

**POLYMERIC ADDITIVES TO IMPROVE PRINT QUALITY
AND PERMANENCE ATTRIBUTES IN INK-JET INKS**

ABSTRACT OF THE DISCLOSURE

One-part and two-part fixatives are provided in conjunction with underprinting or overcoating at least one ink printed on a print medium. The one-part fixative of the present invention comprises a polymer in a vehicle. The polymer is selected from the group consisting of vinyl-based polymers, condensation polymers, and copolymers thereof and the polymer has a glass transition temperature within a range of -50°C to $+100^{\circ}\text{C}$, a melting temperature within a range of 30°C to 150°C , and a molecular weight (weight average basis) within a range of 3,000 to 100,000. The fixative is contained in a separate cartridge from the ink-jet ink print cartridge(s). The two-part fixative of the present invention comprises (1) a reactive monomer or oligomer in a vehicle, the reactive monomer or oligomer selected from the group consisting of iso-cyanates and epoxy-terminated oligomers, and (2) at least one second component selected from the group consisting of polyols, polyvinyl alcohols, and base catalysts. The reactive monomer or oligomer is contained in a separate cartridge from the ink-jet ink print cartridge(s), while the second component(s) is contained in at least one ink-jet ink print cartridge. The reactive monomer or oligomer reacts with the second component(s) on the print medium to form a polymer, which has a glass transition temperature within a range of -20°C to $+50^{\circ}\text{C}$ and a melting temperature within a range of 30°C to 100°C . Enhancement of waterfastness, smearfastness, smudgefastness, and lightfastness is provided by use of the fixative solution of the present invention.