

**ENHANCEMENT OF PERCOLATION THROUGH THE USE
OF NANOPARTICLES IN CARBON BLACK FILLED NYLON 6**

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We discovered that if carbon black nanoparticles (CB) are incorporated into a polymer matrix together with an optimum concentration of organoclay nanoparticles (nanoclay), percolation becomes sudden and the threshold shifts to a low CB content. In addition, the electrical conductivity increases and the state of CB dispersion improves with increasing the nanoclay content. This novel phenomenon does not fit into any known categories of percolation behavior in the published literature. In this paper, we propose advanced percolation concept that demonstrates the influence of the nanoclay on the arrangement of CB in compression molded as well as injection molded parts.