

ELECTROCHEMICAL MEASUREMENTS OF COMPOSITE FILMS MADE FROM TiO₂ AND SiO₂ EXTRACTED FROM RICE HUSK

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Composite materials have been found in many applications in the recent years where they have been widely used in ceramic and electronic industry. For example, the efficiency of solar cells has been improved by using composite films of semiconductors and insulators in some studies. In this study, composite films of TiO₂ and SiO₂ have been made by mixing TiO₂ powder with silica extracted from rice husk which is an agricultural waste. Thin films were fabricated with these films and they were characterized with impedance

spectroscopy and Mott-Schottky measurements. It was observed that the addition of SiO₂ to TiO₂ films shifts the flat band potential of TiO₂ to lower values of electrochemical potential. At the same time impedance of the films increased to higher values incorporating silica in the composite films.

Keywords: Composite materials, Mott Schottky measurements, Impedance spectroscopy