

Copper tubes prepared by electroless deposition in ion track templates

Bercu B, Enculescu I, Spohr R

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Polycarbonate porous membranes were prepared by etching the ion tracks contained in foils irradiated in the fluence range of 1 ion/sample to 10^8 ions/cm². The membranes were used as templates for the preparation of tubes employing auto-catalytic copper deposition. A three-step process was used: pre-activation, activation and copper deposition. The deposition bath employed formaldehyde as reducing agent and tartrate as complexing agent. Copper nucleation was studied in order to optimize the activation steps thus allowing the preparation of thin tubes.

The external diameters of the tubes ranged from 300 to 2000 nm. The inner diameters varied as a function of the time-of-exposure to the electroless bath. The length of the tubes was 30 μm , corresponding to the thickness of the foils.