ABSTRACT

Pandemic shows the need for oxygen with high concentrations is needed by every human being, oxygen with high concentrations is in scarcity during the pandemic. This shows that the distribution of oxygen purification equipment is still very lacking, even only 28% for medical facilities, this causes high concentrations of oxygen to be scarce in the community during the pandemic. The government has even imported oxygen concentrators to meet the public's need for high concentrations of oxygen. This study designed an oxygen concentrator with three sub-systems, namely suction system, PSA system, and monitoring & control system. The suction system consists of a compressor and a water regulator filter, the PSA system consists of two tubes containing a molecular sieve to adsorb nitrogen, and a valve as an inlet for the tube. The monitoring & control sub system consists of a relay that is used to control the valve on the PSA tube, sensors oxygen and pressure sensors for monitoring the device, and a monitor for displaying monitoring results. With a zeolite lithium 800gr at RO housing with using volume is 90,24% Oxygen Concentrator that is made to purify free air with an oxygen purity level of 89% with a pressure on the PSA in the range of 2.5 - 3.6 bar which is controlled by a valve as the inlet and outlet.

Keyword : Oxygen Concentrator, Pressure Swing Adsorption, Oxygen