



Steam Infusion Hydrates Maize Flour To Manufacture Drinks



At a Glance

What they wanted to do

- Reduce costs and processing time of maize based nutritional drink
- Increase capacity
- Improve final product quality

What were the success criteria

- Production Time
- Energy Consumption
- Product Flavour Profile
- Product quality from elimination of burn on

What they accomplished

- 15,000ltr of Maheu produced in 1 hour
- Production time reduced by over 50%
- Flexible product characteristics

Customer

Based in Zambia, Trade Kings is the largest FMCG manufacturer of various high quality branded detergents, drinks and confectionery.

With a direction of becoming the market leader in high quality brands at affordable prices. Trade Kings have made no secret of their aim to achieve a high level of excellence in all their operational aspects.

The Zambian Manufacturing sector has experienced tremendous growth since 1990 and Trade King's contribution via numerous subsidiaries is recognized nationally and regionally since its commencement in 1992. With over 1,500 employees the manufacturers have seen consistent organic financial growth since the beginning.

Challenge

Having sold their drinks business to SABMiller in 2009, a subsidiary of Trade Kings, Dairy Gold wished to re-enter the market in 2015 with a new beverage offering. They decided to launch a new brand which would be a highly nutritious maize based drink.

Operating in a highly price sensitive market they recognised the necessity to minimize operational costs and processing time at their new facility.



OAL



OAL Group designed, built and commissioned their new start of the art hydration system in Zambia. Using patented Vaction technology, the Steam Infusion system can hydrate maize flour up to concentrations of 12%, at a rate of 15,000 litres an hour using only one 5,000 litre vessel.

The maize slurry produced is then fermented at 60 degrees Celsius for 2 hours before continuously passing through 2 Steam Infusion Vaction™ units to heat the final product to 90 degrees before filling.

Transformational Process

The first stage compromises of a large batch vessel with recirculation routes and a powder entrainment system.

This system is designed to batch liquid ingredients, entrain 500kg of powders into a 5 tonne batch and heat it up to 80°C in 20 minutes. The recirculation routes consist of two Vaction™ units in parallel that allow for in-line heating and routing of the product to the next stage of processing.

The second phase takes the product from the fermentation stage and brings the product to temperature before final processing and packaging. This stage is completed using a continuous production system via two Vaction units in series.

The control system included is sophisticated to vary operating conditions of the steam infusion technology to provide a consistent product output temperature.

Results

Dairy Gold believe they have lowered maize processing costs due to a significant reduction in capital equipment and energy efficiency.

The ability to increase their maize concentration means they can create a higher quality product.

"We are producing a superior Maheu product as well as a wide variety of other ambient drinks, which are also being exported to many other African countries."

***Winani Chiwowa, Manufacturing Director,
Trade Kings***

Solution

Following trials and new product development with OAL's steam Infusion technology have supplied a semi continuous production system that streamlines the production of the maize based drink. The technology has been implemented in two stages.

OAL

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