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2-METHYLBENZOTHIAZOLIUM DERIVATIVES AS CATIONIC PHOTOREACTIVE CROSSLINKER FOR ACRYLIC PRESSURE-SENSITIVE ADHESIVES CONTAINING OXIRANE GROUPS FROM GLYCIDYL METHACRYLATE

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ABSTRACT

UV crosslinking technology is well established in the market and allows the production of a wide range of UV-crosslinkable pressure-sensitive adhesives (PSA) based on acrylics with interesting performance. The balance between adhesive and cohesive strengths after the crosslinking process is very important and critical for the properties of acrylic PSAs in the form of self-adhesive layers. The cationic UV-crosslinking of an acrylic PSA containing oxirane groups in the structure and additionally with the cationic photoinitiator 1,10-bis[N,N'-(2-methylbenzothiazolium)]decane diiodide, designed to promote properties such as tack, peel adhesion and shear strength of self-adhesive polymer layers, has been investigated using a UV-lamp as an ultraviolet source. An acrylic PSA synthesized from 55 wt.% of butyl acrylate, 30 wt.% of 2-ethylhexyl acrylate and 15 wt.% of glycidyl methacrylate was studied. The application of 1,10-bis[N,N'-(2-methylbenzothiazolium)]decane diiodide as a photoreactive crosslinker allows the manufacture of high quality PSA products with interesting properties, such as high tack, high peel adhesion, and excellent shear strength.

Keywords: cationic photoinitiator 1,10-bis[N,N'-(2-methylbenzothiazolium)]decane diiodide, photoreactive crosslinker, UV-crosslinkable acrylic PSA, tack, peel adhesion, shear strength

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