

Fountain Pen Inks

Delivery

Fountain pens carry ink within the barrel, traditionally either inserted at one end in bulk with a syringe or eyedropper pipette, or through a mechanical filling system built into the pen (such as a piston or vacuum-pump mechanism). For such fountain pens, ink is available in bottles which will typically refill an individual pen many tens of times. Simpler fountain pens use pre-filled ink cartridges, although in many cases the cartridge can be replaced with a converter which replicates the mechanical filling action of more expensive pens. The cost per milliliter of ink tends to be lower for bottled ink than for cartridges.

Manufacturers

Most fountain pen manufacturers also provide a brand of ink. For example Parker sells 'Quink', and Sheaffer sells 'Skrip', while manufacturers like Lamy, Pelikan, Europen, and MontBlanc sell ink under the same branding as their fountain pens. The recent resurgence of fountain pen use has also created a market for companies that specialize in ink, such as the British company Diamine and the American company Noodler's Ink. These companies manufacture ink in dozens of different colors.

Fountain Ink Properties

Because fountain pens operate on the principle of capillary action, ink for them is almost exclusively dye-based. Pigment-based inks (which contain solid pigment particles in a liquid suspension) tend to clog the narrow passages of the pens. Some pigmented inks do exist for fountain pens, but these are uncommon. India ink, a carbon pigment-based ink, also contains a binder (such as shellac), which can quickly clog such pens. The ideal fountain pen ink is free-flowing, free of sediment, and non-corrosive. These qualities may be compromised in the interests of permanence, manufacturability, and in order to use some widely available dyes.

Red inks usually contain the dye Eosin. Blue inks often contain Triarylmethane dye. Black inks are mixtures. In addition to water, the non-dye components (collectively referred to as the vehicle) might include polymeric resins, humectants to retard premature drying, pH modifiers, anti-foaming agents, biocides to prevent fungal and bacterial growth, and wetting agents (surfactants). Surfactants reduce the surface tension of the ink; distilled water has a surface tension of 72 dyn/cm (72×10^{-3} N/m), but the desirable value for ink is between 38 and 45 dyn/cm (38 to 45×10^{-3} N/m). If the ink's surface tension were too high, then it would not flow through the pen; if it were too low, then the ink would run out of the pen with less control.

Some users mix inks to create their own colors. Some combinations of inks may cause unexpected color changes, even if the inks are from the same manufacturer. This is a result of chemical reactions between the different components. The color of many dyes depends on pH, and some lose their color entirely outside a certain pH range. Mixing inks may also alter the solubility of some dye components; for example, an alcohol-based ink may contain components that are insoluble in water, and these will precipitate or coagulate if the alcohol-based ink is mixed with a water-based ink.

(-information sourced from Wikipedia)