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The influence of glass surface preparation on electrical and optical properties of SnO₂ thin films obtained by spray pyrolysis technique

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Keywords

spray pyrolysis, transparent conductive coating, optical and electrical properties

Abstract

SnO₂ conducting thin films were prepared by spray pyrolysis. Glass surface was prepared by etching in HF and acetic acid solutions. Sodium barrier coatings with different compositions were prepared by the sol-gel technique. The influence of the glass surface preparation on optical properties of SnO₂ was studied using reflectance spectroscopy. XPS was used as a tool to evaluate barrier properties of the coating. The morphology of the thin layer was studied by a scanning electron microscope. The results have shown that the titanium containing coating has the best sodium diffusion barrier property. The conductivity of SnO₂ film strongly depends on the glass surface preparation. The lowest conductivity was measured for clean glass but the highest for alumina containing barrier coating.



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