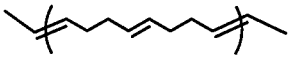
CLAIMS:

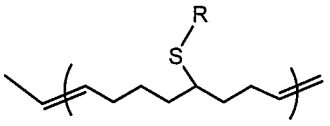
1. A composite hydrophilic porous membrane comprising a porous fluoropolymer support and a coating comprising a crosslinked polymer network, wherein the composite hydrophilic membrane is produced by coating the porous fluoropolymer support with a coating composition comprising a solvent, a crosslinking agent, a photoinitiator, and a telechelic polymer comprising a backbone made of polymerized 1,5-cyclooctadiene repeat units, wherein at least one of said repeat units comprises a pendant hydrophilic group attached thereto and at least another one of said repeat units comprises a pendant fluorinated hydrophobic group attached thereto, and crosslinking *in situ* the resulting coating.

2. The composite hydrophilic porous membrane of claim 1, wherein the telechelic polymer comprises hydrophobic and/or hydrophilic terminal end groups.

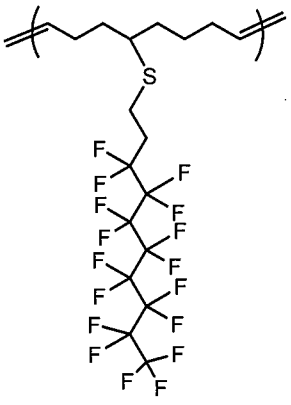
3. The composite hydrophilic porous membrane of claim 1, wherein the telechelic polymer comprises repeat units B and C, and optionally one or more repeat units A, wherein the repeat units A-C are of the formulae:



(A),



(B),



(C),

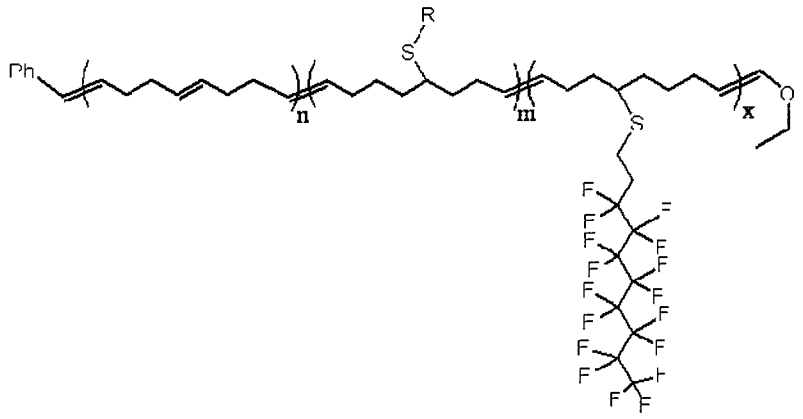
wherein R is a hydrophilic group.

4. The composite hydrophilic porous membrane of claim 3, wherein R is selected from carboxy alkyl, sulfonic alkyl, and hydroxyalkyl groups.

5. The composite hydrophilic porous membrane of any one of claims 1-4, which comprises repeat units A, B, and C.

6. The composite hydrophilic porous membrane of any one of claims 1-5, which has hydrophobic terminal end groups.

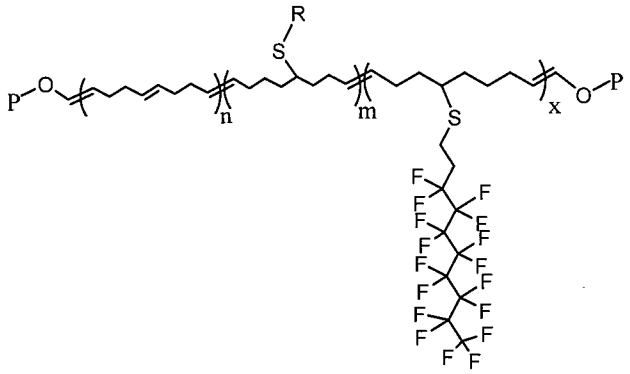
7. The composite hydrophilic porous membrane of any one of claims 1-6, wherein the telechelic polymer is of the formula:



wherein x and m are individually up to 35 mole% of n+m+x, wherein n+m+x = from 10 to 1000, and n and m are individually from about 10 to about 1000, and R is a hydrophilic group.

8. The composite hydrophilic porous membrane of any one of claims 1-5, wherein the telechelic polymer comprises hydrophilic terminal end groups.

9. The composite hydrophilic porous membrane of claim 8, wherein the telechelic polymer has the following formula:

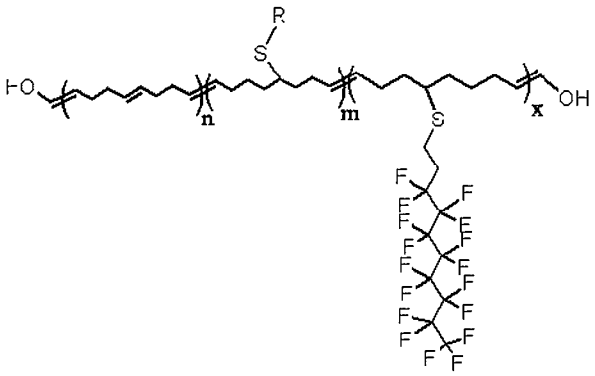


wherein P is a group capable of initiating polymerization, x and m are individually up to 35 mole% of n+m+x, and wherein n+m+x = from 10 to 1000.

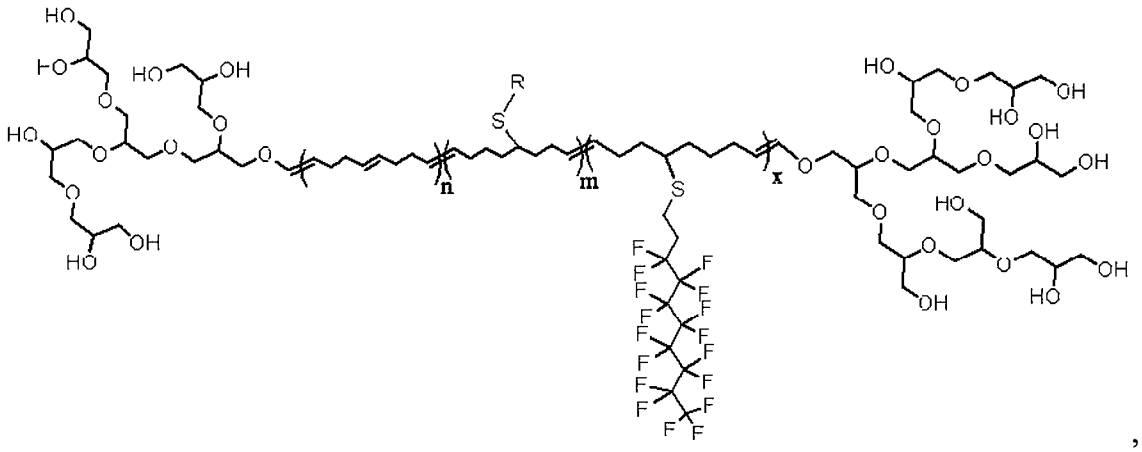
10. The composite hydrophilic porous membrane of claim 9, wherein R is selected from carboxy alkyl, sulfonic alkyl, and hydroxyalkyl groups.

11. The composite hydrophilic porous membrane of any one of claims 1-10, wherein the crosslinking agent is a bithiol or a multithiol.

12. The composite hydrophilic porous membrane of any one of claims 9-11, wherein the telechelic polymer is of the formula:



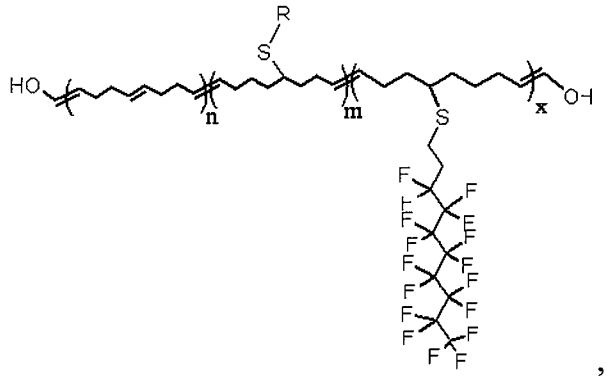
or



,

wherein x and m are individually up to 35 mole% of n+m+x, and wherein n+m+x = from 10 to 1000.

13. The composite hydrophilic porous membrane of any one of claims 1-12, wherein the photoinitiator is selected from camphor quinone, benzophenone, benzophenone derivatives, acetophenone, acetophenone derivatives, phosphine oxides and derivatives, benzoin alkyl ethers benzil ketals, phenylglyoxalic esters and derivatives thereof, dimeric



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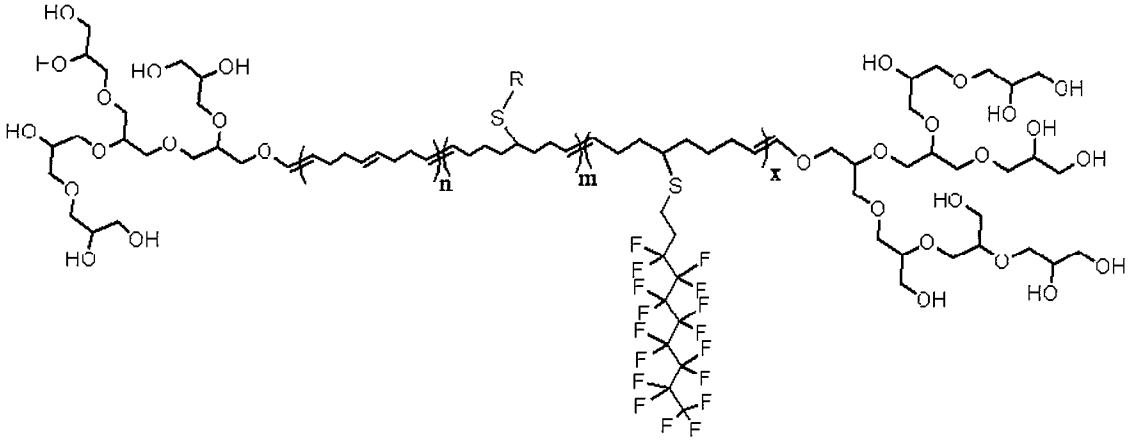

wherein P is a group capable of initiating polymerization and R is a hydrophilic group; x and m are individually up to 35 mole% of n+m+x, and wherein n+m+x = from 10 to 1000;

(iii) drying the coated fluoropolymer support from (ii) to remove at least some of the solvent from the coating; and

(iv) crosslinking the telechelic polymer present in the coating.

17. A hydrophilically modified fluoropolymer porous membrane produced by the method of claim 16.

18. A method of filtering a fluid, the method comprising passing the fluid through the composite hydrophilic porous membrane of any one of claims 1-15 or the hydrophilically modified fluoropolymer porous membrane claim 17.