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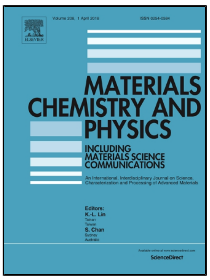

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Evidence of hydrogenated carbon in the nanostructure of carbide-derived carbons obtained from hydrochlorination reaction

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Abstract

Titanium carbide derived carbons were obtained from hydrochlorination reaction at 300, 500, 700 and 900 °C. The effect of the mixture hydrogen/chlorine, as reaction atmosphere, has been analyzed using X-ray diffraction, Fourier transform infrared, Raman and electron energy loss spectroscopies. Infrared spectroscopy showed several bands related to the presence of CH, CH_2 and CH_3 groups, a feature not observed in chlorinated carbide derived carbons. The Raman spectra displayed the classical bands of graphitic materials: D, G, and 2D; however, presence of three bands located at ≈ 680, 838 and 1060 cm^{-1}, revealed presence of small diamond and diamonoid clusters. In addition, electron energy loss

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