عنوان مقاله:

Separation of meta xylene from industrial wastewater by electrical field

محل انتشار:

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خلاصه مقاله:

In this paper, separation of meta-xylene in water emulsion has been investigated. The mechanisms for separation occurred by using non-uniform electric field (di-electrophoresis method=DEP) with sinusoidal current. The effect of temperature, time, and voltage has been investigated individually in order to optimize the separation of meta-xylene from the emulsion of industrial wastewater. In non-uniform electric field of metha-xylene particles in wastewater, electric charge(-) is induced. Particles depending on the type of their electric charge , move towards or outwards the electric field center. It depends on the electric conductivity of the continuous and the dispersed phase. They collide with each other in their path and form larger drops which float finally .It was investigated in the present research that the non-uniform electric field method can be a good one for separating colloidal particles in wastewater. The emulsion was prepared by using Hielscher UP400S ultrasonic processor (20 min, cycle time 0.5 and amplitude 100 %) by adding 2% vol. xylene and 1% vol. sodium dodecyl sulfate (SDS) as a surfactant in the water. To calculate the separation efficiency, at first pour water into 4 cm diameter pipe separator (glass container), then it is added with 2% vol. xylene. The height of xylene is measured by a ruler before it is emulsified. After the glass container undergone ultrasound process, the emulsion which is made shall be placed under the electric field and the separation took about 10 minutes then the height of the oil is measured in isolation which ultimately can be calculated by having these amounts.

کلمات کلیدی:

Electric field, Separation, Di-electrophoresis, Demulsification