CLAIM(S):

1. A porous membrane comprising a porous support and a coating comprising a fluoropolymer, said fluoropolymer comprising polymerized monomeric units of the formula

$$A\text{-}X\text{-}CH_2\text{-}B,$$

wherein A is C_6F_{13}-$(CH_2)_2$, X is S, and B is vinylphenyl, and the fluoropolymer has a weight average molecular weight (Mw) of at least 100 Kd and a glass transition temperature of at least 33 °C;

wherein the porous membrane has a CWST (critical wetting surface tension) of 15 to 23 dynes/cm.

2. The porous membrane of claim 1, wherein B is meta-vinylphenyl, para-vinylphenyl, or a mixture thereof.

3. The porous membrane of claim 1 or 2, wherein the monomeric unit is meta-[perfluorohexylethylenethiomethyl] styrene, para-[perfluorohexylethylenethiomethyl] styrene, or a mixture thereof.

4. The porous membrane of any one of claims 1-3, wherein the fluoropolymer has a an Mw of at least 200 Kd.

5. The porous membrane of any one of claims 1-4, wherein the fluoropolymer has an Mw of 400 to 1300 Kd.

6. The porous membrane of any one of claims 1-5, wherein the fluoropolymer has an Mw of 1100 to 1300 Kd.

7. The porous membrane of any one of claims 1-6, wherein the porous support is a porous polymeric support.

8. The porous membrane of claim 7, wherein the porous polymeric support is selected from PVC/PAN, polysulfone, polyamide, cellulose, polyester, polyethersulfone, polyolefin, PET, PPS, PPSU (polyphenyl sulfone), PTFE, PVDF, PVF (polyvinyl fluoride), PCTFE (polychlorotrifluoroethylene), FEP (fluorinated ethylene-propylene), ETFE (polyethylenetetrafluoroethylene), ECTFE (poly ethylenechlorotrifluoroethylene), PFPE

(perfluoropolyether), PFSA (perfluorosulfonic acid), perfluoropolyoxetane, polyimide, polyether imide, polycarbonate, and polystyrene.

9. A method of preparing a porous membrane according to any one of claims 1-8, the method comprising:

(i) dissolving the fluoropolymer in a solvent or mixture of solvents to obtain a solution comprising the fluoropolymer;

(ii) coating the solution from (i) on the porous support; and

(iii) evaporating the solvent or mixture of solvents from the coating to obtain the porous membrane.

10. The method of claim 9, wherein the solvent or mixture of solvents comprises a halogenated solvent, optionally in combination with an alcohol.

11. The method of claim 9 or 10, wherein the solvent or mixture of solvents is selected from methoxy nona-fluorobutane, methoxy nona-fluorobutane, chloroform, dichloromethane, 1,2-dichloroethane; 1,1,2-trichloro-1,2,2-trifluoroethane, 1,1,1,2,2-pentafluoro-3,3-dichloropropane, optionally in combination with isopropanol and/or 1,1,1,3,3,3-hexafluoro-2-propanol.

12. A method of filtering a fluid, the method comprising passing the fluid through the porous membrane of any one of claims 1-8.

13. The method of claim 12, wherein a gas present in the fluid is removed from the fluid.