## Claims

What is claimed is:

1. A composite membrane comprising:

a first porous polymeric layer having a first bubble point; and

a second porous polymeric layer having a second bubble point and laminated with the first porous polymeric layer,

wherein the composite membrane is free of an adhesive, the first bubble point is greater than the second bubble point, and the composite membrane has a bubble point that is greater than or equal to 90 % of the first bubble point of the first porous polymeric layer.

2. The composite membrane of claim 1, wherein the first porous polymeric layer has a thickness of less than 20 µm.

3. The composite membrane of claim 2, wherein the first porous polymeric layer is a stretched polyethylene layer.

4. The composite membrane of claim 1, wherein the second porous polymeric layer is a polyolefin layer having a thickness of from about 50 µm to about 200 µm.

5. The composite membrane of claim 4, wherein the polyolefin layer is an ultra-high molecular weight polyethylene (UHMWPE) layer.

6. A composite membrane, comprising:

a first region comprising a first porous polymer and having a thickness of less than about 20 µm and

a second region comprising a second porous polymer and having a thickness of from about 50 µm to about 200 µm,

wherein the second porous polymer is different from the first porous polymer,

wherein there is no interlayer region between the first region and the second region, and

wherein the composite membrane has a flow rate that is greater than or equal to 90 % of a flow rate of a non-laminated composite of the first porous polymer and the second porous polymer.

7. The composite membrane of claim 6, wherein the first region, the second region, or both the first region and the second region comprise a porous compression region.

8. A method of forming a composite membrane comprising:

i) providing a first porous polymeric layer and a second porous polymeric layer in a laminator;

ii) heating the first porous polymeric layer and the second porous polymeric layer to a lamination temperature in the laminator; and

iii) laminating the heated first porous polymeric layer and the heated second porous polymeric layer together without an adhesive to form the composite membrane,

wherein the composite membrane has a flow time increase that is less than or equal to 20 % of a flow time of a non-laminated composite of the first porous polymeric layer and the second porous polymeric layer.

9. The method of claim 8, wherein the first porous polymeric layer has a first melting temperature and wherein the first porous polymeric layer is heated to a temperature that is between 5°C and 20°C below the first melting temperature.

10. The method of claim 8, wherein the second porous polymeric layer has a second melting temperature, and wherein the second porous polymeric layer is heated to a temperature that is between 5°C and 20°C below the second melting temperature.

11. A filter comprising the composite membrane of claim 1 or claim 6.