

MICROSTRUCTURE CHARACTERIZATION OF γ -ALUMINA THIN FILMS.

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Gamma-alumina thin films supported on mesoporous alumina have proved to be very efficient membranes in separation processes as micro- and ultrafiltration, as well as support for metal catalysts in catalytic membrane reactors. Due to their excellent properties: thermal and chemical stability, sterilisation ability, and biocompatibility, they represent a very attracting alternative for the chemical and biochemical industry. All the applications mentioned above require membranes with high permeability and selectivity, which are very dependent on the thickness and the structural integrity of the film.

In this work, we present results of a SEM characterisation of gamma- alumina thin films deposited on γ -alumina tubular supports by dip coating and slip-casting of sol-gel derived bohemite with and without organic additives. The deposition process of the nanoceramic layer was repeated in order to evaluate the changes in structure and thickness of the film after successive coating steps.

In general, the films were 1 μ m thick per deposition step, being the thickness along the support more homogeneous in case of samples prepared by slip-casting. Regarding structural characteristics, the presence of defects was much lower for films prepared from bohemite suspensions with organic additives.