

Development of a Cross-Linked Imaging Layer for Thermal Dye Transfer Receiver

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Abstract

A thermal dye transfer receiver, which comprises a three-dimensionally cross-linked dye-receiving(imaging)layer, has been developed. The dye-receiving layer is a polyurethane coating employing aliphatic polyisocyanates, bisphenol A-containing polyols, and a tin catalyst.

The major technical challenges during technology development were: (a) to develop and employ new materials and chemistry in achieving desirable image quality and physical performance, (b) to enable cross-linking reaction to completion during the formation of the dye-receiving layer, i.e., no post-curing was required, and (c) to modulate and optimize the degree of cross-linking in the dye-receiving layer in such a manner as to enhance the physical performance of the receiver without hampering the dye-transfer efficiency, which is due to a rather restricted three-dimensional network.

The advantages of the developed cross-linked dye-receiving layer comprise: (1) superior photographic sensitometry, color balance, and customer-preferred neutral tone; (2) excellent release between dye donor and receiver during thermal printing; (3) a simpler dye-receiving layer structure; (4) very good light fastness; and (5) the elimination of the use of chlorinated coating solvent previously used for making the dye-receiving layer.

Biography

Teh-Ming Kung is a senior principal scientist at Eastman Kodak Company. He received his PhD in Materials Science from the University of Rochester. He has been working on the development of various media technologies for digital color printing, such as, organic photoconductors, inkjet and electro-photographic media, and thermal dye transfer receivers. He is the author of more than 45 US patents.