

Ink Jet Printing for Anti-Counterfeit/Brand Protection Applications

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Abstract

Globalisation of trade brought with it a much increased level of counterfeit. Recent surge of counterfeit activity, afforded by rapidly advancing digital reprographic technology, has heightened the urgent need for advanced anti-counterfeit technology. Functional materials such as photochromic and thermochromic materials have been in existence for many years. However, the application of these materials in anti-counterfeit has been disproportionately few, due to both technical difficulty and relatively high cost of the materials. Ink jet printing is an ideal technology for the production of anti-counterfeit/brand protection marks, due to its characteristic low ink wastage, high integratability with conventional printing presses and high reproducibility. As such, the combination of novel chemistry and advanced ink jet printing technology provides the answer to the future of anti-counterfeit/brand protection. The success of the preparation of ink jet printed anti-counterfeit images relies on the resolution of several technical challenges including, identification/synthesis of suitable functional molecules, and

formulation of inks containing such molecules that give satisfactory heat, light, chemical and mechanical resistance. Often, a high level of innovation in chemistry is needed. This paper reports studies on functional ink formulations, particularly those containing photochromic and thermochromic materials, for ink jet printing.

Author Biography

As director of Digital Printing Centre of Industrial Collaboration and deputy head of the Department of Colour & Polymer at Leeds University, Long has been working in close collaboration with reprographic and related industries for a significant number of years. He is also a Fellow of the Institute of Paper, Printing and Publication and a Fellow of the Technology of Surface Coatings. He acts as a consultant for a number of reprographic and related companies (dyes/pigments manufacturers, printing inks manufacturers and packaging printers). His experience covers pigment/dye chemistry, thermochromism, photochromism, security printing/labelling, anti-counterfeit/brand protection solutions, digital printing, conventional printing, inks/coating formulations, packaging materials, polymeric materials and surface coatings.