CLAIMS:

1. A porous membrane comprising a porous fluorinated polymeric support and a coating comprising a first copolymer,

the first copolymer comprising polymerized monomeric units A, B, and C, wherein:

A is a halogenated vinyl monomer other than tetrafluoroethylene, a halogenated alkyl vinyl ether, or an alkene of the formula C_nH_{2n}, wherein n is 1-6;

B is a perfluoro (alkyl vinyl)ether compound, a perfluoroalkyl vinyl compound, or a perfluoro alkoxyalkyl vinyl ether compound, each of said compounds having one or more sulfonic acid groups or a salt thereof, one or more sulfonyl fluoride groups, one or more sulfonamide groups, or one or more sulfonate ester groups; and

C is vinylidene fluoride; wherein C is present in the range of up to about 30 mol% of the sum of A, B, and C; and

the first copolymer has an equivalent weight of from about 1200 to about 3000 per sulfonic acid group or a salt thereof, sulfonyl fluoride group, sulfonamide group, or sulfonate ester group.

2. The porous membrane of claim 1, wherein A is selected from chlorotrifluoroethylene, bromotrifluoroethylene, hexafluoropropylene, trifluoroethylene, $H_2C=CHCF_3$, $H_2C=CFCF_3$, $CHF=CHCF_3$, $H_2C=CFCl$, $H_2C=CFBr$, $CF_2=CFOCF_3$, $CF_2=CFOC_3F_7$, $CF_2=CFOC_2H_4C_6F_{13}$, $CH_2=CHOC_2H_4C_6F_{13}$, $CF_2=CFOC_2H_4Br$, ethylene, propylene, and any combination thereof.

3. The porous membrane of claim 1 or 2, wherein A is chlorotrifluoroethylene.

4. The porous membrane of any one of claims 1-3, wherein B is selected from $CF_2=CFOCF_2CF(CF_3)OC_2F_4SO_2F$, $CF_2=CFOCF_2CF(CF_3)OC_2F_4SO_3H$, $CF_2=CFOC_2F_4SO_2F$, $CF_2=CFOC_2F_4SO_3H$, $CF_2=CFC_2F_4SO_2F$, $CF_2=CFC_2F_4SO_3H$, $CF_2=CFOC_4F_8SO_2F$, $CF_2=CFOC_4F_8SO_3H$, and any combination thereof**.**

5. The porous membrane of any one of claims 1-4, wherein B is $CF_2=CFOCF_2CF(CF_3)OC_2F_4SO_3H$.

6. The porous membrane of claim 1, wherein the first copolymer comprising polymerized monomeric units A, B, and C is produced from a second copolymer comprising polymerized monomeric units A, B', and C,

wherein B’ is a perfluoro (alkyl vinyl)ether compound, a perfluoroalkyl vinyl compound, or a perfluoro alkoxyalkyl vinyl ether compound, each compound having one or more sulfonyl fluoride groups or sulfonate ester groups,

and hydrolyzing the one or more sulfonyl fluoride groups or sulfonate ester groups of said second copolymer with an alkaline solution.

7. The porous membrane of any one of claims 1-6, wherein the first copolymer is a random copolymer or a block copolymer.

8. The porous membrane of any one of claims 1-7, wherein the fluorinated polymeric support is selected from polytetrafluoroethylene, fluorinated ethylene-propylene copolymer (FEP), perfluoroalkoxy vinyl polymer (PFA), polychlorotrifluoroethylene (PCTFE), and any combination thereof.

9. The porous membrane of any one of claims 1-8, wherein the fluorinated polymeric support is polytetrafluoroethylene.

10. A method of preparing a porous membrane comprising a porous fluorinated polymeric support and a coating comprising a first copolymer,

the first copolymer comprising polymerized monomeric units A, B, and C; wherein:

A is a halogenated vinyl monomer other than tetrafluoroethylene, a halogenated alkyl vinyl ether, or an alkene of the formula C_nH_{2n}, wherein n is 1-6;

B is a perfluoro (alkyl vinyl)ether compound, a perfluoroalkyl vinyl compound, or a perfluoro alkoxyalkyl vinyl ether compound, each compound having one or more sulfonic acid groups or a salt thereof, one or more sulfonyl fluoride groups, one or more sulfonamide groups, or one or more sulfonate ester groups, and C is vinylidene fluoride; and

C is present in the range of up to about 30 mol%,

and

the first copolymer has an equivalent weight of from about 1200 to about 3000 per sulfonic acid group; the method comprising:

providing a porous fluorinated polymeric support and

coating the porous fluorinated polymeric support with the first copolymer; and when B is a perfluoro (alkyl vinyl)ether having one or more sulfonyl fluoride groups, hydrolyzing one or more of the sulfonyl fluoride groups with an alkali.

11. A method of filtering a corrosive fluid comprising passing the corrosive fluid through the porous membrane of any one of claims 1-9.

12. The method of claim 11, wherein the corrosive fluid comprises concentrated sulfuric acid.

13. A method of removing ionic materials from a fluid comprising passing the fluid through the porous membrane of any one of claims 1-9.

14. The porous membrane of any one of claims 1-9, wherein A is present in the first copolymer in the range of from about 50 to about 95 mol%, B is present in the first copolymer in the range of about 5 to about 20 mol%, and C is present in the first copolymer in the range of about 5 to about 30 mol%.

15. The method of claim 10, wherein A is present in the first copolymer in the range of from about 50 to about 95 mol% and B is present in the first copolymer in the range of about 5 to about 20 mol%, and C is present in the first copolymer in the range of about 5 to about 30 mol%.