

Preparation of conductive water-borne polyurethane dispersion

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PU(polyurethane) can be used as a good material in various industrial fields, such as durable elastomeric wheels and tires, spandex fibers, high performance adhesives and sealants. However, polyurethane traditionally has been manufactured using organic solvents, such as Benzene, Toluene, Xylene(BTX). Due to the problem that the process of producing organic solvent can cause many environmental problems, and VOC(volatile organic compound) regulations are also increasingly expanding. Therefore, the studies on using water as the solvent instead of the BTX and improving variable properties of water-borne polyurethane dispersion(WPU) have been attracted a lot of attentions recently. In this study, the polyurethane prepolymer was prepared from polyol, isophrone diisocyanate(IPDI), and dimethylol propionic acid(DMPA). Then, aniline was capped on the NCO group of the prepolymer. Finally, we blended CNT(carbon nano tube) with WPU to give anti-static properties. The aniline terminated WPU showed better conducting properties than pure WPU when CNT was blended. We also examined changes of other properties due to the addition, such as coating membrane`s transmittance, adhesion, and pencil hardness.