# Metal adsorption Process in Activated Carbon Fiber from textile PAN Fiber aim electrode Production

Aline Castilho Rodrigues[1], Elen Leal da Silva[2], Jossano Saldanha Marcuzzo[2], Andres Cuña[3], Emerson Sarmento Gonçalves[1], Mauricio Ribeiro Baldan[2]

[1]Instituto Tecnológico Aeroespacial, [2]Instituto Nacional de Pesquisas Espaciais, [3]Faculdade de Química, Universidad de la Republica

*e-mail: alinerodrigues_1@msn.com*

Carbon fibers have a variety of applications in industry and have been increasingly studied to explore their various characteristics. Studies show that the activated carbon fiber has been effective in removing small contaminants as well as activated carbon, because of its characteristic porosity. Other studies relate carbonaceous materials to the electrical conductivity devices application. This work is based on the use of an activated carbon fiber from textile polyacrylonitrile (PAN) for metallic ion adsorption from aqueous solution. Consequently, it improves the electrical characteristics and this fact show the possibility to use this material as electrode. The work was performed by adsorption process in saline solution ($NO_3Ag$ and ClPd) and activated carbon fiber in felt form as adsorbent. The metal adsorption on activated carbon fiber was characterized by textural analysis, x-ray diffraction (XRD), scanning electron microscopy equipped with energy dispersive x-ray (SEM-EDX), Raman spectroscopy and x-ray photoelectron spectroscopy (XPS). It was observed that activated carbon fiber showed good adsorption capacity for the metals used. At the end of the process, the activated carbon fiber samples gained about 15% by weight, related to metallic fraction incorporated into the fiber and the process of adsorption doesn't changed the structural, morphological and chemistry inertness of the samples. The results indicate the feasibility of this metal incorporation techniques activated carbon fiber for the production of electrodes facing the electrochemical area.

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