

SEPARATION SCIENCE & ENGINEERING

钯复合膜的制备及其在氢气氮气分离中的应用

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摘要 Thin palladium composite membranes were prepared by modified electroless plating method on α -alumina supports and a dense Pd/ α -Al₂O₃ composite membrane with high hydrogen flux, good selectivity for hydrogen was obtained. It was tested in a single gas permeation system for hydrogen permeance and hydrogen selectivity over nitrogen. The hydrogen permeance of the corresponding membrane was as high as $2.45 \times 10^{-6} \text{ mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1} \cdot \text{Pa}^{-1}$ and H₂/N₂ selectivity over 700 at 623K and a pressure difference of 0.1MPa. The main resistance of the composite membrane to H₂ permeation lies in the aluminum ceramic support rather than the thin Pd layer.

关键词 [palladium membrane](#) [non-electrical plating](#) [hydrogen separation](#)

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Preparation of thin palladium composite membranes and application to hydrogen/nitrogen separation

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Key words [palladium membrane](#); [non-electrical plating](#); [hydrogen separation](#)

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