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## METALLIC MEMBRANES OBTAINED WITH GRADED STRUCTURE FOR MICROFILTRATION

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### Abstract

The aim of this work is to obtain sintered porous membranes with graded structure for microfiltration by sedimentation and sintering of metallic powders. Our previous studies have demonstrated the possibility of obtaining sintered porous materials with graded structure by sedimentation. In this paper, spherical nickel particles were used having a grain size in the 2-90  $\mu\text{m}$  range measured by the laser scattering particle size analyzer. The powders were sedimented into a sintering die in a sedimentation medium consisting of water and dispersant agent. After drying, the samples were sintered at 1000°C for 10 minutes in vacuum ( $1.3 \cdot 10^{-3}$  Pa). The structures obtained were characterized by scanning electron microscopy and mercury porosimetry. The pore size distribution was between 4 - 37  $\mu\text{m}$  and the viscous permeability coefficient equals  $1.32 \cdot 10^{-12}$   $\text{m}^2$ . The relative filtration fineness obtained for our membranes was 8  $\mu\text{m}$ . The possible applications for the studied membrane are: water microfiltration, environmental technologies, filtering lubricants and cleaning agents.

*Key words:* metallic membrane, microfiltration, porosity gradient, sedimentation, sintered porous material

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