

عنوان مقاله:

OPTIMIZATION OF ADSORPTION PROCESS FOR REMOVING PHENANTHRENE FROM AQUOUCE BY
TAGUCHI

محل انتشار:

دومین همایش ملی تجهیزات و مواد آزمایشگاهی صنعت نفت ایران (سال: 1395)

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خلاصه مقاله:

To the point globally, contamination of petroleum refinery effluent with phenanthrene (Phe) as the persistence organic pollutants is considered as the most curtail environmental concern. Phe is very toxic to aquatic organisms. The aim of this applied-analytical study is to investigate phenanthrene removal from urban drinking water using batch reactor adsorption. Various operating variables are analysed for their effects on Phe removal; these are the graphene oxide (GO) adsorbent dose, the pH, the Phe initial concentration, and reaction time. Phenanthrene removal efficiency is tested in different operating cases of the variables the GO adsorbent dose (1 to 3 g/dL), the pH (3.5 to 10.5), the Phe initial concentration (5 to 15 mg/L), and reaction time (20 to 60 min). Phenanthrene is determined according to procedure detailed in standard methods. Batch adsorption experiments show that the maximum phenanthrene removal (100%) is happened at pH 7, the Phe initial concentration 5 mg/L, the reaction time 30 min, and the GO adsorbent dose 2 g/dL. The Phe adsorption in GO is obtained from Langmuir isotherm. Therefore, batch experiments show that the adsorption reactor can be high efficient low cost in Phe removal from drinking water and may be considered as a promising process for treating phenanthrene-polluted drinking water.

کلمات کلیدی:

Adsorption, Drinking water, Graphene, Isotherm, Phenanthrene, Taguchi model

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