Pemodelan Proses Pemisahan Oksigen Terlarut dari Air melalui Kontaktor Membran Serat Berongga

Sutrasno Kartohardjono, author

Abstrak

Mass transfer coefficient in the membrane contactor is usually presented in terms of mass transfer correlation and as a junction of module geometry and operating conditions. This correlation is important mainly in the design of the hollow fibre membrane contactor. This study aimed to introduce an engineering approach to determine the optimum conditions of sealed end hollow fibre membrane contactors. The pumping and the membrane costs will be the main variables in obtaining the optimal condition in the contactors. The optimum conditions were obtained in two steps firstly to optimize the number of fibers in the module and secondly to optimize module shell or fiber diameter based on minimal total cost per mass-tranferred The total cost is dominated by the membrane cost at higher contactor shell diameter and is dominated by pumping cost at smaller contactor shell diameter. Meanwhile, the optimum contactor shell diameter decrease with increasing the cost of membrane.