WHAT IS CLAIMED:

1. A multizone, unsupported, microporous, high throughput filtration membrane having a bubble point (in psi) of from 15 to 50 and a breaking strain of at least 20%, comprising:

a first microporous zone which is symmetric or asymmetric;

a second microporous zone which is symmetric or asymmetric; and

a third microporous zone which is asymmetric, wherein the third microporous zone is positioned between the first and second microporous zones with the first, second, and third microporous zones being integral with one another and wherein the membrane has a throughput (in L/m^2), when measured using whey broth, which is greater than -11.65x + 1088.5, where x is the bubble point (in psi), or a throughput, when using EMD Soy broth, which is greater than -20.23x + 1369.4, where x is the bubble point (in psi).

2. A unsupported, microporous, high throughput filtration membrane with a breaking strain of at least 20%, and having a bubble point (in psi) of from 15 to 50, wherein the membrane has a throughput (in L/m^2), when measured using whey broth, which is greater than -11.65x + 1088.5, where x is the bubble point (in psi), or a throughput, when using EMD Soy broth, which is greater than -20.23x + 1369.4, where x is the bubble point (in psi).

3. The membrane of claim 2, wherein the membrane comprises:

a first microporous zone;

a second microporous zone; and

a third microporous zone, wherein the third microporous zone is positioned between the first and second microporous zones with the first, second, and third microporous zones being integral with one another.

4. A process of forming a multizoned, microporous, high throughput filtration membrane, with a breaking strain of at least 20%, comprising:

providing solutions of a polymer and a solvent for said polymer;

simultaneously or sequentially casting the solutions as 3 separate zones onto a support to form a multizone liquid sheet;

effecting a phase separation of the 3 separate zones of solutions; and

separating the multizone, microporous, high throughput filtration membrane from the support, wherein the membrane comprises:

a first microporous zone which is symmetric or asymmetric;

a second microporous zone which is symmetric or asymmetric; and

a third microporous zone which is asymmetric, wherein the third microporous zone is positioned between the first and second microporous zones with the

first, second, and third microporous zones being integral with one another, and wherein the membrane has a throughput (in L/m^2), when measured using whey broth, which is greater than -11.65x + 1088.5, where x is the bubble point (in psi) or a throughput, when using EMD Soy broth, which is greater than -20.23x + 1369.4, where x is the bubble point (in psi)

5. The membrane according to claim 1 or claim 3, or the process of claim 4, wherein the first microporous zone is 5-140 µm thick, the second microporous zone is 10-140 µm thick, and the third microporous zone is 50-140 µm thick.

6. The membrane according to claim 1 or claim 2, or the process of claim 4, wherein the membrane has a total thickness of 65-300 µm.

7. The membrane according to claim 1 or claim 2, or the process of claim 4, wherein the membrane has a throughput (in L/m^2), when measured using whey broth, which is greater than -11.65x + 1188.5, preferably greater than -11.65x + 1288.5 where x is the bubble point (in psi), or a throughput (in L/m^2), when measured using EMD Soy broth, which is greater than -20.23x + 1469.4, preferably greater than -20.23x + 1569.4 where x is the bubble point (in psi).

8. The membrane according to claim 1 or claim 2, or the process of claim 4, wherein the membrane has a breaking strain of at least 25%, preferably at least 30%.

9. The membrane according to claim 1 or claim 3, or the process of claim 4, wherein the first, second, and third microporous zones comprise one or more polymers independently selected from the group consisting of PVDF, polyamides, polyimides, polyether sulphones, polysulphones, polyaryl sulphones, PVC, PET, polycarbonates, cellulose, regenerated cellulose, cellulose esters, polystyrenes, polyetherimides, acrylic polymers, methacrylic polymers, and copolymers of acrylic or methacrylic polymers.

10. The membrane according to claim 1 or claim 3, or the process of claim 4, wherein the first, second, and/or third microporous zones are hydrophilic.

11. The membrane of claim 10, or the process of claim 4, wherein the first, second, and/or third microporous zones comprise a hydrophilic polymer independently selected from the group consisting of polyacrylic acid, polyvinylalcohol, polyvinylacetate, polyvinylpyrrolidone, polyethyleneglycol, polyvinylpyridine, polyethyleneimine, and

polyoxazoline, preferably wherein the hydrophilic polymer comprises poly (2-ethyl-2-oxazoline).

12. The membrane of claim 1 or claim 3, or the process of claim 4, wherein the first, second, and/or third microporous zones independently comprise polyether sulfone, and poly (2-ethyl-2-oxazoline).

13. The membrane of claim 1 or 2, wherein the membrane is capable of being pleated without degradation of membrane retentive performance.

14. The membrane of claim 1 or claim 2, or the process of claim 4, wherein the membrane is pleated.

15. The membrane of claim 1 or claim 2 further comprising:
a hydrophilic coating over the membrane.

16. A multizone, unsupported, microporous, high throughput filtration membrane comprising:
a membrane having a first microporous zone which is symmetric or asymmetric;
a second microporous zone which is symmetric or asymmetric; and
a third microporous zone which is asymmetric, wherein the third microporous zone is positioned between the first and second microporous zones with the first, second, and third microporous zones being integral with one another and wherein the first, second, and/or third microporous zones comprise a blend of a first polymer selected from the group consisting of PVDF, polyamides, polyimides, polyether sulphones, polysulphones, polyaryl sulphones, PVC, PET, polycarbonates, cellulose, regenerated cellulose, cellulose esters, polystyrenes, polyetherimides, acrylic polymers, methacrylic polymers, and copolymers of acrylic or methacrylic polymers, and a second polymer wherein the second polymer is selected from one or more hydrophilic polymers from the group polyacrylic acid, polyvinylalcohol, polyvinylacetate, polyvinylpyrrolidone, polyethyleneglycol, polyvinylpyridine, polyethyleneimine, and a polyoxazoline and wherein the membrane has a breaking strain of at least 20%, and has a throughput (in L/m^2), when measured using whey broth, which is greater than -11.65x + 1088.5, where x is the bubble point (in psi), or a throughput, when using EMD Soy broth, which is greater than -20.23x + 1369.4, where x is the bubble point (in psi).

17. A filtration cartridge comprising:
a housing;

a pleated membrane positioned within the housing, wherein the membrane comprises:

a first microporous zone which is symmetric or asymmetric;

a second microporous zone which is symmetric or asymmetric; and

a third microporous zone which is asymmetric, wherein the third microporous zone is positioned between the first and second microporous zones with the first, second, and third microporous zones being integral with one another, wherein the first, second, and/or third microporous zones comprise a blend of a first polymer selected from the group consisting of PVDF, polyamides, polyimides, polyether sulphones, polysulphones, polyaryl sulphones, PVC, PET, polycarbonates, cellulose, regenerated cellulose, cellulose esters, polystyrenes, polyetherimides, acrylic polymers, methacrylic polymers, and copolymers of acrylic or methacrylic polymers, and a second polymer wherein the second polymer is selected from one or more hydrophilic polymers from the group consisting of polyacrylic acid, polyvinylalcohol, polyvinylacetate, polyvinylpyrrolidone, polyethyleneglycol, polyvinylpyridine, polyethyleneimine, and polyoxazoline, wherein the membrane has a breaking strain of at least 20%, and has a throughput (in L/m^2), when measured using whey broth, which is greater than -11.65x + 1088.5, where x is the bubble point (in psi) or a throughput, when using EMD Soy broth, which is greater than -20.23x + 1369.4, where x is the bubble point (in psi); and wherein the housing contains greater than $0.11m^2$ of effective membrane area per inch of housing height, preferably wherein the housing contains greater than 0.11 m^2 of effective membrane area per inch of housing height.

18. The membrane according to claim 11, the membrane of claim 16, or the process of claim 4, wherein the hydrophilic polymer is cross-linked, preferably wherein the hydrophilic polymer is cross-linked by electron beam, preferably wherein the hydrophilic polymer is cross-linked by electron beam with a dose of from 20 to 150 kGy.

19. A filtration cartridge comprising:

a housing; and

the membrane of claim 1 positioned within the housing, preferably wherein the membrane is as defined in any one of claims 4, or 6-14, when claims 6-14 are dependent on claim 1.

20. The membrane of claim 16, wherein the first polymer is PES and the second polymer is poly(2-ethyl-2-oxazoline).