

Chromatography

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Spectrophotometric determination and recovery of Cr(VI) from waste water by using a novel calix[4]arene based on polymer inclusion membrane (PIM) modified with nanocomposite graphene oxide

Canan Onac, Ahmet Kaya and H Korkmaz Alpoguz
Pamukkale University, Turkey

In this study, spectrophotometric determination and recovery of Cr(VI) from chrome plating water by using a novel calix[4]arene through PIM modified with graphene oxide (GO) was investigated. New generations of carbon nanomaterials are the most important ingredients that affect the membrane performance in the production of nano-reinforced membranes. The membrane was modified with GO which improves the mechanical properties and permeability of the PIMs. Important outcomes of this work are high permeability, seamless porous structure, high selectivity and development of PIM by minimized nano-reinforced against pollution in addition of the unique physical properties of GO. The membrane performance and structure of GO/PIM optimized separately. The transport of Cr(VI) was achieved over 90% under optimized conditions from the donor to the acceptor phase through PIM by adding GO which incremented the features of membrane. The World Health Organization had also stated that Cr(VI) as one of the most toxic metal in the environment. For this purpose, the transport of Cr(VI) was carried out from Cr(VI) with a high concentration of donor to acceptor phase. The removal of Cr(VI) was achieved from the chromate plating water as a results of transport experiments performed on different parameters by determining the optimum conditions. The usage of this system is very commercial for industrial waste water applications due its high resistant. PIM/GO exhibits great stability and selectivity in the presence of other metals in chrome plating bath water for the recovery of chromium and the system can be applied on the real samples.

Biography

Canan Onac is a PhD student at Pamukkale University, Chemistry department in Turkey. Her topics of interest are Electro Driven Membrane, Polymer Inclusion Membrane, and Wastewater Removal.

canan.onac@hotmail.com

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