Positron annihilation in carbon black-polymer composites.

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Streszczenie

Positron lifetime spectra and Doppler broadening of the annihilation line were measured for samples of carbon black/polyethylene and polypropylene composites with varying amount of the filler. Tensile strength, resistivity, EPR resonance were studied in addition to have the samples better characterized. The decrease in resistivity of samples, accompanied by the worsening of mechanical properties, the drop both in the intensities of Ps lifetime components in the lifetime spectra and in the line-shape parameter values, were observed with increase in the carbon black content. The presence of radicals associated with aromatic structure of the carbon sheets and others associated with the surface oxygen functional groups was established by EPR measurements for the carbon blacks being used as fillers. The carbon black of the highest specific surface area influenced the measured characteristics the most.

Adres publiczny

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