Studi kinerja kontaktor membran serat berongga pada proses absorpsi gas C02 menggunakan pelarut diethanolamine (DEA)

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Abstrak

Gas alam hasil eksplorasi mengandung senyawa karbondioksida yang keberadaannya merugikan. Teknologi pemisahan CO2 yang dipakai sekarang ini umumnya menggunakan proses absorpsi melalui kolom konvensional dengan pelarut amina. Sebagai alternatif, teknologi kontaktor membran serat berongga telah dikembangkan untuk proses ini. Penelitian menggunakan membran polipropilen yang bersifat hidrofobik. Evaluasi difokuskan pada studi perpindahan massa dalam proses absorpsi CO2 oleh larutan DEA (Diethanolamine) dengan variasi jumlah serat dan laju alir pelarut. Hasil yang diperoleh menunjukkan peningkatan laju alir akan meningkatkan nilai koefisien perpindahan massa dan fluks CO2. Sementara penambahan jumlah serat akan menurunkan nilai koefisien perpindahan massa dan fluks CO2.
.....Natural gas produced by the exploration contained the carbon dioxide compound that this existence can damage the system. Separation technology CO2 that is worn now generally used the process of the absorption through the conventional column with amine solvent. As the alternative, the hollow fiber membrane contactor technology was developed for this process. The research was carried out by using the membrane polypropilen that was hydrophobic. Evaluation was focused on the study of mass transfer in the CO2 absorption process by the DEA (Diethanolamine) solution with the variation of the amount of fiber and the solvent flow rate. Results that were received showed the increase of solvent flow rate will increase the value of the mass transfer coefficient and flux of CO2. While the increase amount of fiber will reduce the value of the mass transfer coefficient and flux of CO2.