

850 Kilograms steam saved daily at the Sugar Syrup Section for a confectionery MNC



Thailand



Food

Problem

A confectionery MNC in Bangkok, Thailand was experiencing two scenarios in the sugar syrup section, comprising two tanks:

- 1 Due to a malfunctioning precise temperature control system, the temperature was overshooting up to 95°C (203°F), exceeding the set point of 85°C (203°F), resulting in a 10°C (50°F) deviation. This brought the product temperature to boiling, resulting in vaporisation and overflow of product from the tanks.
- 2 Waterlogged or subcooled condensate was also getting accumulated due to use of float traps, resulting in water hammering.

Additionally, a lack of pressure reduction led to high pressure steam being supplied to the sugar syrup tanks.

Solution

Forbes Marshall conducted an audit and engineered the steam system design for the entire plant. Recommendations were implemented in phases. The following solutions were implemented in the sugar syrup section:

- A PID temperature control valve was installed for effective temperature control and safe operations.
- Float traps were replaced with steam-operated pump traps (SOPT) to evacuate waterlogged and subcooled condensate.
- A vacuum breaker was installed on the jacketed vessel as a safety measure.
- A moisture separator was installed to improve steam quality by removing entrained moisture.



Benefits delivered

Temperature

controlled within +/- 1°C (+/- 33.8°F) of the set point

Steam savings

70 Kilograms (154 Pounds) per batch, totalling 850 Kilograms (1,874 Pounds) per day, for two tanks

Annual monetary savings

USD 4,000 (~THB 128,920 *converted based on exchange rate) for two tanks

