عنوان مقاله:

Efficiency of lead removal from drinking water using cationic resin Purolite

محل انتشار:

مجله مدیریت ومهندسی بهداشت محیط, دوره 2, شماره 1 (سال: 1394)

تعداد صفحات اصل مقاله: 5

نویسندگان:

Ashour Mohammad Merganpour - *MSc of Golestan province Rural Water &Wastewater Co, Gorgan, Iran*

Gholamabbas Nekuonam - *MSc of Environmental Engineering, Environmental Health Engineering Research Center, Department of Environmental Health Engineering, School of Public Health, Kerman University of Medical Sciences, Kerman, Iran*

Omid Alipour Tomaj - *MSc of Watershed Management, Department of Agriculture and Natural Resources, Gorgan Branch, Islamic Azad University, Gorgan, Iran*

Yousef Kor - *MSc of Environmental Engineering, Gorgan Healthcare Center, Golestan University of Medical Sciences, Gorgan, Iran*

خلاصه مقاله:

Background: Today, issues such as water shortage, difficulties and costs related to supplying safe water, and anomalous concentrations of heavy metals in groundwater and surface water resources, doubled the necessity of access to technical methods on removing these pollutants from water resources.Methods: In this lab study, cationic resin Purolite S-930 (with co-polymer styrene di-vinyl benzene structure) was used for lead removal from drinking water containing up to 22 µg/L. Using statistical analysis and designing a full factorial experiment are the most important effective parameters on lead removal obtained through ion exchange process.Results: Analysis of response and interaction parameters of ion exchange showed that the resin column height has maximum and pH value has minimum effect on the efficiency of lead removal from aquatic environment. Trinary interaction of effective size, flow rate, resin column high has the most important for lead removal efficiency in this system. So the maximum efficiency was obtained at the mesh = 40, bed height =1.6 meter, and pH= 6.5. At the best operation conditions, ability to remove 95.42% of lead concentration can be achieved.Conclusion: Using the resin Purolite S-930 during 21-day service with 91.12% of mean lead removal ratio from drinking water is an economic and technical feasibility.

کلمات کلیدی:

Lead, Resin, Purolite, Interaction