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## Wetting Modulation of Starch-Poly Vinyl Alcohol Based Membranes for Under Oil Recovery of Water

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### ABSTRACT

Deleterious effects to the environment caused by oily waste water can be reduced by treating the waste water. As a result of oil spill incidents or organic pollutants disposal, oily waste water is generated and hence damaging the ecological resources. Oil/water segregation thus become a challenge and it must involve biocompatible separating membrane. Biopolymer-based membrane has been developed and studied to overcome this hurdle. In this regard, starch/poly vinyl alcohol blended hydrogel cross-linked with glutaraldehyde was synthesized by freeze thaw and room temperature cooling methods. The gels were characterized by FT-IR, PXRD and TGA analysis. FE-SEM studies were conducted for morphology analysis of the prepared membranes. Wetting studies were performed in ambient and in submerged conditions. The hydrogel demonstrated under water oil contact angle above 150° displaying the super-oleophobic behaviour. The hydrogel was able to effectively absorb water in presence of oil. Hence it could eliminate water from oil under submerged conditions.

**Keywords:** Hydrogel, Polyvinyl alcohol, Starch, Superoleophobic

