

عنوان مقاله:

Performance of Sand Filtration System with Different Sand Bed Depth for Polishing Wastewater Treatment Service Unavailable

محل انتشار:

فصلنامه روشهای تصفیه محیط، دوره 9، شماره 2 (سال: 1400)

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خلاصه مقاله:

The Abstract of the manuscript should not exceed ۲۵۰ words and must be structured into separate sections: Introduction, the context and purpose of t Sand filtration is a polishing type of treatment system that is widely used as an efficient, cost-effective and simple treatment method. The efficiency of sand filtration relies mainly on the capacity of sand bed depth. Different sand bed depth affects the filtration rate and the contaminant removal differently. Hence, this study aims to investigate the effect of different sand media depth on the removal efficiency of the filtration process. An experimental sand filter with three design modifications of different sand bed depth, ۳۰ cm, ۶۰ cm, and ۹۰ cm, was operated as polishing stage of an effluent from conventional activated sludge process. The highest filtration rate was recorded using sand depth of ۳۰ cm. Higher filter bed depth result in lower filter rate which result in smaller filtrate volume. Highest E. Coli and COD removal, are ۹۵.۵% and ۵۲.۲%, respectively, recorded using ۳۰ cm sand depth. Meanwhile, highest TSS and turbidity removal are ۹۱.۰% and ۷۷.۳%, respectively, with sand depth of ۹۰ cm. Highest total coliform and BOD removal are ۸۸.۳% and ۶۸.۰% respectively by using sand depth of ۶۰ cm. This study demonstrated that the sand filter is more efficient in removing suspended contaminants and coliforms compared to removing dissolved contaminants. The Abstract of the manuscript should not exceed ۲۵۰ words and must be structured into separate sections: Introduction, the context and purpose of t Sand filtration is a polishing type of treatment system that is widely used as an efficient, cost-effective and simple treatment method. The efficiency of sand filtration relies mainly on the capacity of sand bed depth. Different sand bed depth affects the filtration rate and the contaminant removal differently. Hence, this study aims to investigate the effect of different sand media depth on the removal efficiency of the filtration process. An experimental sand filter with three design modifications of different sand bed depth, ۳۰ cm, ۶۰ cm, and ۹۰ cm, was operated as polishing stage of an effluent from conventional activated sludge process. The highest filtration rate was recorded using sand depth of ۳۰ cm. Higher filter bed depth result in lower filter rate which result in smaller filtrate volume. Highest E. Coli and COD removal, are ۹۵.۵% and ۵۲.۲%, respectively, recorded using ۳۰ cm sand ... depth. Meanwhile, highest TSS and turbidity removal are ۹۱.۰% and ۷۷.۳%, respectively, with sand depth of ۹۰ cm. Highes

کلمات کلیدی:

Sand filtration, Sand bed depth, Polishing, Wastewater treatment, Coliform removal

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