

Ink used in inkjet printing system

The inkjet printing system has inkjet head devices to change ink into fine particles by applying pressure and heat, and ejecting these particles allows printing directly onto print media.

There are various types of ink (pigment ink, dye ink, solvent ink, and water-based ink etc.). The common requirements for these inks are same droplet size, high print density, quick fixing & drying, hard to fade, and hard to clog the inkjet head etc. The ink type is selected according to the application, but water-based pigment ink is preferred to make image less prone to fading and to reduce volatile organic solvents.

Usually, pigment never mix with water, therefore it is needed to add surfactant function. Besides, to achieve above requirements, the ink is mainly composed of pigment, water, dispersant (including surfactant function), resin for fixing, penetrant and organic solvent called wetting agent etc.

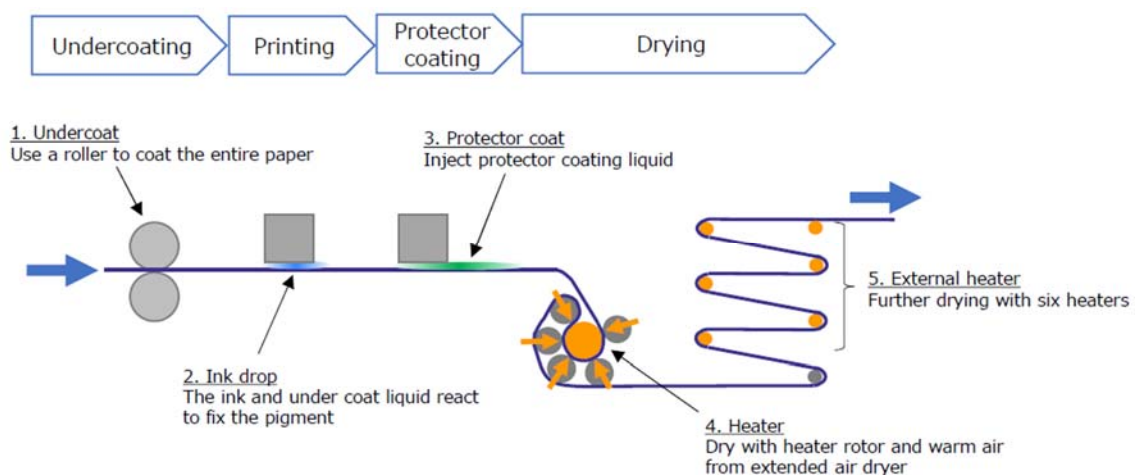


Fig.1 Inkjet system (PFAS contributes to quick fixing and drying.)

PFAS roles, functions, necessity etc.

As mentioned above, it is important to maintain a balance between hydrophobic and hydrophilic substances in the ink. If the balance is lost even a little, ink loses its function. PFAS does not have only surfactant function, excellent chemical resistance, heat resistance, but also maintains its balance for a very long time in usage and transportation environments. Moreover, due to its low surface tension properties compared to other surfactants, PFAS is particularly good at ejecting uniformly sized droplets at high speed, especially on plain paper. Also, PFAS is superior in fixing and drying due to its fast penetration into the print media, so high speed printing (150m/min) could not be realized without PFAS.

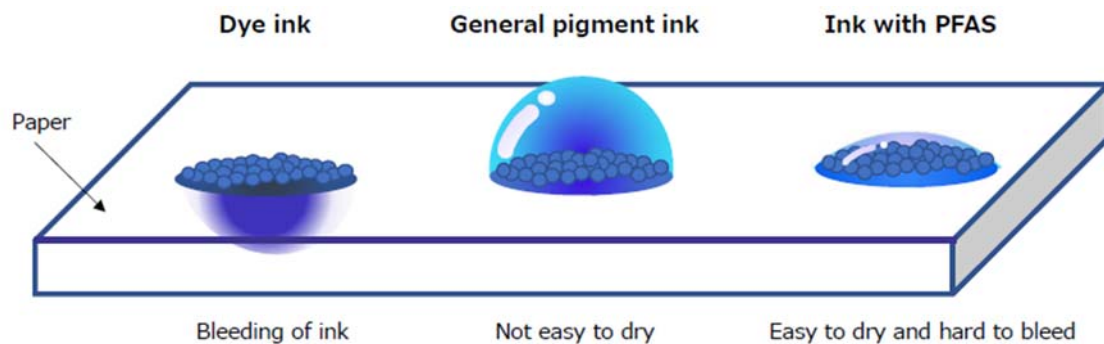


Fig.2 High quality ink droplets

(PFAS achieves both droplets uniformity and high-speed fixing & drying.)

Influence on the printer

PFAS prevents ink from adhering near inkjet head nozzles, so the maintenance period and the inkjet head life can be extended. It means less downtime and increased productivity. Without PFAS, parts need to be replaced soon and it leads increased maintenance cost and decreased productivity.