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**Modification of polypropylene foils by low pressure oxygen plasma and its influence on the formation of titanium dioxide films<sup>1</sup>**  
RAFAL SADOWSKI, WOJCIECH MACYK, Faculty of Chemistry, Jagiellonian University, Kraków, Poland — Commercially available polypropylene foils were pre-treated with low pressure, room temperature radio frequency (RF) oxygen plasma at constant power and pressure. Various durations of pre-treatment process were applied. Afterwards the samples were covered with titanium dioxide thin film by dip-coating technique and photosensitized by titanium(IV) surface complexes formed upon impregnation with catechol-like ligands. Optical emission spectroscopy (OES) measurements were used for determining plasma species. The surface properties before and after plasma treatment were characterized by contact angle measurements, FTIR-ATR, UV-Vis, and X-ray photoelectron spectroscopy (XPS). Titanium dioxide thin films were characterized by scanning electron microscopy (SEM) and UV-Vis spectroscopy. The photoactivity of TiO<sub>2</sub> films was tested by photocurrent measurements. It was shown that plasma pre-treatment is essential for oxygen groups formation which contribute to titanium dioxide binding to polymer surface.

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