What is claimed is:

1. A single-use membrane-based separations device, comprising a first fluid impervious polymeric film segment having apertures and having a first membrane sealed thereto, said first fluid impervious polymeric film having a first leading edge and a first trailing edge; and a second fluid impervious polymeric film segment having apertures and having a second membrane sealed thereto, said second fluid impervious polymeric film having a second leading edge and a second trailing edge; wherein said first and second fluid impervious polymeric film segments form a zig-zag configuration, and wherein fluid introduced into said device flows through said first and second membranes in parallel; characterized in that said first trailing edge of said first fluid impervious polymeric film segment is joined to said second leading edge of said second fluid impervious polymeric film segment by epoxy, heat sealing or chemical bonding.

2. The membrane-based separations device of claim 1, further comprising a third fluid impervious polymeric film segment having a third membrane sealed thereto, said third fluid impervious polymeric segment having a third leading edge and a third trailing edge, wherein said second trailing edge of said second fluid impervious polymeric

film segment is joined to said third leading edge of said third fluid impervious polymeric film segment.

3. The membrane-based separations device of claim 1, further comprising a housing containing said first and second fluid impervious polymeric film segments, and wherein said first leading edge of said first fluid impervious polymeric film segment is joined to said housing.

4. The membrane-based separations device of claim 1, further comprising a housing containing said first and second fluid impervious polymeric film segments, and wherein said second trailing edge of said second fluid impervious polymeric film segment is joined to said housing.

5. The membrane-based separations device of claim 1, further comprising a pressure management assembly comprising first and second endplates confining said device.

6. The membrane-based separations device of claim 1, further comprising a housing containing said plurality of segments; said housing having a feed port and a retentate port spaced from said feed port.