

Performance assessment of a biogas powered gas engine in a wastewater treatment plant**Atakan Tantekin and N Filiz Ozdil**

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Energy production from the renewable energy sources is an emerging technology all over the World, especially in the last decades. Biogas production from recycling wastewater is a thriving option to meet the energy demand as well as to prevent environmental pollution. Due to the high content of methane in the biogas, the biogas has a high heating capacity as fuels. This study demonstrates an energy analysis of a gas engine powered by biogas in a wastewater treatment plant (WWTP), located in Turkey. In order to investigate the effect of the biogas on the system performance, the energy efficiency and energy destruction rate for the gas engine are analyzed in the WWTP. The analysis show that the irreversibility occurs in the gas engine is calculated as 2235.66 kW. The second law efficiency of the gas engine is found as 63.12%. As a result, in order to obtain more efficient energy production process, the significant amount of irreversibility occurred in the gas engine must be taken into consideration.

Biography

Atakan Tantekin has completed his BS from Cukurova University and continues MS studies in the Adana Science and Technology University. He works as Research Assistant in the Adana Science Technology University, Mechanical Engineering department. His research areas are focused on the thermodynamics, fluid mechanics and the renewable energy technologies.

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