Flexible electronics is a promising technology for the development of lightweight, portable and cheap electronics devices, which still faces some challenges to become reality. Intrinsically conducting polymers (ICP) are a special family of polymers that reunite electric metal properties and the processability of plastics, which can be processed in the form of printed films on other flexible substrates to result in mass-produced flexible electronic devices. Among those conducting polymers, poly(3,4-ethylenedioxythiophene)-poly(styrenesulfonate) (PEDOT:PSS) deserves special attention due to its environmental stability, low cost and easy processability. However, and in spite of those characteristics, films produced with this material typically exhibit poor conductivity conferred by the presence of PSS and resulting low crystallinity. Recently it has been reported a remarkable increase of its conductivity when additives are included in the spun solution or in the post-treatment of the films. Here we propose the production of PEDOT:PSS spin coated films with an enhanced conductivity by the post-treatment with polar co-solvents (such as dimethyl sulfoxide, methanol and ethanol). We characterized the resulting films by UV-Vis, FTIR, SEM, AFM, contact angle, DC and AC electrical measurements. The preliminary results indicate that the post-treatment using methanol is the most promising among those examined, since the corresponding films experienced a 21-fold enhancement in the conductivity (from 33 S/m to 666 S/m), which should be compared to increasing factors of 17 and 1.7 times for those treated with DMSO and ethanol, respectively. The SEM results suggest a change in the crystalline order of the PEDOT:PSS films, leading to an increase in the conductivity that is corroborated by the fact that the real component of the impedance tends to become constant along the scanned frequencies. [Financial Support: CNPq, INFO Institute/MCTI, CAPES]