requirements can be obtained from or entered into the device. 3. A sequence of signals regarded as a unit in data transmission. [ELECTR] 1. An exceptionally large electric pulse in the circuit of an ionization chamber due to the simultaneous arrival of several ionizing particles. 2. A radar term for a single pulse of radio energy. [ORD] 1. Continuous fire from an automatic weapon, as from an aircraft machine gun, sometimes described as a long or short burst. 2. The explosion of a projectile, bomb, or similar munition. { 'bɜːst }

burst amplifier [ELECTR] An amplifier stage in a color television receiver that is keyed into conduction and amplification by a horizontal pulse at the instant of each arrival of the color burst. Also known as chroma band-pass amplifier. { 'bɜːst ,am-plə-fi-ər }

burst center [ORD] A point about which the bursts of several projectiles from rounds fired under like conditions are evenly distributed. { 'bɜːst ,sen-tər }

burst disk [AERO ENG] A diaphragm designed to burst at a predetermined pressure differential; sometimes used as a valve, for example, in a liquid-propellant line in a rocket. Also known as rupture disk. { 'bɜːst ,dɪsk }

Burstein effect [SPECT] The shift of the absorption edge in the spectrum of a semiconductor to higher energies at high carrier densities in the semiconductor. { 'bɜːstɪn i,fekt }

burster [ASTRON] A celestial source of radiation, such as x-rays or gamma rays, that is very intense for brief periods of time and whose nature has not yet been established. [BOT] An abnormally double flower having the calyx split or fragmented. [COMPUT SCI] An off-line device in a computer system used to separate the continuous roll of paper produced as output from a printer into individual sheets, generally along perforations in the roll. [ORD] An explosive element used

in chemical ammunition such as bombs, mines, and shells to open the container and disperse the contents. { 'bɜːr-stər }

bursting charge [ORD] The main explosive charge in a mine, bomb, projectile, or the like that breaks the casing and produces fragmentation or demolition. { 'bɜːr-stɪŋ ,tʃɑːrʒ }

bursting layer [ORD] Layer of hard material used in the roofs of dugouts or cave shelters; it sets off projectiles fused for short delay or immediate detonation before they can enter deeply enough to cause great destruction. { 'bɜːr-stɪŋ ,lə-ər }

bursting strength [MECH] A measure of the ability of a material to withstand pressure without rupture; it is the hydraulic pressure required to burst a vessel of given thickness. { 'bɜːr-stɪŋ ,streŋkθ }

burst mode [COMPUT SCI] A method of transferring data between a peripheral unit and a control processing unit in a computer system in which the peripheral unit sends the central processor a signal to receive data until the peripheral unit signals that the transfer is completed. { 'bɜːst ,mɒd }

burst pedestal [COMMUN] Rectangular pulselike television signal which may be part of the color burst; the amplitude of the color burst pedestal is measured from the alternating-current axis of the sine-wave portion to the horizontal pedestal. { 'bɜːst ,ped-ə-stəl }

burst pressure [MECH] The maximum inside pressure that a process vessel can safely withstand. { 'bɜːst ,presh-ər }

burst range [ORD] Horizontal distance from the piece to the point of burst. { 'bɜːst ,ræŋʒ }

burst separator [ELECTR] The circuit in a color television receiver that separates the color burst from the composite video signal. { 'bɜːst sep-ə'reɪd-ər }

burst slug detector [NUCLEO] A radiation detector used for detecting small leaks in a fuel element of a nuclear reactor by measuring the radiation from short-lived fission products that escape into the coolant. { 'bɜːst 'sləʒ dɪ'tek-tər }

burst transmission [COMMUN] A radio transmission in which messages stored for a given time are sent at from 10 to more than 100 times the normal rate, recorded when received, and then slowed down to the normal rate for the user. { 'bɜːst tranz'mɪʃ-ən }

burst wave [FL-MECH] Wave of compressed air caused by a bursting projectile or bomb; a detonation wave; it may produce extensive local damage. { 'bɜːst ,wæv }

burton [MECH ENG] A small hoisting tackle with two blocks, usually a single block and a double block, with a hook block in the running part of the rope. { 'bɜːrt-ən }

bus [AERO ENG] A spacecraft or missile that is designed to carry one or more separable devices, such as probes or warheads. [COMPUT SCI] The circuitry and wiring connecting the various components of a computer through which data are transmitted; for example, in a personal computer the system bus interconnects the CPU, memory, and input/output devices. [ELEC] 1. A set of two or more electric conductors that serve as common connections between load circuits and each of the polarities (in direct-current systems) or phases (in alternating-current systems) of the source of electric power. 2. See busbar. [ELECTR] One or more conductors in a computer along which information is transmitted from any of several sources to any of several destinations. [ENG] A motor vehicle for carrying a large number of passengers. { 'bʌs }

bus architecture [COMPUT SCI] A structure for handling data transmission in a computer system or network, in which components are all linked to a common bus. { 'bʌs 'ɑːk-tek-tʃər }

busbar [ELEC] A heavy, rigid metallic conductor, usually uninsulated, used to carry a large current or to make a common connection between several circuits. Also known as bus. { 'bʌs,bɑːr }

bus cable [ELECTR] An electrical conductor that can be attached to a bus to extend it outside the computer housing or join it to another bus within the same computer. { 'bʌs ,kæ-bəl }

Busch lemniscate [METEOROL] The locus in the sky, or on a diagrammatic representation thereof, of all points at which the plane of polarization of diffuse sky radiation is inclined 45° to the vertical; a polarization isocline. Also known as neutral line. { 'bʊʃ lem'nɪs-kæt }

bus cycle [COMPUT SCI] A single transaction between the main memory and the CPU. { 'bʌs ,saɪ-kəl }

bus duct [ELEC] An enclosed metal unit containing copper

