

Abstract

OIL-WATER SEPARATION FILTER AND APPARATUS, AND METHOD OF OPERATING THE SAME

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Described herein is a filter comprising a mesh and a coating layer on the mesh, the coating layer having a first silane moiety and a pH-responsive polymer. The first silane moiety includes a hydrophobic alkyl chain. The first silane moiety is attached directly to the mesh and the pH-responsive polymer is attached to the mesh by a linker. The mesh may be switched between being hydrophilic and oleophilic by acid or alkaline treatment, or temperature treatment. Also described is a method to prepare the filter, a connector having the filter, an apparatus having the connector, and a method of separating an oil-water mixture.

15 (FIG. 3)