

## Optimization of Oxygen Plant Parameters Simulating with MATLAB

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**Abstract :** Cryogenic engineering is the fast growing branch of the modern technology. There are various applications of the cryogenic engineering such as liquefaction in gas industries, metal industries, medical science, space technology, and transportation. The low-temperature technology developed superconducting materials which lead to reduce the friction and wear in various components of the systems. The liquid oxygen, hydrogen and helium play vital role in space application. The liquefaction process is produced very low temperature liquid for various application in research and modern application. The air liquefaction system for oxygen plants in gas industries is based on the Claude cycle. The effect of process parameters on the overall system is difficult to be analysed by manual calculations, and this provides the motivation to use process simulators for understanding the steady state and dynamic behaviour of such systems. The parametric study of this system via MATLAB simulations provide useful guidelines for preliminary design of air liquefaction system based on the Claude cycle. Every organization is always trying for reduce the cost and using the optimum performance of the plant for the staying in the competitive market.

**Keywords :** cryogenic, liquefaction, low -temperature, oxygen, claude cycle, optimization, MATLAB

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