TYPE OF SOLVENT INFLUENCE IN THE REACIONAL ENVIRONMENT ON THE REDUCTION OF CROME VI

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RESUMEN

The leather industry, an economic leader in many countries, consumes larger quantities of water, about 30 to 80 m^3 per ton hides process, generates a great amount of polluted water as residue. This pollution may cause a serious environmental contamination, since it contains high contents of organic substances, organic and ammoniac nitrogen, sulfites and chrome. The traditional techniques to treat tannery wastewater are efficient but predominantly transfer these pollutants partly from liquid phase into solid phase. This elimination from wastewater phase causes a problem to dispose toxic solid waste. New methods have been developed to treat industrial wastewater in order to produce treated wastewater of high quality combined with low amounts of sludge. Advanced Oxidation Processes (AOPs) are powerful processes to treat water, industrial effluents and atmospheric pollution. These processes involve the generation of the hydroxyl radicals as reactive intermediates with a high oxidation potential to mineralize compounds organic and potential to reduce compounds inorganic and metallic to harmless by-products. The heterogeneous photocatalysis shows good advantages in degrading pure substances, as dyeing, but just a few studies are performed for application this process to reduce toxic to non-toxic metals. Based in those statements, ZnO and Ag/ZnO catalysts were prepared by impregnation method, with composition of 0,5wt.% e 1,0wt.% silver dried and calcined at 200ºC for 5 hours. The catalysts were characterized by nitrogen adsorption (specific surface area, specific volume of pores and medium diameter of pores), TGA, TPR and XRD and finally applied in the reduction of chrome VI to chrome III. The reduction of chrome VI was performed at batch in the visible light and solvent basic presence. The results revealed the influence of the solvent presence on the activity of the catalysts and showed that the reduction of chrome VI was favored with silver addition to the ZnO catalysts.