

Abstract Submitted
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Plasma modification in a rotating reactor of vanadium oxide for electro-chromic devices GAMZE ONGOREN, MUHAMMED SANCAK, Suleyman Demirel Universitesi, SORIN MANOLACHE, University of Wisconsin-Madison, NESLIHAN NOHUT, ALI GULEC, AYSEGUL UYGUN, LUTFI OKSUZ, Suleyman Demirel Universitesi — Titanium as doping material in spraying solution has been reported to enhance properties of electrochromic devices based on vanadium oxide. In this contribution, titanium tetrachloride plasma has been used for treatment of vanadium oxide powder. The treatments have been performed in a glass rotating reactor using ferrofluidic feedthroughs operated at 100 mTorr pressure and 100 W 13.56 MHz RF power; the reaction volume is 1 L and the RF coupling is capacitive using conformal copper electrodes outside of glass cylinder. UV-visible spectroscopy has been used for plasma diagnostic. Plasma treated and untreated vanadium oxide powders have been used for deposition of 100 nm electrochromic layers on ITO conductive electrodes; the deposition has been done by pyrolysis spraying hydrogen peroxide solution of materials. The deposited layers have been characterized by cyclic voltammetry, visible spectroscopy, AFM, SEM and EDS. The devices have been investigated in visible spectral range for optical transmission and color changes with applied voltages. This Work has been supported by TUBITAK TEYDEB project no:9100036

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