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Palladium/ruthenium composite membrane for hydrogen separation from the off-gas of solar cell production via chemical vapor deposition

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Abstract

The potential application of palladium-ruthenium composite membranes to the separation of hydrogen from chlorosilane gases in silicon-based industries was investigated. Palladium and palladium-ruthenium composite membranes were deposited on pretreated porous stainless steel substrates by electroless plating. Hydrogen permeation tests and temperature programmed desorption (TPD) analysis revealed that the addition of a Ru overlayer on Pd changed the hydrogen adsorption characteristics, resulting in improved stability of the membrane at low

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