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(54) Title: MULTILAYER ORGANIC-TEMPLATED-BOEHMITE-NANOARCHITECTURE FOR WATER PURIFICATION

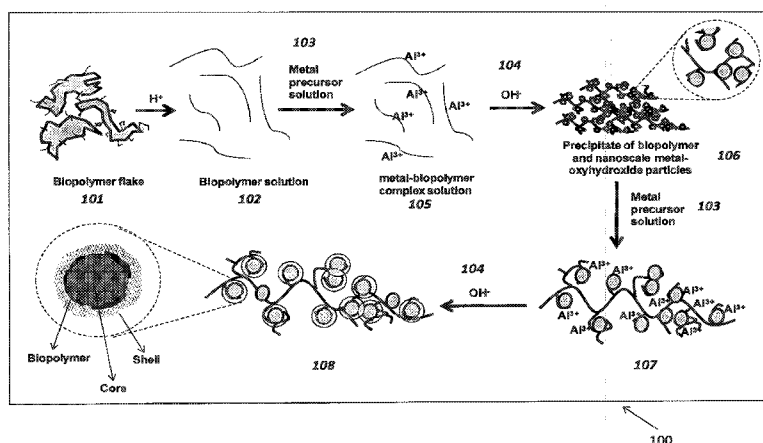


FIG. 1

(57) Abstract: An adsorbent composition comprising a nanoscale shell of metal oxide or hydroxide on an organic-templated-boehmite-nanoarchitecture (OTBN) is provided. The nanoscale shell is prepared by impregnating OTBN with a metal or a non-metal ion, followed by in-situ hydrolysis of the deposited ion on the OTBN surface. The thickness of the shell is less than about 3 nm, which is less than the size of OTBN core. The number of layers of the shell is flexible, thereby leading to a multi-layer nanoscale hybrid composition. The adsorbent composition is capable of removing inorganic anions such as fluoride from water, with an increased adsorption capacity.