

# Hydrogen absorption in palladium films sensed by changes in their resistivity

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## **Abstract**

The resistance of pure palladium films of 11, 30 and 54 nm thickness was monitored during their exposure to H<sub>2</sub> at pressures ranging between 1 and 20 Torr. After completing a cycle of H<sub>2</sub>absorption/desorption, the resistivity changed in a "saw tooth" fashion similar to the changes observed in surface adsorption of hydrogen by other transition metals. Large resistance changes are observed in these studies, confirming that bulk hydrogen absorption occurs in Pd while hydrogen surface adsorption becomes dominant over bulk absorption in other metals such as niobium. The resistance change curves carry the information of the kinetics of absorption.