

Yielding data from a biofuels test project

Unilever Ghana Ltd contracted John Thompson to design, install and commission a biomass boiler to produce steam for their factory in Tema. The boiler plant, designed to burn various biomass fuels, consists of a Europac TU1050 packaged boiler, Triumph chain grate biomass stoker, H-fin economiser, high-efficiency multi-cyclone grit collector, and bag filter.

The boiler was fitted with various enhancements to aid biomass combustion and comply with the Air Emissions Act. These include a chain grate stoker with an extended ignition arch that optimises biomass combustion, a bottom primary air (BPA) fan, a side secondary air (SSA) fan and a combustion air heater. An economiser was fitted to increase the overall boiler efficiency.

Trials on alternative biomass fuels

Palm kernel shells (PKS) have been the primary fuel since

commissioning. Following the optimum performance of the boiler plant, Unilever further requested John Thompson to conduct trials on alternative biomass fuels available in Ghana to diversify their fuel supply chain. These tests offered John Thompson the ideal opportunity to test its products and evaluate their performance in actual operating conditions. Test data from operational plants is critical to validate that the boilers and ancillary equipment offered to clients are the best-engineered solutions.

The testing involved operating the boiler on the most popular biomass fuels available in West Africa, optimising combustion settings and collecting combustion and emissions data. During testing, John Thompson also monitored the fuel storage and feeding system. The data collected gave a better understanding of the equipment's performance under normal operating conditions with different biomass fuels. **ESI**



COMBUSTION TECH

Optimised fibrous biomass combustion for efficient steam generation.



CO-GENERATION

Modular power boiler to produce electrical power and process steam via turbo-alternator.



FUEL TYPE

A wide variety of woody biomass fuels can be used as feedstock.



DESIGN CAPABILITY

Computational Fluid Dynamics (CFD) technology is used to achieve optimum combustion and heat transfer while minimising the risk of erosion.



MODULAR DESIGN

The design is characterised by standard modular units for cost effective transportation and reduced installation period.



TURNKEY SOLUTION

As part of the ACTOM (Pty) Ltd group, John Thompson acts as a turnkey supplier with the ability to deliver a complete power-island.

JOHN THOMPSON

MICROGEN BOILER TECHNOLOGY FOR POWER ISLANDS

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