

Method for producing nanotubes and nanorods comprises immersing the nanomatrix in a container with saturated aqueous solution, holding the nanomatrix in the solution for a specified period of time, removing the matrix from the saturated aqueous solution, and treating the nanomatrix with an aqueous NaOH solution for 5 hours. The anodized aluminum oxide (AOA) nanomatrix is immersed in a prepared saturated aqueous solution of KH_2PO_4 at a temperature of 55°C , followed by controlled cooling to 50°C ; the nanomatrix is held in the solution at 50°C , and the formed AOA: K_2PO_4 nanocrystalline structure is dried in a thermostatic oven at 60°C for 20 hours.