CLAIMS

1~~2~~. A flat ceramic membrane comprising:

a plate-shaped porous support made of ceramics; and

a filtration membrane formed on an outer surface of the porous support, wherein

inside the porous support, a plurality of water collection passages where filtrate water obtained by permeation of water-to-be-treated through the filtration membrane flows are formed, and a region where a thickness between a membrane surface of the filtration membrane and the water collection passage is different is ensured, and

~~the thickness in a region located in a vicinity of an end portion along a supply direction of air for membrane cleaning is greater than a thickness in a region that is a region other than the vicinity of the end portion.~~the thickness of the flat ceramic membrane at the water collection passage, which is along a supply direction of air for membrane cleaning, in a region located in a vicinity of an end portion is greater than the thickness in a region that is a region other than the vicinity of the end portion.

2~~3~~. The flat ceramic membrane as claimed in claim 1~~2~~, wherein

the water collection passages are arranged at regular intervals.

3~~4~~. The flat ceramic membrane as claimed in claim 1~~2~~ or 2~~3~~, wherein

a cross section of the water collection passage in the region located in the vicinity of the end portion is smaller than a cross section of the water collection passage in the region other than the vicinity of the end portion.

4~~5~~. The flat ceramic membrane as claimed in claim 1~~2~~ or 2~~3~~, wherein

~~the cross section of the water collection passage is smaller from a middle portion of the porous support, which is along the supply direction, as the water collection passage approaches the end portion.~~the cross section of the water collection passage, which is along the supply direction, is smaller from a middle portion of the porous support as the water collection passage approaches the end portion.

5~~6~~. The flat ceramic membrane as claimed in any one of the preceding claims 1~~2~~ to 4~~5~~, wherein

a drain portion for draining the filtrate water supplied from one end openings of the water collection passages is fixed to one end portion of the porous support.