fication applying a photocatalytic reaction. *Surface Coating Technology* 2006; 201: 3761 – 3766.
23. Ziaja J, Koprowska J and Januszkiewicz J. Rusing Plasma Metallisation for Manufacture od Textile Screens Against Electromagnetic Fields. *Fibers and Textiles in Eastern Europe* 2008; 16, 5(70): 64-66.
24. Koprowska J, Doruchowska E, Reszka K and Szwagier A. Morphology and Electromagnetic Shelding Effectiveness of PP Nonwovens Modified with Metallic Layers. *Fibers and Textiles in Eastern Europe* 2015; 23; 5(113): 84-91
25. Niewiadomska I and Przybył K, Electroconductive yarns of stample fibers as a multifunctional product, *V Ogólnopolska Konferencja Naukowa „Nauka i Przemysł"*, Kraków 2010; 1: 78-85.
26. Niewiadomska I., Frydrysiak M., Upcykling yarns from waste fibers on the electroconductivity properties, Przetwórstwo Tworzyw 2013; 156,: 630-635.
27. Dobrzański L A. *Podstawy nauki o materiałach i metaloznawstwo*. WNT, Warszawa 2002.
28. Dobrzański L A. *Kształtowanie struktury i własności powierzchni materiałów inżynierskich i biomedycznych*. WNT, Gliwice 2009.
29. Nowak I, Januszkiewicz Ł and Krucińska I. Production of electroconductive paths on textile substrates using PVD methods, *X Jubileuszowe Sympozjum El-tex* 2012; 12-13.
30. Urbaniak-Domagala W, Krucińska I, Cybula M and Wrzosek H. Deposition of a polypirol insulating layers on copper monofilaments using a low – temperature plasma technique. *Materials Technology* 2009; 24: 24-28.
31. Lewandowski S and Drobina R. Prediction of Properties of Unknotted Spliced Ends of Yarns Using Multiple Regression and Artificial Neural Networks. Part II: Verification of Regression Models. *Fibers & Textiles in Eastern Europe* 2008; 16, 6(71): 20-27.
32. Horcas I, Fernandez R, Gomez-Rodriguez J, Colchero J, Gomez-Herrero J and Baro A M.WSXM: a software for scanning probe microscopy and a tool for nanotechnology. *Review of Scientific Instruments* 2007; 78: 013705.
33. Zgłoszenie patentowe P. 403672, 2013
34. Reichelt K and Lutz H O. Hetero-epitaxial growth of vacuum evaporated silver and gold. *Journal of Crystal Growth* 1971; 10: 103-107.

Received 03.12.2013 Reviewed 06.03.2016