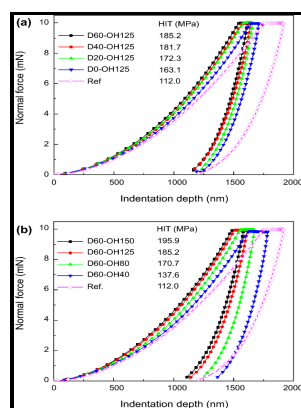


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Synthesis of carbon

Electrical conductivity was found in nanocomposites containing acetylene black at concentrations above 1 wt.

Synthesis of carbon

Such nanoparticles aggregates are generally assembled in agglomerates which can reach sizes in the micrometer range. Our objective was to use the same UV-curing technology to produce up to 40 μ m thick coatings of carbon black nanocomposites by an adequate choice of photoinitiator, as well as of thicker samples by means of a dual-curable system. A comprehensive survey of the numerous studies reported in the literature on carbon black and on carbon-based composite materials has been presented by Donnet et al.

Synthesis of carbon

By using the two-component redox acrylic resin as a glue, we have succeeded in assembling within minutes two metallic plates, without a substantial loss of electrical conductivity.

Synthesis of carbon

Photoinitiated cross-linking polymerization of a polyurethane-diacrylate.

Synthesis of carbon

These highly crosslinked nanocomposite polymers are quite resistant to organic solvents, heat and weathering, as well as to mechanical aggression.

Synthesis of carbon

But the exothermicity of the reaction makes the temperature rise up to 90 °C within a few minutes for a 2 mm thick sample, as shown in Fig. Because of its short potlife, the formulation had to be used as a two-component system, one containing the peroxide and the other one the amine, at a concentration of 1 wt. The presence of carbon black 2 wt.

Synthesis of carbon

It should be mentioned that the magnitude of the temperature rise in this redox polymerization depends not only on the formulation composition, but also on external factors such as the sample thickness and the type of support. The addition of 1 wt.

Synthesis of carbon

UVradiations are commonly employed to rapidly dry printing inks, in particular black inks which consist typically of acrylic resins containing up to 15 wt. Upon mixing of the two parts, the polymerization of the acrylate double bonds was found to proceed rapidly, already at ambient temperature. Conclusion Polymer nanocomposites have attracted growing attention in the past few years, owing to their unique characteristics, and they have found a number of applications in various industrial sectors automotive, electronics, aeronautics.

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