



Chromium (VI) removal and recovery from electroplating wastewater by ion exchange

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Electroplating is the process of plating metal onto another material using current to reduce dissolved metal. This process has generated a lot of metal solution such as chromium, copper and nickel. The wastewater comes out of residual metal solution in high range and effect to environment. There are many methods to treat wastewater such as chemical precipitation, reduction and ion exchange. This research presents ion exchange process with low residual sludge, metal recovery and high efficiency. The different resins types were applied to exchange the ions between substrate and surrounding medium. This research objective is to investigate ion exchange operating condition for removal and recovery of chromium from electroplating process in lab scale using two columns. The first column is used for removing chromium by OH^- type resin with exchange ion capacity 1.55 equ/l and another one for recovery chromium by H^+ type resin with exchange ion capacity 1.6 equ/l. The studied parameters are consist of chromium concentration 131.53-1853.45 mg/l, NaOH 2-4 %wt and HCl 4-8 %wt concentration for regeneration resins and flow rate 20-300 ml/min. The samples are characterized by UV-VIS and ICP-OES.

Keywords: Electroplating; Chromium removal; Ion exchange