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Exergetic Study of a Ammonia Vapor Refrigeration System: Effect of the Compressor Efficiency, Compressor Inlet Pressure and Temperature

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Abstract : This article presents the exergistic analysis of a refrigeration cycle, by means of which it is sought to analyze the behavior of the exergy destroyed by each component of the system, besides the analysis of the exergistic efficiency, the COP and the work carried out by the compressor, by means of the comparison of these results for different adiabatic coefficients of the compressor. The study was conducted for a refrigeration cycle, which is composed of a compressor, condenser, heat exchanger, valve and evaporator. In which the compressor inlet pressure varied between 100kPa and 600kPa. Being in 500 kPa, the value of the pressure where a greater exegetical efficiency and a greater operation coefficient is produced. And in addition, the initial system temperature from 240K to 380K. Being in 350K, the temperature value where there is more exergetic efficiency and less exergy destroyed by the compressor. **Keywords :** Compressor, Exergetic efficiency, Coefficient of operation.

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