
Intelligent Coatings for Energy-Efficient Glazing of Glasses

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Abstract

Energy used in buildings, for heating, cooling and lighting, accounted for roughly 30% of China's and 40% of the EU's total energy consumption. These heating and cooling costs are directly influenced by architectural design. Increasingly, governments are regulating the energy efficiency of new or refurbished buildings, and one of the main features that can impact total building efficiency is glazing. In which, the thermochromic coating based on VO₂ is one of the most important materials. In this talk, we will present the state-of-arts of thermochromic materials and some results on the materials preparation by magnetron sputtering, chemical vapor deposition and sol-gel methods. The microstructural control, materials modeling and the mechanism of phase transformation will be also discussed.

Keywords: thin film, VO₂, coatings, thermochromic, sputtering, sol, gel, CVD

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