

## Removal of effluent organic matter by purolite fluidised bed and submerged membrane hybrid system

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### ABSTRACT

In this study, Purolite®A500PS was used to remove effluent organic matter in a fluidised bed and submerged membrane hybrid system (SMHS). It was found that the fluidised bed purolite column can effectively remove 73% of dissolved organic compound (DOC) from synthetic biologically treated sewage effluent (BTSE). DOC removal can be reduced further, by up to 95% when the fluidised bed purolite column was combined with a treatment by granular activated carbon column. Purolite®A500PS was also used as an adsorbent in the SMHS. The results showed that critical flux of the SMHS depend on the purolite size. Critical fluxes of SMHS were 30 and 35 L/m<sup>2</sup>.h where 0.1 g/L of purolite of sizes below 150 µm and 150–300 µm were used respectively. The removal efficiency of natural organic matter from synthetic BTSE by SMHS was a function of purolite dose. The removal efficiency increased from less than 60% to more than 70% when the purolite dose increased from 0.05g/L to 0.1g/L.

*Keywords:* Critical flux; Effluent organic matter, Purolite; Submerged membrane hybrid system

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