CLAIM(S):

1. A method of hydrophilizing a porous PTFE membrane, the method comprising

(a) fully immersing a porous PTFE membrane in a liquid selected from the group consisting of water, alcohols, hydrogen peroxide, sodium sulfite, ammonium sulfite, ammonium sulfate, sodium aluminate, copper sulfate, boric acid, hydrochloric acid, and nitric acid, and impregnating pores of the membrane with the liquid, and exposing the membrane to broadband UV while the pores of the membrane are impregnated with the liquid to precondition the membrane; and,

(b) treating the preconditioned membrane to provide a hydrophilic coating including:

(i) exposing the membrane to polystyrene sulfonic acid (PSSA) or styrene sulfonic acid (SSA) monomer solution, and providing a hydrophilic PSSA or hydrophilic SSA polymer coating; or

(ii) exposing the membrane to dopamine, and providing a hydrophilic dopamine coating; and,

(c) obtaining a hydrophilized porous PTFE membrane.

2. The method of claim 1, wherein (a) comprises exposing the membrane to plasma for at least 15 minutes.

3. The method of claim 1 or 2, wherein (b) includes grafting.

4. The method of any one of claims 1-3, including exposing the preconditioned membrane to an initiator before grafting.

5. The method of any one of claims 1-4, wherein (b) includes thermal grafting.

6. The method of any one of claims 1-5, further comprising washing the membrane after providing the hydrophilic coating.

7. The method of claim 6, wherein washing the membrane comprises isopropyl alcohol (IPA) washing.

8. The method of any one of claims 1-7, further comprising drying the hydrophilized PTFE membrane.

9. The method of any one of claims 1-8, wherein the hydrophilized porous PTFE membrane has a critical wetting surface tension (CWST) of at least about 75 dynes/cm (about 75 x 10^{-5} N/cm).

10. A hydrophilized porous PTFE membrane prepared by the method of any one of claims 1-9.

11. A method for filtering a metal-containing fluid, the method comprising passing a metal-containing fluid through the membrane of claim 10, wherein the membrane has a pore rating of about .02 micrometers to about 1 micrometer, and removing metal from the fluid.

12. The method of claim 11, wherein the metal-containing fluid is a fluid used in the electronics industry.

13. The method of claim 11 or 12, comprising removing polyvalent metals and/or transition metals from the metal-containing fluid.

14. A method for filtering a sulfuric peroxide mixture (SPM) fluid comprising silica-containing particles, the method comprising passing the SPM fluid through the membrane of claim 10, wherein the membrane has a pore rating of about .02 micrometers to about 1 micrometer, and removing the particles from the fluid.

15. The method of claim 14, comprising also removing Group 2 metals, polyvalent metals and/or transition metals from the fluid.