

CLAIMS

1. A separation membrane element comprising a separation membrane and a permeate spacer,

wherein the separation membrane is either (i) a membrane composed of a separation functional layer, a porous support layer, and a substrate or (ii) a membrane composed of a separation functional layer and a substrate,

wherein ~~a~~said separation functional layer is arranged on the surface of said separation membrane and a nonwoven fabric served as ~~said~~a substrate is arranged on the back surface of said separation membrane,

wherein said permeate spacer is arranged on the back surface side of said substrate,

wherein said permeate spacer is made of a different material from said separation membrane and has a discontinuous structure, wherein said permeate spacer is impregnated into said separation membrane and a projection area ratio of said permeate spacer to said separation membrane is 0.03 to 0.80.

2. The separation membrane element according to claim 1, wherein an impregnation thickness of the permeate spacer into a substrate is in the range of 0.6 μ m or more and 82 μ m or less.

3. The separation membrane element according to claim 1 or 2, wherein said separation membrane has a height difference on the surface of 100 μ m to 2000 μ m.

4. The separation membrane element according to claim 1 or 2, wherein a feed spacer is arranged on the surface of said separation membrane.

5. The separation membrane element according to claim 4, wherein said feed spacer has a continuous structure.

6. The separation membrane element according to claim 4, wherein said feed spacer has a discontinuous structure.

7. The separation membrane element according to any one of claims 1 to 6, wherein said separation membrane is composed of said substrate, a porous support layer formed on the