ABSTRACT

Oxygen concentrator is a technology for producing pure oxygen. By using the Pressure Swing Adsorption method, zeolite as the material of the oxygen concentrator will absorb nitrogen in the free air and release oxygen as the output of the oxygen concentrator. This final project aims to determine the effect of the size, mass, and type of zeolite used in the oxygen concentrator on the purity of the oxygen produced. Zeolite will be stored in a closed tube in this study. Experiments will be carried out with the resulting oxygen concentration parameters. The zeolite used is a molecular sieve. The PSA method requires pressure in the tube. Nitrogen will be absorbed by the zeolite and oxygen will flow into the oxygen storage tube. Oxygen purity will be measured with the KE-25 sensor. This PSA method usually contains 90% – 95% pure oxygen which is good for patients who have problems with the respiratory system. The parameter used in this study is the level of purity of oxygen produced by looking at the effect of the type, mass and size of the zeolite used. This research was carried out with variations in mass of 200gr and 800gr, Li-X and 13X zeolites, and sizes of 0.4mm and 1.7mm. The results obtained can show a graph of the comparison of the zeolite to the resulting oxygen concentration. The test results from the mass variation obtained that the mass variation of 800gr had higher purity in all types and sizes of zeolite. Li-X zeolite has the highest purity value compared to 13X and the size of 0.4mm has a higher purity value than the size of 1.7mm.

Keywords: *Zeolite, Preasure Swing Adsorption, Pure Oxygen.*