

عنوان مقاله:

Comparison of phenol sulfonic acid removal from tin plating industry by using nanofiltration, coagulation and adsorption

محل انتشار:

اولین کنفرانس بین المللی تصفیه فاضلاب و بازیافت آب، فناوری ها و یافته های نو (سال: 1388)

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خلاصه مقاله:

Sulfonic Acids (SAs), are acids contain one or more sulfonic groups ($-SO_3H$) and are toxic because of their high acidic properties. Phenolsulfonic Acid (PSA) is one of these compounds that have a broad field of application in steel industries. Tin-plated steel, which is broadly used as container material, is commercially produced using acid-bath method: Ferro-Stann. In this method, PSA is used in tin-plating bath as soluble anode. So there is a large amount of PSA in wastewater of tin-plating steel production line and obviously it needs treatment to minimize its toxic properties. Removal of PSA from wastewater of Tin-plating unit of Mobarakeh Steel Complex (MSC), using physical and chemical methods is the object of this research. Consider wastewater quality variations, all methods have been applied for two PSA concentrations: 20 mg/l and 200 mg/l. Physical methods, Nanofilter and GAC adsorption, had the best removal efficiency: 99.9999% and 99.9% for weak and strength wastewater respectively using nanofilter and about 90% using GAC adsorption. Coagulation and flocculation followed by sedimentation, applied as chemical method, using three different coagulants: aluminum sulfate, ferrous sulfate and chloroferic, had average removal efficiency of 38%, 32% and 36% respectively and showed better efficiency with lime addition.

کلمات کلیدی:

Adsorption, Coagulation, Nanofilter, Phenolsulfonic Acid, Tin-Plating, Wastewater Treatment

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