

ABSTRAK

Aplikasi pemisahan emulsi minyak dalam air menggunakan membran menunjukkan terjadinya fenomena fouling. Foulant penyebab fouling cenderung bersifat reversibel dan irreversible. Pereduksian foulant dapat dilakukan dengan pencucian kimia. Tujuan penelitian ini adalah mempelajari efisiensi dan efektivitas pencucian dari *agent chemical cleaning* (NaOH, HCl dan HNO₃) untuk foulant emulsi minyak. Operasi pencucian membran UF selulosa asetat sistem aliran *dead end* dilakukan secara *forward*. Pembilasan dilakukan selama 30 menit dengan tekanan 0,5 bar, begitu juga dengan pencucian kimia. Variasi konsentrasi *chemical cleaning agent* adalah 0,1, 05, dan 1 N. Perbandingan emulsi minyak yaitu 5%:95% *di-treatment* selama 60 menit dengan variasi tekanan umpan 0,5; 1 dan 1,5 bar. Hasil penelitian ini menunjukkan, pencucian dengan NaOH 1 N lebih efisien. Efektivitas rata-rata pencucian mencapai 29,82 % setelah dicuci dengan NaOH, 16,40 % menggunakan HCl dan 8,80 % saat menggunakan HNO₃.

Kata Kunci : Pencucian Kimia, Fouling, Membran UF, Emulsi Minyak

ABSTRACT

Application dissociation of oil-water emulsion by using membrane will be shown the happening of fouling phenomenon. This phenomenon be caused by fouling material tend to have the character of irreversible and reversibel. This foulant can be conducted with chemical cleaning. Target of this research is to study efficiency and efectivness at chemical cleaning with cleaning chemical agent (NaOH, HCL and HNO₃) for reduction foulant of oil-water emulsion. The operation has been done by forward and dead-end stream system of Membrane UF acetate cellulose. Flushing to be conducted for 30 minute with pressure 0,5 bar, so also with chemical cleaning agent. Variation concentration of chemical cleaning agent are 0,1, 05, and 1 N. Comparison oil-water emulsion is 5% : 95% which treatment for a long of 60 minute with operating pressure variation of 0,5; 1 and 1,5 bar. The result of this research obtained, that NaOH 1 N more efficient eliminate foulant compared to HCL and HNO₃. Mean cleaning effectiveness is equal 29,82 % after cleaned with tired NaOH but downhill effectiveness till 16,40 % if using HCL and 8,80 % while be used HNO₃.

Key Word : Chemical Cleaning, Fouling, Membrane Ultrafiltration, Oil-Water Emulsion.