ANALYSIS OF STYRENE POLYMERIZATION WITHOUT INICIATOR IN CYLINDRICAL FLASK

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The conditions of chemical synthesis can be crucial for polymerization of styrene in such a way that it can be produced latex spheres at nanometric range (d < 400nm). In this work, it is analyzed how the absence of N2 and initiator (persulfate potassium) will result in colloidal particles with high affinity to agglomerate forming two kinds of nanostructured assemblies: colloidal crystals and nonowires. These structures have been obtained in a cylindrical flask without initiator and N2 gas. Eleven synthesis were realized and four parameters were changed: temperature, rotation, initiator and styrene concentrations. The dispersion was filtered and coated on glass slides by evaporation induced self-assembly (EISA) process. The morphology and topography observed at scanning electron microscopy (SEM) show how the synthesis conditions play a vital role on the formation of self-assembly nanostructures that can be applied as template for sensors and biomaterials devices.