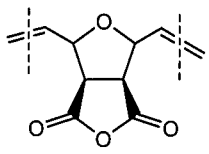
CLAIMS:

1. A composite hydrophilic porous membrane comprising a porous fluoropolymer support and a coating comprising a copolymer, wherein the copolymer comprises repeat units A and B, wherein A is selected from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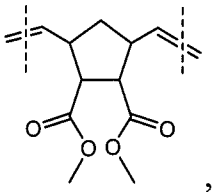
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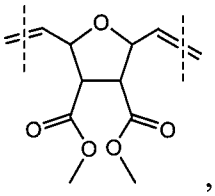
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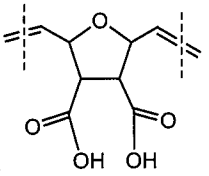
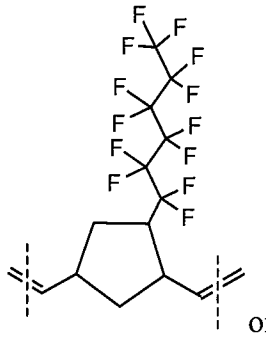


and B is of the formula:

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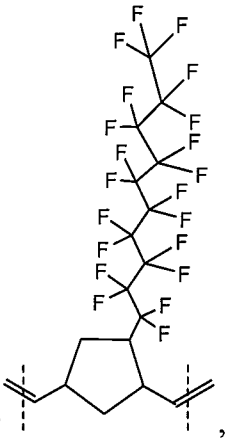

,

wherein:

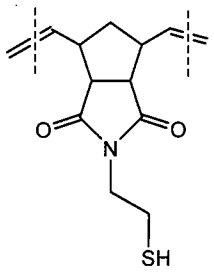
the copolymer is a block copolymer or a random copolymer; and

the number of repeat units of each of B and A are n and m, and range from 1 to about 1000, provided the sum of n and m is equal to or greater than 10,

wherein the copolymer is optionally crosslinked.

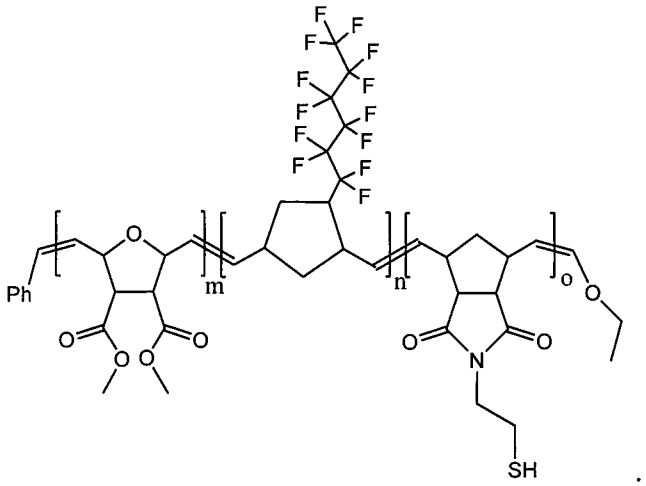
2. The composite hydrophilic porous membrane of claim 1, wherein the copolymer has chain end groups selected from aryl groups and alkoxy groups.

3. The composite hydrophilic porous membrane of claim 1 or 2, wherein the copolymer is of one of the following formulae:

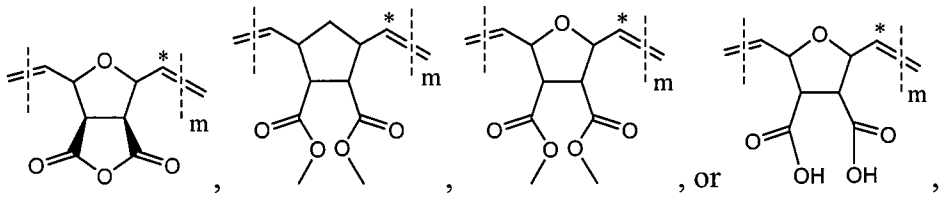


wherein the ratio o/(m+n) is from above 0 to about 0.25, o being the number of repeat units C comprised in the copolymer.

5. The composite hydrophilic porous membrane of claim 4, wherein the copolymer is a random copolymer and is of the formula:



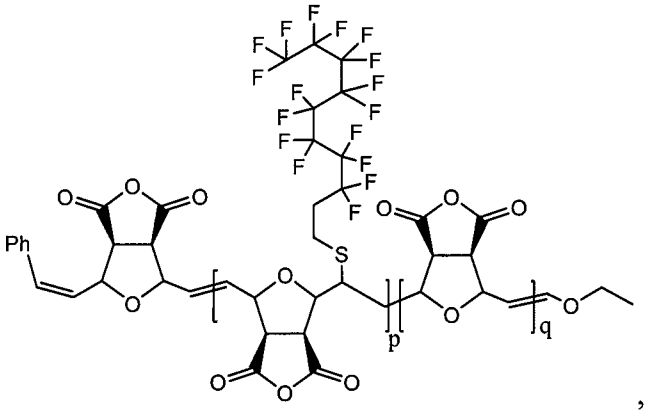
6. A composite hydrophilic porous membrane comprising a porous fluoropolymer support and a coating comprising a polymer having one or more perfluoroalkylthio pendant groups attached to the backbone of the polymer whose repeat unit is of the formula:



wherein * indicates the point of attachment of the perfluoroalkylthio pendant group.

7. The composite hydrophilic porous membrane of claim 6, wherein the polymer has chain end groups selected from aryl groups and alkoxy groups.

8. The composite hydrophilic porous membrane of claim 6 or 7, wherein the polymer is of the formula:



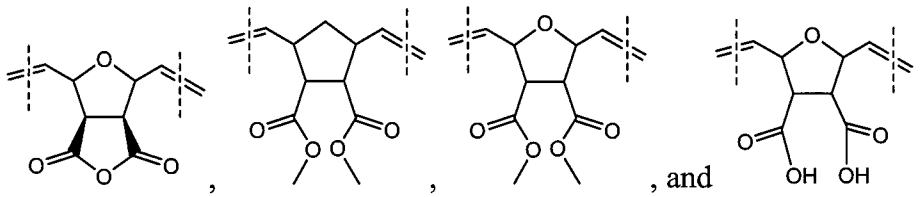
,

wherein p+q = m-1.

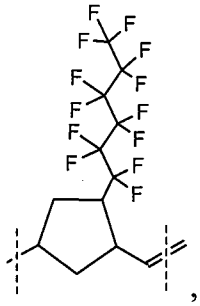
9. A method of hydrophilically modifying a porous fluoropolymer support comprising:

(i) providing a porous fluoropolymer support;

(ii) coating the porous fluoropolymer support with a solution comprising a solvent and copolymer wherein the copolymer comprises repeat units A and B, wherein A is selected from



, and

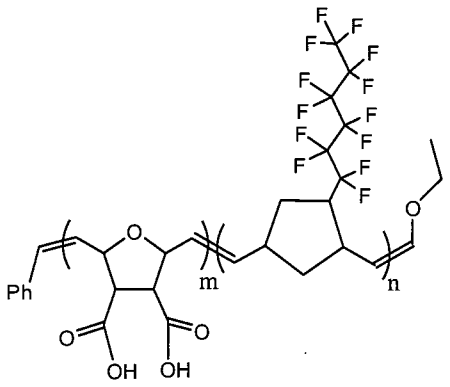


and B is of the formula: ,

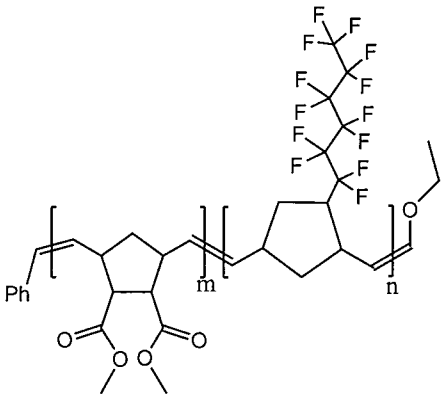
wherein:

the copolymer is a block copolymer or a random copolymer; and

the number of repeat units of each of B and A are n and m, and range from 1 to about 1000, provided the sum of n and m is equal to or greater than 10,

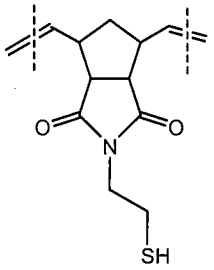


Poly(C2 diacid-b-NPF6)



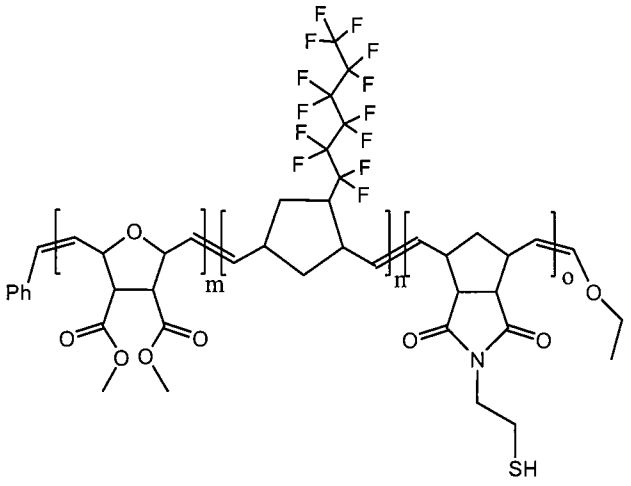
Poly(C3-r-NPF6)

12. The method of any one of claims 9-11, wherein the copolymer further comprises one or more repeat units C of the formula:



wherein the ratio o/(m+n) is from above 0 to about 0.25, o being the number of repeat units C comprised in the copolymer.

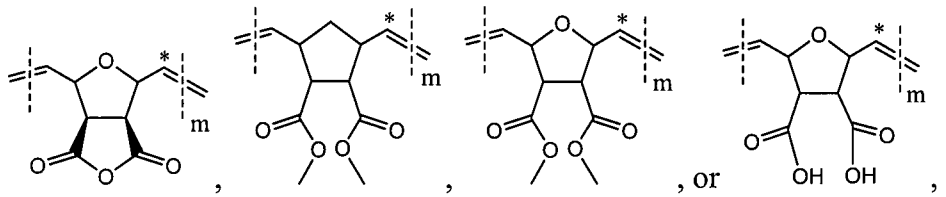
13. The method of claim 12, wherein the copolymer is a random copolymer and is of the formula:



14. A method of hydrophilically modifying a porous fluoropolymer support comprising:

(i) providing a porous fluoropolymer support;

(ii) coating the porous fluoropolymer support with a solution comprising a solvent and a coating comprising a polymer having one or more perfluoroalkylthio pendant groups attached to the backbone of the polymer whose repeat unit is of the formula:



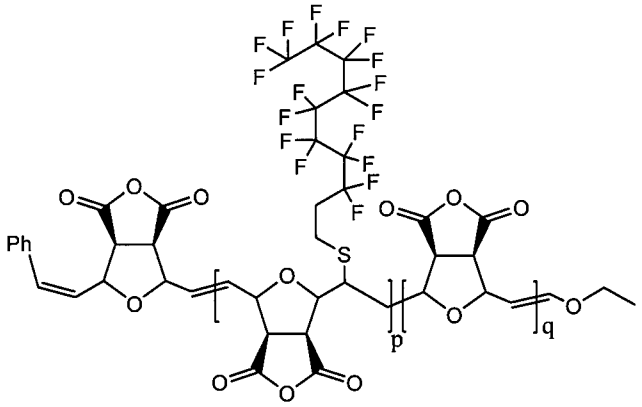
wherein * indicates the point of attachment of the perfluoroalkylthio pendant group;

(iii) drying the coated fluoropolymer support from (ii) to remove at least some of the solvent from the solution comprising the polymer; and optionally

(iv) crosslinking the polymer present in the coated fluoropolymer support.

15. The method of claim 14, wherein the polymer has chain end groups selected from aryl groups and alkoxy groups.

16. The method of claim 14 or 15, wherein the polymer is of the formula:



wherein p+q = m-1.

17. The method of any one of claims 9-16, wherein the crosslinking of the coating is carried by exposing the coating to UV radiation.