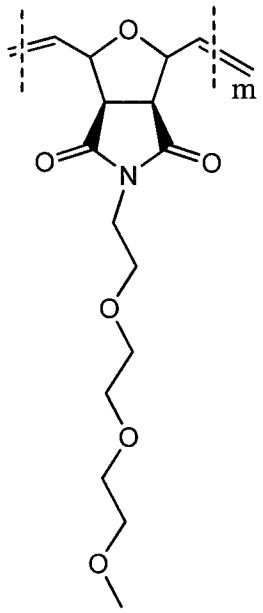
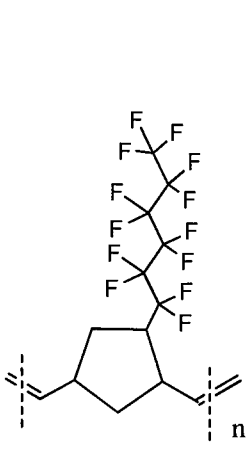
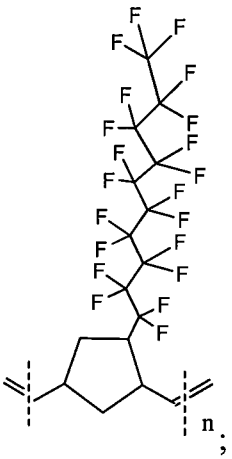
CLAIMS:

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 of the formula:



,

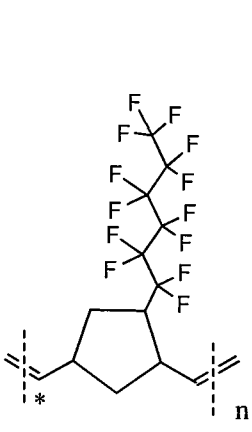
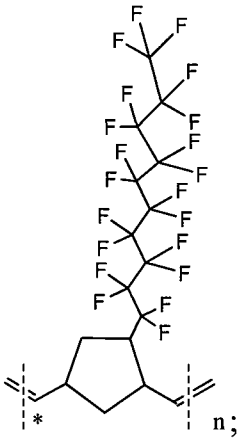
and B is of the formula  or ;

wherein:

the copolymer is a block copolymer or a random copolymer;

n and m, the number of repeat units B and A present in the copolymer, 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.

and B is of the formula:  or ;

wherein:

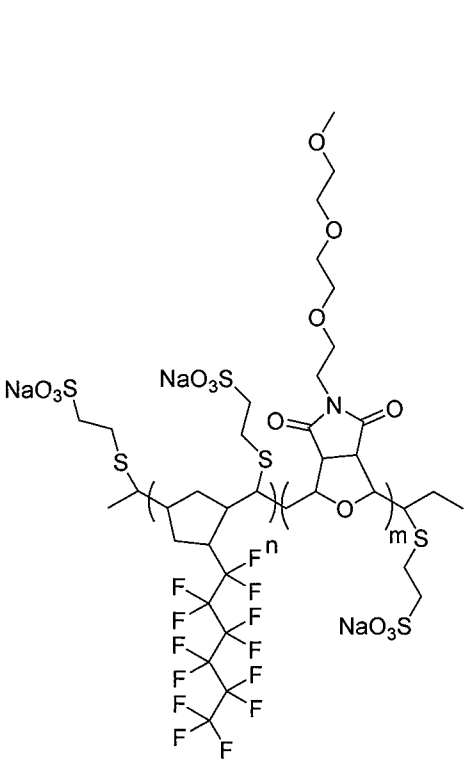
* is the point of attachment of the chelating or ion-exchange functionality;

the copolymer is a block copolymer or a random copolymer;

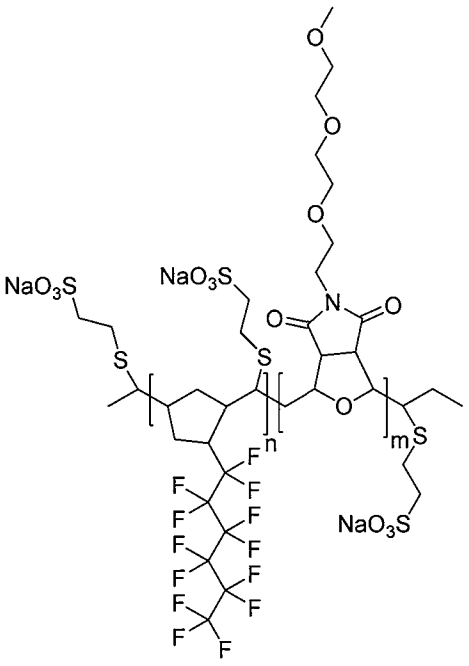
n and m, the number of repeat units B and A present in the copolymer, range from 1 to about 1000, provided the sum of n and m is equal to or greater than 10;

wherein the copolymer is optionally crosslinked.

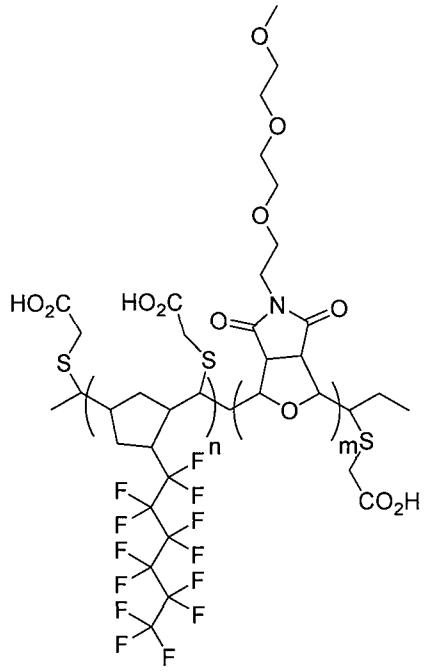
7. The composite hydrophilic porous membrane of claim 6, wherein the copolymer is:



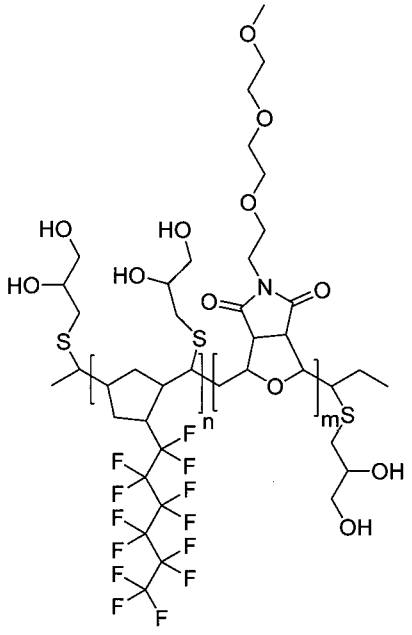
Poly(M8-b-NPF6)-S(CH$_2$)$_2$SO$_3$Na



Poly(M8-r-NPF6)-S(CH$_2$)$_2$SO$_3$Na



Poly(M8-b-NPF6)-S-CH_2COOH , or

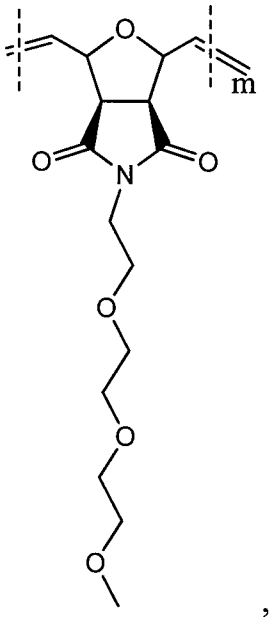


Poly(M8-r-NPF6)-S-$CH_2CH(OH)CH_2OH$.

8. 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 copolymer, wherein the copolymer comprises repeat units A and B, wherein A is of the formula:



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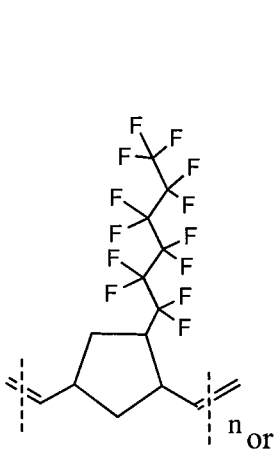
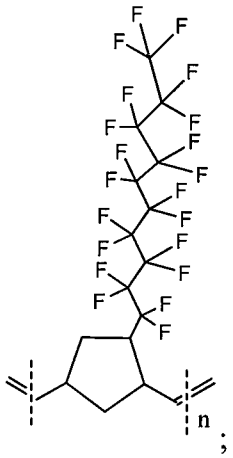
and B is of the formula  or ;

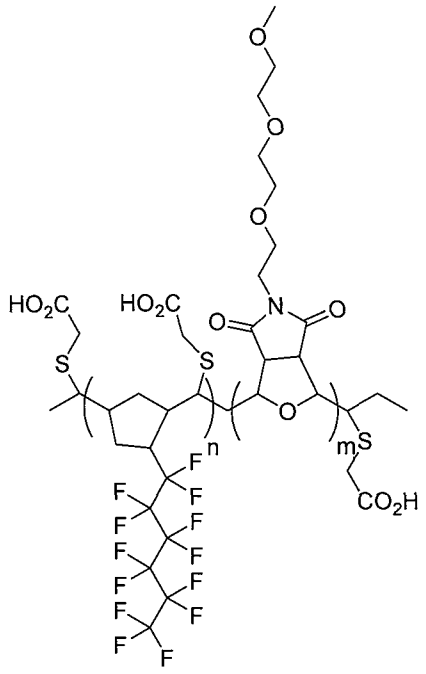
wherein:

the copolymer is a block copolymer or a random copolymer;

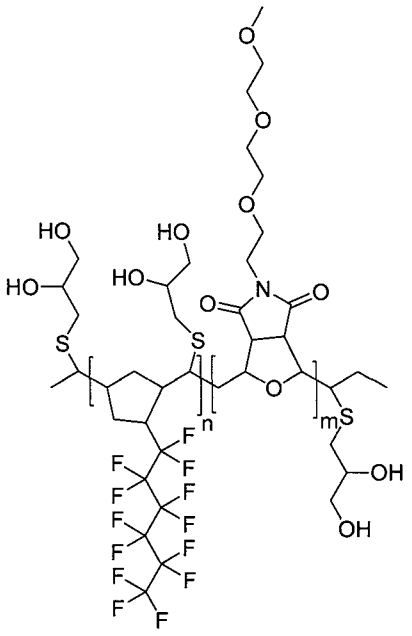
n and m, the number of repeat units B and A present in the copolymer, range from 1 to about 1000, provided the sum of n and m is equal to or greater than 10;

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

(iv) crosslinking said copolymer present in the coated porous fluoropolymer support.



Poly(M8-b-NPF6)-S-CH_2COOH , or



Poly(M8-r-NPF6)-S-$CH_2CH(OH)CH_2OH$.

12. A hydrophilically modified porous fluoropolymer membrane produced by the method of any one of claims 8-11.

13. The composite hydrophilic porous membrane of any one of claims 1-7 or the hydrophilically modified porous fluoropolymer membrane of any one of claims 8-12,