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Thermal Ageing Effect on Mechanical Behavior of Polycarbonate

Authors : H. Babou, S. Ridjla, B. Amerate, R. Ferhoum, M. Aberkane

Abstract : This work is devoted to the experimental study of thermal ageing effect on the mechanical and micro structural behavior of polycarbonate (PC). A simple compression tests, micro hardness and an IRTF analysis were completed in order to characterize the response of material on specimens after ageing at a temperature of order 100 C° and for serval maintain duration 72, 144 and 216 hours. These investigations showed a decrease of the intrinsic properties of polycarbonate (Young modulus, yield stress, etc.); the superposition of spectra IRTF shows that the intensity of chemical connections C=C, C-O, CH3 and C-H are influenced by the duration of thermal ageing; in addition, an increase of 30 % of micro hardness was detected after 216 hour of ageing.

Keywords : amorphous polymer, polycarbonate, mechanical behavior, compression test, thermal ageing
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