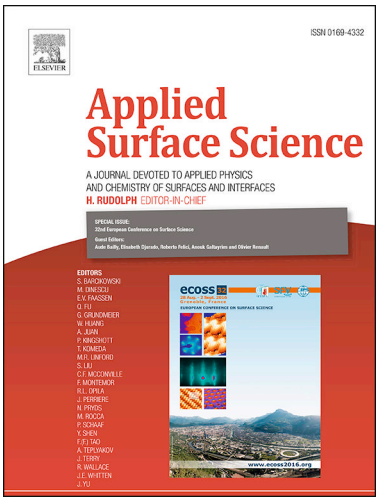

Full Length Article

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Comparison of the morphology, chemical composition and microstructure of cryptocrystalline graphite and carbon black

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Abstract: The structures of cryptocrystalline graphite (CG) and carbon black (CB) have been analyzed using scanning electron microscopy (SEM), transmission electron microscopy (TEM), organic elemental analysis (OEA), X-ray diffraction (XRD), RAMAN and high-resolution transmission electron microscopy (HRTEM). These results indicate that CG has the same elemental composition as CB, with carbon being the major element present. SL sample (CG with low graphitization degree) and CB exhibit similar microcrystalline structures. CG was shown to contain a layered graphitic structure that was significantly different to the primary spherical particles present in CB. It is proposed that these CG sheets may potentially be reduced and delaminated to afford multilayer graphene structures with improved material properties.

Keywords: Cryptocrystalline graphite, Carbon black, Microstructure, Morphology, Chemical composition