

Energetic and exergetic analysis of a steam turbine power plant in an existing phosphoric acid factory

Khir Tahar

Energetic and exergetic analysis is performed on a Steam Turbine Power Plant used in a Phosphoric Acid Factory. The power plant is mainly constituted by two steam turbine cycles STGI, STGII and a turbo-blower group Tb-BI. Mass, energy and exergy balances are established on the main compounds of the plant. A numerical code is established using EES software to perform the calculations required for the analysis considering real variation ranges of the operating parameters such as pressure, temperature and mass flow rate. The effects of these parameters on the system performances are investigated. The minimum irreversibility rates are obtained for the condensers (0.5 MW), the deaerators (0.4 MW) and the blower (1.5 MW)

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