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Patent Search

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Abstract:

ABSTRACT A HOLLOW FIBER ULTRAFILTRATION MEMBRANE The present invention relates to a hollow fiber ultrafiltration membrane comprising a base polymer; a cellulose derivatives; and nanoparticles of one or more metal oxide. The present invention also relates to a method to prepare a hollow fiber ultrafiltration membrane through non-solvent induced phase separation process, the process comprising preparing a solution of a base polymer selected from polyphenylsulfone, cellulose derivative selected from cellulose acetate and nanoparticle of a metal oxide selected from aluminum oxide; preparing a solution of a base polymer selected from polyphenylsulfone and cellulose derivative selected from cellulose acetate phthalate and nanoparticle of a metal oxide selected from aluminum oxide; mixing the above solutions to obtain a homogeneous solution at a temperature of 60°C; extruding the homogenous solution using a spinneret to generate the hollow fiber ultrafiltration membrane. The hollow fiber ultrafiltration membrane is used for removal of heavy metals including arsenic.

Complete Specification

Claims:We Claim:

1. A hollow fiber ultrafiltration membrane comprising a base polymer; a combination of cellulose derivatives; and nanoparticles of one or more metal oxide.
2. The membrane as claimed in claim 1, wherein the base polymer is selected from polyphenylsulfone (PPSU), polysulfone (PSf), polyethersulfone (PES), polyethylene glycol (PEG), polyvinylidene fluoride (PVDF).
3. The membrane as claimed in claim 1, wherein the base polymer is polyphenylsulfone (PPSU).
4. The membrane as claimed in claim 1, wherein the cellulose derivatives are selected from cellulose acetate and cellulose acetate phthalate.
5. The membrane as claimed in claim 4 wherein the cellulose derivatives includes a combination of cellulose acetate and cellulose acetate phthalate.

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