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Ferrocene thermal decomposition during phenolic resins graphitization

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Carbonaceous materials have been promised to sensors, biomedicine, magnetic data storage, etc. Nowadays the studies about catalytic

graphitization of phenolic resins with several graphitization agents (as ferrocene, boron oxide, graphite, etc.) have been increased. Depending on these materials synthesis it is possible to obtain many types of products as MWNT with the iron particles, nano-shell, and onion-like-carbon structures. This work is intended to see the effects of increasing temperature during the catalytic graphitization of phenolic resins with the ferrocene decomposition. The structure, the properties, the graphitization level and the phases formed are observed by 13C-NMR, Raman, X-Ray Diffraction, Impedance and 57Fe-Mossbauer Spectroscopies, Electron Paramagnetic Resonance (EPR) and Magnetic Hysteresis. The results 13C-NMR, Raman, X-Ray

Diffraction and Impedance Spectroscopy are confirmed the graphitization level is increased during the ferrocene decomposition forming a multi-phases material and the iron phases impacts in the percolation electrical threshold. The EPR is demonstrated the ions interaction Fe^{+3} pulled out of the material. The 57Fe-Mossbauer Spectroscopy are concluded the most part of the iron phases is composed by hematite and maghemite. The magnetic hysteresis is evidenced by the ferromagnetic properties.

Biography

Carmen Greice Renda is pursuing her PhD in the Federal University of Sao Carlos. She is a civil engineer with a master in Materials Science and Engineering. She has published papers in reputed journals and has been working with polymers and ceramics materials.

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