CLAIM(S):

1. A method for filtering a metal-containing fluid, the method comprising passing a metal-containing fluid through a porous PTFE membrane comprising a porous PTFE substrate having a non-crosslinked coating comprising perfluorosulfonic acid (PFSA) polymer, wherein the non-crosslinked coating is prepared by coating the porous PTFE substrate with a PFSA polymer solution having a concentration of PFSA polymer in the range of from about 0.1 to about 3%, and curing the PFSA polymer solution at a temperature of less than about 200 °C, and the membrane has a CWST of about 30 dynes/cm (about 30 x 10^{-5} N/cm) to about 40 dynes/cm (about 40 x 10^{-5} N/cm) and a pore diameter in the range of 1 nm to 100 nm, and removing metal from the fluid.

2. A method for filtering a sulfuric perioxide mixture (SPM) fluid, the method comprising passing the fluid through a porous PTFE membrane comprising a porous PTFE substrate having a non-crosslinked coating comprising perfluorosulfonic acid (PFSA) polymer, wherein the non-crosslinked coating is prepared by coating the porous PTFE substrate with a PFSA polymer solution having a concentration of PFSA polymer in the range of from about 0.1 to about 3%, and curing the PFSA polymer solution at a temperature of less than about 200 °C, and the membrane has a CWST of about 30 dynes/cm (about 30 x 10^{-5} N/cm) to about 40 dynes/cm (about 40 x 10^{-5} N/cm) and a pore diameter in the range of 1 nm to 100 nm, and removing particles from the fluid.

3. The method of claim 1 or 2, wherein the fluid is a fluid used in the electronics industry.

4. The method of any one of claims 1-3, comprising removing Group 2 metals and/or transition metals from the fluid.

5. A porous PTFE membrane comprising a porous PTFE substrate having a non-crosslinked coating comprising perfluorosulfonic acid (PFSA) polymer, wherein the non-crosslinked coating is prepared by coating the porous PTFE substrate with a PFSA polymer solution having a concentration of PFSA polymer in the range of from about 0.1 to about 3%, and curing the PFSA polymer solution at a temperature of less than about 200 °C,

and the membrane has a CWST of about 30 dynes/cm (about 30 x 10^{-5} N/cm) to about 40 dynes/cm (about 40 x 10^{-5} N/cm) and a pore diameter in the range of 1 nm to 100 nm.

6. A method of making a metal-removing membrane, the method comprising coating a porous PTFE substrate having a pore diameter in the range of 1 nm to 100 nm with a coating comprising perfluorosulfonic acid (PFSA) polymer solution having a concentration of PFSA polymer in the range of from about 0.1 to about 3%; and, curing the PFSA polymer solution at a temperature of less than about 200 °C for 10 minutes, and obtaining a membrane with a non-crosslinked coating comprising PFSA polymer and a CWST of about 30 dynes/cm (about 30 x 10^{-5} N/cm) to about 40 dynes/cm (about 40 x 10^{-5} N/cm).