

Adhesion at Toner - Paper Interface in Electrophotographic Printing

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In all printing processes, the quality of ink adhesion is of primary importance to ensure legibility and permanence of the transmitted information. However, contrary to other processes that use a fluid ink penetrating the support, electrophotography consists in depositing a fine layer of powder containing pigments and fusing it to paper. The mechanisms involved in obtaining good adhesion at toner / paper interface have thermal, rheological and physico-chemicals origins.

In this paper, the three main mechanisms of adhesion are reviewed, namely mechanical anchoring, adsorption and diffusion. Experimental modifications of paper roughness, surface energy and diffusion potential are described and analysed in order to determine the dominating parameters to achieve good toner adhesion.

For the complete paper see the 2004 Proceedings for the 56th TAGA Annual Technical Conference.