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APPLICATION OF LOW TEMPERATURE SOLID-LIQUID EQUILIBRIUM FOR THE TREATMENT OF TEXTILE WASTEWATER

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Abstract

The objective of the present study is to apply the low temperature solid-liquid equilibrium for the treatment of textile wastewater by partial concentration/separation technique. Textile wastewater collected from an industry in Namakkal District, Tamilnadu, India, was subjected to partial freezing at various initial concentrations of total dissolved solids from 600 – 3600 ppm with an increment of 600 ppm. The absorbance of the dye solutions of known concentrations were determined using UV spectrophotometer, which showed that for a given concentration it showed different absorbance of UV beam. Analysis of the two phases formed by partial freezing showed that the wastewater could be treated by the proposed technique. It is expected that the liquid phase when treated by partial freezing in two or three successive steps would produce a liquid stream that could be recycled with minimal or no further treatment. This technique is expected to produce good results for other effluents also.

Keywords: *solid-liquid equilibrium; textile wastewater; partial freezing; recycle.*