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NEW MATERIALS BY THE TEMPLATE POLYMERIZATION OF ACRYLONITRILE IN NANOPOROUS SILICA

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The radical polymerization of acrylonitrile took place in nanoporous silica, by the initiation with azoizobutyrodinitrile (AIBN).

The nanoporous silica and the obtained nanocomposites were analyzed by various methods: BET, DTA, DSC, TEM, SEM, FTIR, XRD.

The hybrid nanocomposites were transformed in silica-carbon nanocomposites by the cyclization and graphitization of the carbochain polymer. The carbon-silica composite was afterwards transformed in silicon nitride by the carbothermal nitridation reaction, studying the influence of the treating temperature on the XRD structure of the ceramic material.