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## Superhydrophilic, low cost kaolin-based hollow fibre membranes for efficient oily-wastewater separation

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### Abstract

The objective of this study is to produce superhydrophilic, low cost kaolin-based ceramic hollow fibre membrane (KHFM) for efficient oily-wastewater separation. The asymmetric KHFM with short finger-like voids were successfully prepared via a combined phase inversion and sintering technique. It was observed that the increase in sintering temperature enhanced membrane mechanical strength and promoted significant changes on membrane morphology. The combination of hydrophilic characteristic (contact angle of 33°) and small pore size (0.35 μm) of the kaolin KHFM sintered at 1500 °C resulted in excellent oily wastewater separation, with a 100% success rate, thus indicating that KHFM is able to repel most of the oil and allow only water to pass through its pores. In conclusion, the developed KHFM can be regarded as a promising medium for oily wastewater separation.

**Keywords:** Ceramics, Sintering, Porous material, Kaolin Hollow fibre membrane, Oily-wastewater

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