Optimizing Emulsion Liquid Membrane Process for Extraction of Nickel from Wastewater Using Taguchi Method

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***Abstract*--The main objectives of this research were focused on extracting nickel ions from waste water using emulsion liquid membrane as well as determining the optimal conditions for the extraction process. Taguchi experimental design method was applied to determine the optimum extraction conditions. The controllable factors of the emulsion liquid membrane process were carrier; surfactant; and internal phase concentration, treating ratio, stirring time, and feed phase acidity were optimized. The contribution of each controllable factor was also explored. The results indicated the greatest effect of the carrier concentration in comparison to other parameters. The five other parameters slightly affected the extraction percentage of nickel. The optimum conditions for the extraction was found to be carrier concentration (M) of 0.25, surfactant concentration (v %) of 10, internal phase concentration (M) of 0.1, external / emulsion ratio (v/v) of 5, stirring time (min.) of 1, and feed phase pH of 0.5**

***Key words*: nickel, emulsion liquid membrane, TOPO, Taguchi.**

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