

UV-curing resin system based on carboxylic ester acrylate oligomers

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UV-curing of coating materials has drawn significant attention, due to fast cure rate, less pollution and energy conservation compared to conventional thermal curing methods. It has been widely applied in production of protective coatings of different materials, adhesive and inks. The general components of UV-curable systems include reactive oligomers, reactive monomers, photoinitiators, and other additives. In order to develop the durable laminated glass filled with UV-curing resin, carboxylic ester acrylate oligomers were synthesized by the reaction between anhydride and acrylate containing hydroxyl group. The specific gravity, refractive index, and Tg of synthesized oligomers and UV-curing base resin were characterized. The laminated glass specimens filled with photocurable resin containing carboxylic ester acrylate oligomers showed higher adhesive strength, light resistance, thermal stability, impact resistance than that of Monomer specimen composed of acrylic acid and 2-ethylhexyl acrylate.