Buret Encyclopedia Article

Buret

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Buret

A buret (also spelled burette) is a long glass tube open at both ends, that is used to measure out precise volumes of liquids or gases. Most burets are about 1 mm in diameter and 75 cm long. The bottom of a buret is tapered so that its diameter is only about 0.1 mm in diameter. Burets are most commonly designed to hold volumes of 1 mL or less.

Fluid is dispensed form a buret through a glass stopcock at the lower end of the glass tube. The stopcock consists of an inner piece of ground glass that fits tightly into the glass tube and that can be rotated in a tightly fitting casing. The stopcock allows a fluid to be released in very small, precise amounts. Commercially available burets can usually be read with an accuracy of +/-0.01 mL.

Probably the most familiar application of a buret is in the process known as titration. In this process, accurately measured amounts of two solutions are allowed to react with each other in order to determine the concentration of one. Burets have far more uses, however. A single buret can be used, for example, to release a known volume of a solution of known concentration in order to determine the mass of an unknown solid. Oxidation-reduction reactions can also be studied quantitatively using burets.

Gas-dispensing burets consist of arrangements in which some gas is contained by and forced out of a graduated cylindrical tube by means of some liquid, such as mercury. In their appearance, gas burets look something like an upside-down version of their liquid counterparts.

Burets became necessary in chemical research only with the development of relatively precise analytical techniques in the eighteenth century. Credit for their invention is usually given to the French chemist Joseph Louis Gay-Lussac, who first developed them for the purpose of assaying silver.