

Academic Press
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Academic Press Dictionary of Science and Technology

Edited by
Christopher Morris



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- flue lining** *Building Engineering*. a flexible stainless-steel, fireclay, or fire-resistant concrete pipe, arranged to protect chimney walls during passage of combustible materials through a flue.
- fluellite** *Mineralogy*. $\text{Al}_2(\text{PO}_4)_2(\text{OH}) \cdot 7\text{H}_2\text{O}$, a colorless to white, transparent orthorhombic mineral forming dipyramidal crystals, having a specific gravity of 2.17 and a hardness of 3 on the Mohs scale; found as tiny crystals on quartz.
- fluence** *Physics*. a flux of particles passing across a unit area, commonly expressed in the number of particles per second.
- fluoric** *Control Systems*. performing without the use of mechanical parts.
- fluorics** *Control Systems*. the technology of operating systems without the use of mechanical parts.
- flufenamic acid** *Pharmacology*. $\text{C}_{14}\text{H}_{10}\text{F}_3\text{NO}_2$, a drug used to treat the pain and inflammation caused by arthritis.
- fluid** *Science*. able to flow; moving freely. *Physics*. a nonsolid state of matter in which the atoms or molecules are free to move past each other, as in a gas or liquid.
- fluid amplifier** *Engineering*. a device that employs the interaction between jets of liquid rather than an electronic circuit or mechanical parts to achieve amplification.
- fluid-bed polymerization** *Materials Science*. a type of coordinated polymerization that uses a catalyst in the form of slurries of fine solid particles fluidized in an inert medium.
- fluid-bed process** *Chemical Engineering*. a process in which finely divided powders act in a fluidlike way when suspended and moved by a rising stream of gas or vapor; primarily used for catalytic cracking of petroleum distillates.
- fluid catalyst** *Chemical Engineering*. the finely divided solid particles used as a catalyst in a fluidized-bed process.
- fluid catalytic cracking** *Chemical Engineering*. a method of oil refining in which gas-oil fractions are cracked to form lower molecular weight components in a fluidized catalyst bed.
- fluid coefficient** *Petroleum Engineering*. during the fracturing operation, a comparison of the flow resistance to the draining of fracturing fluids into the formation.
- fluid coking** *Chemical Engineering*. a thermal process for continuous conversion of heavy, low-grade petroleum fractions into petroleum coke and lighter hydrocarbon products.
- fluid-compressed** *Metallurgy*. describing steel that has been pressed while still fluid.
- fluid computer** *Computer Technology*. an experimental digital computer containing air-powered fluid logic elements in place of electronic circuits.
- fluid contact** *Petroleum Engineering*. the location in a reservoir at which oil-water contact or gas-oil contact is found.
- fluid-controlled gate valve** *Mechanical Engineering*. a valve in which the valve operator is activated by fluid energy.
- fluid coupling** *Mechanical Engineering*. a device in which a fluid, such as oil, transmits torque from one shaft to another, producing an equal torque in the latter. Also, **HYDRAULIC COUPLING**.
- fluid density** *Fluid Mechanics*. a quantity given by the amount of mass per unit volume in a fluid.
- fluid die** *Mechanical Engineering*. a die that is used with a hydraulic pressure device, which makes the part to be shaped conform to the shape of a die.
- fluid distributor** *Engineering*. a device for the regulated distribution of fluid feed to a process unit.
- fluid dram or fluidram** *Metrology*. 1. a unit of liquid measure used in the U.S., equal to .125 fluid ounce or 3.697 milliliters. 2. also, **imperial fluid dram**. a similar unit of measure used in Great Britain, equal to .125 imperial fluid ounce or 3.55 milliliters.
- fluid drive** *Mechanical Engineering*. a power coupling consisting of two vaned rotors in a sealed casing that is filled with oil, functioning so that one rotor, driven by the engine, moves the oil to drive the other rotor, which in turn drives the transmission; used in motor vehicles to allow a smooth start in any gear. Also, **fluid clutch**.
- fluid dynamics** *Physics*. the scientific study of fluids (gases and liquids) in motion.
- fluid-energy mill** *Engineering*. a device that grinds particles with energy generated by the collision of the particles and compressed air supplied to the grinding chamber at high speed.
- fluid-film bearing** *Mechanical Engineering*. an antifriction bearing used as an agent to keep rubbing surfaces apart by a film of lubricant such as oil.
- fluid-flow analogy** *Transportation Engineering*. a conceptual model of traffic flow based on the behavior of fluids. The intuitive power of this model is expressed in common terms such as "flow" and "bottleneck," but the fluid-flow analogy is also used to construct sophisticated models of traffic behavior.
- fluid friction** *Fluid Mechanics*. the resistance in fluid flow due to the interaction between fluid elements and wall surfaces; the loss in kinetic energy in such processes results in the production of heat within the fluid.
- fluid fuel reactor** *Nuclear Engineering*. a nuclear reactor that is fueled by a liquid material instead of a solid.
- fluid geometry** *Petrology*. the distribution of fluids in the rocks of a reservoir, as influenced by the rock's composition, porosity, method of producing saturation, and wettability characteristics.
- fluid hydroforming** *Chemical Engineering*. a petroleum refinery catalytic cracking process used to increase the low-octane number of low-octane number stocks.
- fluidic** *Physics*. relating to or being a fluid; flowing freely. *Engineering*. 1. of or relating to fluidics. 2. describing systems or devices that use the phenomena and principles of fluidics.
- fluidic flow sensor** *Engineering*. a device that determines the velocity of a gas flow when a jet of air or other selected gas moves into two small openings adjacent to each other and is deflected by the flow of the gas being measured, causing the relative pressure on the two openings to become a function of gas velocity.
- fluidic oscillator meter** *Engineering*. a flowmeter that determines the frequency at which a liquid entering the meter will cling to one or the other of two diverging side walls.
- fluidics** *Engineering*. a technology that carries out sensing, control, information processing, and actuation functions with fluid dynamic phenomena rather than mechanical parts. Also, **FLUIDIC TECHNOLOGY**.
- fluidic sensor** *Engineering*. an instrument that detects the presence of an approaching or neighboring object from the back pressure generated on an air jet when the object cuts off the jet's exit area.
- fluidic technology** see **FLUIDICS**.
- fluid inclusion** *Petrology*. a tiny fluid- or gas-filled cavity in an igneous rock, 1-100 micrometers in diameter, formed by the entrapment of a fluid, typically that from which the rock crystallized.
- fluid injection** *Petroleum Engineering*. a process of forcing oil into producing wells by injecting gases or liquids under pressure into a reservoir.
- fluid intelligence** *Psychology*. the form of general intelligence that is largely innate and that allows the individual to adapt to unanticipated new situations.
- fluidity** *Fluid Mechanics*. a quantity that measures the ability of a fluid to flow; expressed as the reciprocal of the fluid viscosity.
- fluidization** *Chemical Engineering*. a technique in which a finely divided solid is caused to behave in the manner of a fluid by its being suspended in a moving gas or liquid; the solids treated in this way are frequently catalysts.
- fluidized adsorption** *Chemical Engineering*. a procedure for the fractionation or separation of vapors or gases in a fluidized bed of adsorbent material.
- fluidized bed** *Engineering*. a layer of hot air or gas at the bottom of a container upon which a powdered material floats; used to dry, heat, or quench.
- fluidized-bed coating** *Materials Science*. a technique in which a heated object is submerged into the fluidized bed of a thermoplastic resin that fuses into a continuous uniform coating over the submerged object.
- fluidized bed reactor** *Biotechnology*. an anaerobic digester, bioreactor, or fermenter in which the active material is kept in suspension by the upward flow of the fluid phase.
- fluid level** *Petroleum Engineering*. the distance from a wellhead to the surface of liquid in the casing or tubing of an oil well.
- fluid logic** *Engineering*. a logical operations-simulated device that uses fluid dynamic phenomena to regulate the interactions between sets of gases or liquids.
- fluid-loss test** *Petroleum Engineering*. the measure of fracturing fluid loss relative to the time elapsed (spurt loss) before the fluid-loss agent creates a nonpermeable layer in the pore matrix of the reservoir.
- fluid lubrication** *Mechanical Engineering*. a theoretical state of perfect lubrication in which the bearings and surfaces of a machine are completely covered by a viscous oil film that is sustained by the friction of the surfaces.