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The use of specular reflectivity of neutrons for the investigation of polymeric membranes GUEDIOURA BOUZID, BENDJABALLAH NOUED-DINE, HAMDY MAAMAR, KERDJOU DJ HACENE — A polymeric thin film membrane $5\mu\text{m}$ and $0.5\mu\text{m}$ thickness was prepared in order to study its physical characteristics with the neutron reflectivity method. The membrane is principally made of cellulose acetate (CA) matrix in which we fix the carrier. The neutron reflectivity profiles versus the momentum transfer measurements are done using Nur reflectometer. The vertical neutron reflectometer at Nur Reactor Algeria utilizes a fixed wavelength of 0.47nm and ^3He gas detector; neutrons from the radial beam are reflected by one pyrolytic graphite crystals. Maximum thermal flux, after the monochromator, amounts to approximately $4.0 \cdot 10^4$ neutrons/cm²s. The fit of the experimental data was made using the paret32 software program developed at H.M.I. This program computes optical reflectivity; both for neutron and X-ray, using different models based on momentum transfer Q values or fit measured sets of data. Calculations are carried out by the dynamical approach. The information, not only on layers thicknesses, but also on detailed shape of the scattering density profile is obtained. In a second part, the thin film membrane is submerged in an ionic solution of ZnCl_2 at 0.1 mole, this investigation revealed a modification of some internal layers of the membrane. Results are presented for the characterization of a membrane.

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