Water Recycling in Leather Wet-end Process by Optimization of the Wastewater Treatment

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Abstract:

Leather industry is one of the oldest and most traditional industries but is also a source of concern regarding its environmental impact, mainly because of the high amount of wastewater and solid waste. From an economical and environmental point of view, there is a great interest in the process water reduction. The present work has as main objective the improvement of the treated wastewater quality for its recycling reducing the global water consumption.

Treated wastewater from tanneries working wet-blue and wet-white, was refined by activated carbon and Fenton oxidation for recycling in the wet-end process. The treatment efficiency was good in both ways, resulting in a chemical oxygen demand reduction of about 60%, and allowing greater water quality for recycling when compared with the normal treated wastewater. The water obtained was applied in the first washes of the wet-end process and the leather obtained was evaluated. Organoleptic properties, physical-mechanical resistances and ashes of the leather obtained were evaluated with good results when compared with the standard process. Pilot recycling trials were done with good results.

Keywords:

activated carbon, Fenton oxidation, wastewater, recycling, leather.