Advances in the chemical vapor deposition (CVD) of Tantalum

The chemical stability of tantalum in hot acidic media has made it a key material in the protection of industrial equipment from corrosion under such conditions. The Chemical Vapor Deposition of tantalum to achieve such thin corrosion resistant coatings is one of the most widely mentioned examples of CVD processes; however very little information on the process and its characteristics can be found. This work presents the state of the art on the CVD of tantalum in long narrow channels and a reaction mechanism is suggested based on a rudimentary model. The effects of the system pressure, temperature and process-setup on the deposition rates and material distribution are also presented.

General information
State: Published
Organisations: Department of Energy Conversion and Storage, Proton conductors, Tantaline A/S
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Publication date: 2014
Peer-reviewed: Yes