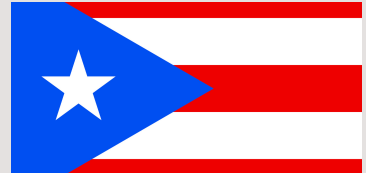


Spirit Manufacturer

Puerto Rico

A Cataño distillery extended their capacity with a newly installed 34-tonne twin furnace steam boiler burner set up for triple-fuel operation (biogas, propane, and blend of both). The solution addressed the challenges of biogas corrosion and adverse weather conditions, while delivering high-efficiency, reduced costs and reliable performance at all times.



THE PROBLEM

- Increase in capacity required
- High fuel costs



THE GOALS

- Production bi-products could not be used as fuel
- Cost reduction due to using biogas and increased efficiency
- Reliability at all times



THE RESULTS

- **Cost reduction by leveraging waste products:** Utilising spent malt as a feedstock for biogas production reduced reliance on traditional fossil fuels and removes waste disposal costs
- **Increased reliability & efficiency:** Innovative burner and control technology delivers vastly improved boiler operation



THE STRATEGY

- **Advanced burner and control technology:** Employing state-of-the-art burner and control technology with precise fuel and air control enabled efficient combustion and low emissions for varying gas qualities – including continuous adjustment of airflow needed for efficient biogas and blended fuel combustion.
- **Dual fuel capability to manage variable biogas supply:** The system was designed to seamlessly switch between biogas, propane or a blend to ensure continuous operation, even when biogas supply is limited or unavailable.
- **Robust system design:** The boiler room was located outside, so the system had to be designed to withstand water and dust ingress, with a specified protection rating of IP65 / NEMA 4X.
- **Material selection:** To withstand the corrosive nature of biogas, high-grade stainless steel components were used where in direct contact with biogas to withstand the impact of hydrogen sulphide (H₂S).
- **Low NO_x Emissions:** The burner design and control system were requested to be uncontrolled on NO_x levels to meet the site requirements and therefore no controls were added to reduce NO_x.



THE EQUIPMENT & STATS

- x2 LCPBIO123 Burners to fire 12.2MW each - Uncontrolled NO_x
- x2 Mk8 Control Panel, triple fuel
- x2 Propane Gas Fuel Control Train
- x2 Biogas Fuel Control Train
- Propane performance - 3% O₂, 0ppm CO, 11.5% CO₂, 85ppm NO_x
- Bio gas performance - 4% O₂, 0ppm CO, 13.7% CO₂, 22ppm NO_x
- Propane/Bio Gas blend - 3.5% O₂, 0ppm CO, 13.9% CO₂, 47ppm NO_x