

HOLLOW FIBER MEMBRANE MODULE, FILTRATION OPERATION METHOD,
AND FILTRATION APPARATUS

ABSTRACT

An object of the present invention is to provide a hollow fiber membrane module that is highly stable in terms of removal rate in order to address the problem that a surface of a hollow fiber membrane is abraded due to contact between a liquid to be filtered and the hollow fiber membrane to deteriorate removal performance of the hollow fiber membrane when a high turbidity liquid is filtered. Provided is a hollow fiber membrane module including: at least a tubular case having a first end and a second end in a height direction of a tubular member; a plurality of hollow fiber membranes accommodated between the first end and the second end in the tubular case; a liquid inlet through which a to-be-filtered liquid flows into the tubular case; and a permeate outlet through which a permeate having permeated through the hollow fiber membrane flows out from the tubular case, the liquid inlet being communicated with outer surfaces of the plurality of hollow fiber membranes; and a first potting part which bonds end parts of the plurality of hollow-fiber membranes located on the first end side of the cylindrical case while

letting the end parts be open, wherein when a cross-sectional area in the tubular case is taken as 100% in a cross-section perpendicular to the height direction of the tubular case, a ratio of an area occupied by the plurality of hollow fiber membranes and the hollow parts thereof (hereinafter referred to as a filling rate) is 40 to 80%, and a surface elastic modulus of the outer side of the plurality of hollow fiber membranes is 200 to 500 MPa.

[Fig. 1]