ABSTRACT

SEPARATION MEMBRANE ELEMENTS, SEPARATION MEMBRANE MODULE, AND PROCESS FOR PRODUCING SEPARATION MEMBRANE ELEMENT

The invention offers a separation membrane element that can be produced by a method in which a membrane-sealing portion is formed by, first, immersing end portions of hollow-fiber-shaped porous separation membranes in a resinous liquid and, then, curing the resin, that has a feature in that the membrane-sealing portion is formed of a casting resin and pores of the hollow-fiber-shaped porous separation membranes are filled with a pore-filling resin at the portion at which the membranes are in contact with the membrane-sealing portion, so that the casting resin is strongly bonded with the pore-filling resin, and that has the hollow-fiber-shaped porous separation membranes whose basal portions are flexible, so that breakage of the basal portions and leakage of gas or liquid are less likely to occur when in use; a separation membrane element that has a feature in that in the membrane-sealing portion, at least the surface at a side that is to be in contact with a liquid to be treated is formed of a thermosetting fluororesin, so that the membrane-sealing portion has excellent chemical resistance comparable to that of the conventional membrane-sealing portion formed of a thermoplastic fluororesin; separation membrane modules having these separation membrane elements as constituting elements; and a method of producing the separation membrane element.

Figure 4.