

259 - Waterborne nanocarbon dispersions for electronic and fuel applications

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Nanolatexes 20-30 nm in diameter derived from reactive ionic liquid surfactant acrylates and other co-monomers have been shown to be outstanding aqueous dispersants for nanocarbons including SWCNT, MWCNT, WC, and hydrothermal carbon. This dispersing activity can be assigned to the affinity of the imidazolium cation for graphene surfaces. Non-chemically modified CNT dispersion in water are easily formulated at concentrations previously assumed to be unreachably low. We also demonstrate the formation of MWCNT monoliths and membranes prepared by a templating technique. These methods should shortly make MWCNT membranes and porous catalytic electrodes widely accessible. We also demonstrate the highly effective dispersion of hydrothermal carbons, suitable we think, for advanced fuels for carbon fuel cells. The adsorption of nanolatex on carbon appears to be a random and irreversible process, as deduced from SEM and FE-SEM micrographs

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