

## Critical Analysis of Heat Exchanger Cycle for its Maintainability Using Failure Modes and Effect Analysis and Pareto Analysis

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**Abstract :** The Failure Modes and Effect Analysis (FMEA) is an efficient evaluation technique to identify potential failures in products, processes, and services. FMEA is designed to identify and prioritize failure modes. It proves to be a useful method for identifying and correcting possible failures at its earliest possible level so that one can avoid consequences of poor performance. In this paper, FMEA tool is used in detection of failures of various components of heat exchanger cycle and to identify critical failures of the components which may hamper the system's performance. Further, a detailed Pareto analysis is done to find out the most critical components of the cycle, the causes of its failures, and possible recommended actions. This paper can be used as a checklist which will help in maintainability of the system.

**Keywords :** FMEA, heat exchanger cycle, Ishikawa diagram, pareto analysis, RPN (Risk Priority Number)

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