CLAIM(S):

1. A crosslinked porous membrane comprising a cellulosic material and a block copolymer of the formula: A-B-A (I) or A-B (II),

wherein block A is (i) a hydrophilic polymeric segment comprising polyglycerol or poly(allylglycidyl ether); (ii) a copolymer of glycidol and allyl glycidyl ether, the copolymer having one or more allyl groups; or (iii) a copolymer of glycidol and allyl glycidyl ether, wherein one or more of the allyl groups of the copolymer have been replaced with 1,2-dihydroxypropyl group or a group of the formula: $-(CH_2)_a-S-(CH_2)_b-X$, wherein a is 3 and b is 1 to 3, and X is selected from an acidic group, a basic group, a cation, an anion, a zwitterion, halo, hydroxyl, acyl, acyloxy, alkylthio, alkoxy, aldehydo, amido, carbamoyl, ureido, cyano, nitro, epoxy, a group of the formula $-C(H)(COOH)(NH_2)$, and a group of the formula -C(H)(COOH)(NHAc), or a salt thereof; and

block B is an aromatic hydrophobic polymeric segment;

wherein the block copolymer is linked to the cellulosic material to form a crosslinked porous membrane.

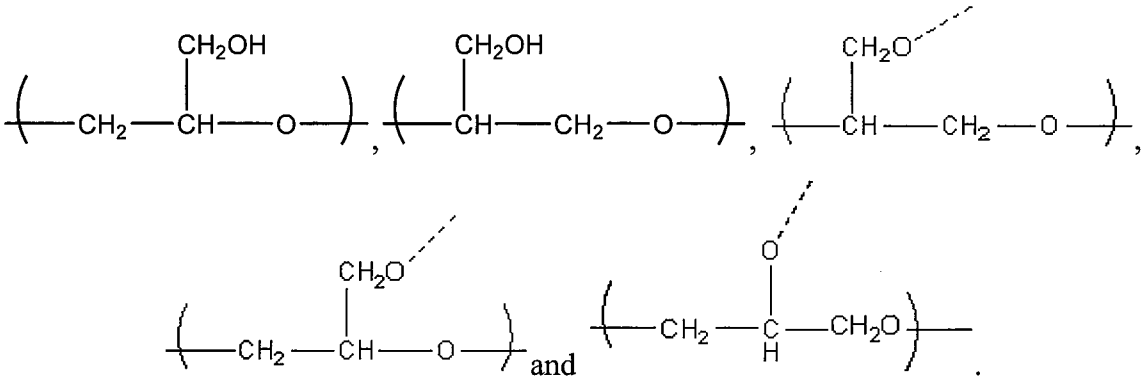
2. The crosslinked porous membrane of claim 1, wherein the cellulosic material is a cellulosic polymer, cellulosic oligomer, or cellulosic monomer.

3. The crosslinked porous membrane of claim 1 or 2, wherein the cellulosic material is a cellulosic polymer selected from cellulose, cellulose ethers, cellulose esters, cellulose amides, cellulose amines, and cellulose carbamates.

4. The crosslinked porous membrane of claim 3, wherein the cellulosic polymer is selected from cellulose, methyl cellulose, ethyl cellulose, propyl cellulose, hydroxyethyl methyl cellulose, hydroxyethyl cellulose, hydroxypropyl cellulose, cellulose acetate, cellulose nitrate, and cyanoethyl cellulose.

5. The crosslinked porous membrane of any one of claims 1-4, wherein the membrane comprises a cellulosic material and a block copolymer of the formula (I) or (II), and block A is a hydrophilic polymeric segment comprising polyglycerol.

6. The crosslinked porous membrane of claim 5, wherein block A is a hydrophilic polymeric segment comprising polyglycerol having a repeat unit of the formula:



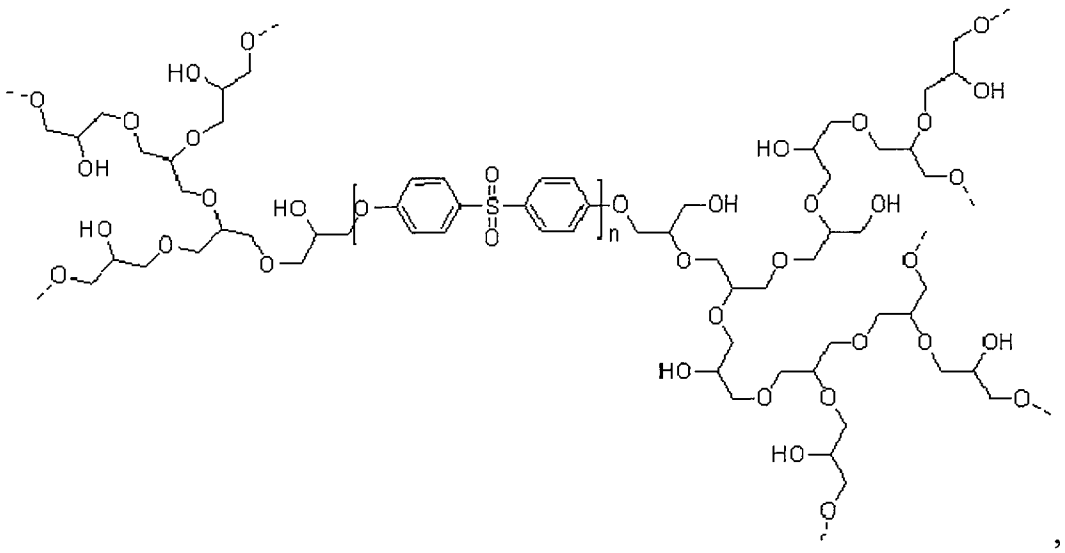
7. The crosslinked porous membrane of any one of claims 1-4, wherein the membrane comprises a block copolymer of the formula (I) or (II), and block A is a copolymer of glycidol and allyl glycidyl ether, the copolymer having one or more allyl groups.

8. The crosslinked porous membrane of any one of claims 1-7, wherein the aromatic hydrophobic polymeric segment is selected from polysulfone, polyethersulfone, polyphenylene ether, polyphenylene oxide, polycarbonate, poly(phthalazinone ether sulfone ketone), polyether ketone, polyether ether ketone, polyether ketone ketone, polyimide, polyetherimide, and polyamide-imide.

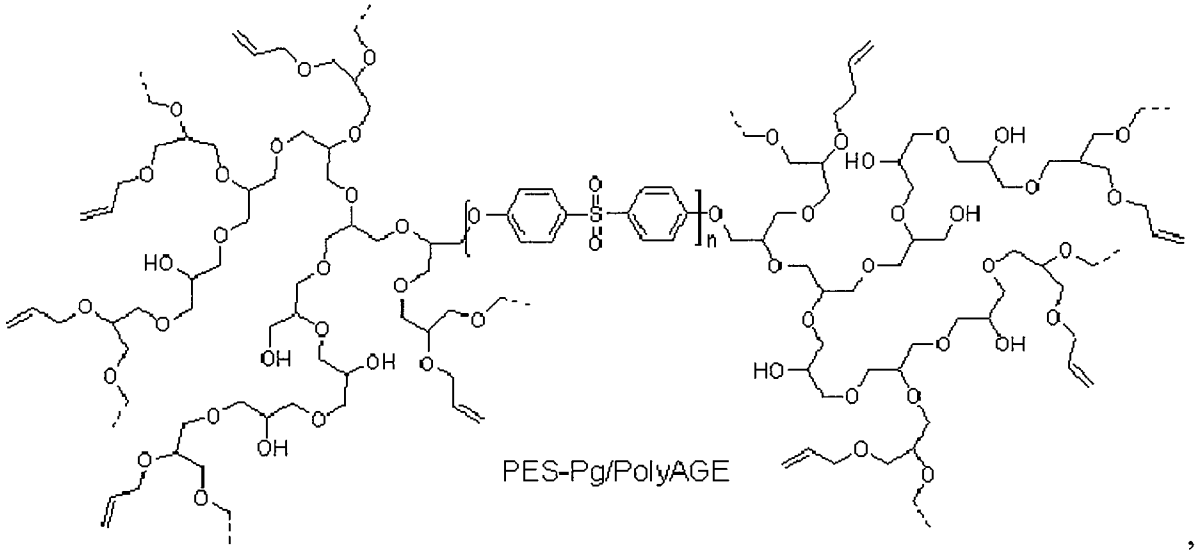
9. The crosslinked porous membrane of claim 8, wherein the aromatic hydrophobic polymeric segment is polyethersulfone.

10. The crosslinked porous membrane of any one of claims 5-9, wherein block A is present in an amount of about 20% to about 50 mol% and block B is present in an amount of about 50% to about 80 mol%.

11. The crosslinked porous membrane of any one of claims 5-10, wherein the copolymer of formula (I) has a structure:



or



wherein n is about 10 to about 1000.

12. A method of preparing a crosslinked porous membrane according to any one of claims 1-11, comprising:

(i) providing a casting solution comprising a solvent, a cellulosic material and a block copolymer of formula (I) or (II);

(ii) casting the casting solution as a thin film;

(iii) subjecting the thin film to phase inversion to obtain an uncrosslinked porous membrane;

(iv) increasing the number of hydroxyl groups on the cellulosic material present in the uncrosslinked porous membrane if the cellulosic material is a cellulose derivative; and

(iv) crosslinking the uncrosslinked porous membrane.

13. The method of claim 12, wherein the cellulosic material is cellulose acetate.

14. The method of claim 13, wherein the number of hydroxyl groups on the cellulose acetate is increased by reaction with an alkali.

15. The method of any one of claims 12-14, wherein the crosslinking is effected by reaction with a crosslinking agent selected from epichlorohydrin, a polycarboxylic acid, and a cyclic brominium intermediate or by exposure to a radiation, e-beam, or a polyfunctional vinyl or acrylic crosslinking agent.