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粉末活性炭预处理对超滤膜通量的影响

Influence of powered activated carbon (PAC) pretreatment on ultrafiltration membrane flux

关键词: [饮用水处理](#) [超滤膜过滤](#) [粉末活性炭吸附](#) [通量](#)

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摘要: 研究了粉末活性炭预处理对改善超滤膜过滤通量的效果.试验采用了4种具有不同亲疏水性的水样,着重探讨粉末活性炭对有机物的疏水性和亲水性组分的去除效果以及所带来的通量改善.试验结果表明,对于4种水样,超滤膜直接过滤原水时,通量下降严重.虽然粉末活性炭预处理能在一定程度上提高通量,但通量下降的趋势仍未改善.对有机物各组分分析表明,直接过滤原水时,膜主要截留疏水性有机物;粉末炭吸附主要去除亲水性有机物,而超滤膜过滤粉末炭处理水时,主要截留疏水性有机物.由此,超滤膜的通量下降主要是由疏水性有机物引起的,亲水性组分对通量的影响较小.

Abstract: Pretreatment by adsorption of powdered activated carbon(PAC)was employed in an attempt to improve flux in ultrafiltration(UF)membrane filtration.PAC adsorption hypothetically removes the hydrophobic and hydrophilic organic fractions,which would result in enhanced flux.Four raw water samples containing different hydrophobic and hydrophilic compounds were tested.The experimental results show that in the filtration of raw water without PAC pretreatment,the flux declined rapidly.Although pretreatment with PAC could enhance flux to some extent,the rate of flux decline was not improved.Analysis of the organic compounds showed that in direct filtration of raw water the UF membrane rejected hydrophobic compounds and PAC adsorption mainly removed hydrophilic compounds.However,after PACadsorption pretreatment,the membrane tended to reject the hydrophobic fraction.It can be concluded that the hydrophobic compounds are responsible for the flux decline and hydrophilic compounds have less effect on flux.

Key words: [drinking water treatment](#) [ultrafiltration membrane filtration](#) [PAC adsorption](#) [flux](#)

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