CLAIM(S):

1. A filter for removing undesirable material from ultra pure water comprising:

(a) a microporous cationically charged membrane having an upstream surface and a downstream surface, and a pore size in the range of 50 nm to 100 nm; and

(b) a porous asymmetric membrane having a critical wetting surface tension of 50 dynes/cm to 60 dynes/cm and a first surface and an upstream portion and a downstream portion and a second surface, and a bulk between the first surface and the second surface including the upstream portion and the downstream portion, the porous asymmetric membrane having decreasing pore sizes in a direction from the first surface and the upstream portion to the downstream portion and the second surface, the second surface comprising a skin having a nanoporous average pore size of 3 nanometers or less, wherein the first surface of the porous asymmetric membrane contacts the downstream surface of the microporous cationically charged membrane.

2. The filter of claim 1, wherein the porous asymmetric membrane has pore sizes having an average diameter of from 5 times to 100 times the diameter of the nanoporous average pore size in the skin.

3. The filter of claim 1 or 2, wherein the porous asymmetric membrane comprises a sulfone membrane.

4. The filter of claim 3, wherein the sulfone membrane comprises a polyarylsulfone membrane or a polyethersulfone membrane or a polysulfone membrane.

5. The filter of any one of claims 1-4, having a colloidal silica log retention value (LRV) of particles having a mean diameter size in the range of from 10 nm to 12 nm of at least log 2 (99%).

6. The filter of any one of claims 1-5, further comprising an upstream support and/or drainage medium contacting the upstream surface of the microporous cationically charged membrane, and a downstream support and/or drainage medium contacting the downstream portion of the porous asymmetric membrane.

7. The filter of any one of claims 1-6, comprising a hollow cylindrical filter.

8. The filter of claim 7, comprising a pleated filter.

9. A filter device, comprising the filter of any one of claims 1-8 arranged in a housing having an outer cage and an inner core.

10. A method of filtering ultra pure water, the method comprising:

passing ultra pure water through a filter comprising

(a) a microporous cationically charged membrane having an upstream surface and a downstream surface, and a pore size in the range of 50 nm to 100 nm; and

(b) a porous asymmetric membrane having a critical wetting surface tension of 50 dynes/cm to 60 dynes/cm and a first surface and an upstream portion and a downstream portion and a second surface, and a bulk between the first surface and the second surface including the upstream portion and the downstream portion, the porous asymmetric membrane having decreasing pore sizes in a direction from the first surface and the upstream portion to the downstream portion and the second surface, the second surface comprising a skin having a nanoporous average pore size of 3 nanometers or less, wherein the first surface of the porous asymmetric membrane contacts the downstream surface of the microporous cationically charged membrane, the method including passing the ultra pure water through the microporous cationically charged membrane before passing the ultra pure water through the porous asymmetric membrane.