Inmec Brix in Beverage Production

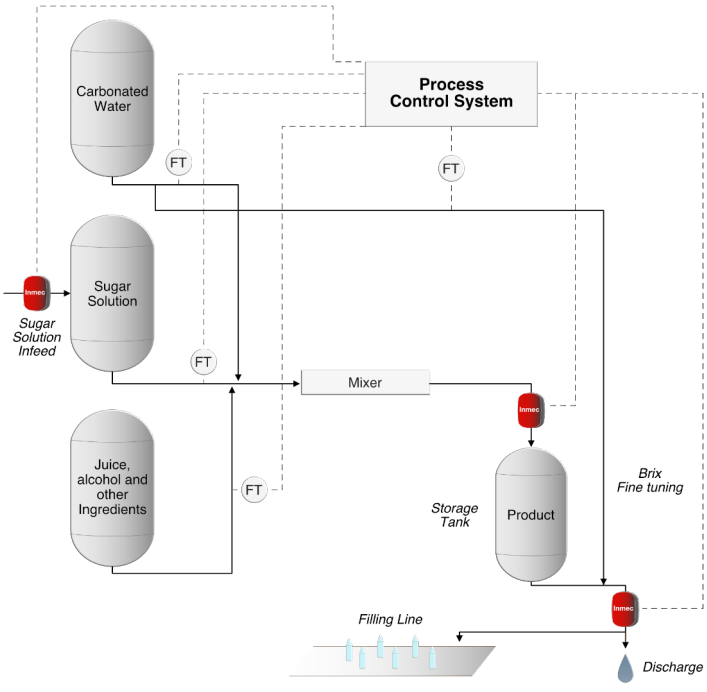
26.2.2024

Brix Measurement And Control

The accurate measurement and control of Brix plays an essential role in enhancing beverage production.

The Inmec Brix Sensors can be widely utilized in the production of different beverages to ensure consistent Brix measurement and control, ensuring high-grade product quality, lowered manufacturing costs due to optimized sugar dosage, and high yield.

Beverage mixing and packaging process



Achieved Benefits

- Consistent product quality
- Raw Material savings
- Improved Yield
- Minimization of environmental impacts
- Faster product changeover
- Increased production efficiency

G2 sensor

Significant raw material savings are achieved through Brix optimization. Reliable Brix control improves yield through accelerated product to product transition, leading to reduced environmental impacts.

Achieving the benefits requires top-notch stability from the measuring device. The measurement data produced by the sensor must remain stable over the long term and withstand the challenges posed by severe process conditions.

Brix measurement can be utilized in various stages of the process for both carbonated and non-carbonated beverages. Accurate dosing of water, sugar, and other ingredients according to the recipe is a critical phase. Similarly, precise Brix adjustment of beverages before the packaging line ensures the desired quality characteristics of the products and economic benefits in production efficiency.

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Inmec Solution in a beverage packaging facility

The Brix sensor is based on Digital Microwave Technology, featuring a 2-inch G2 sensor that is installed into a pipe. The sensor in the image is positioned before the packaging machine and measures the Brix of the products to be packaged.

All Inmec sensors utilize the same measurement principle, providing uncompromising performance in terms of accuracy and stability. An alternative sensor option is also available, which can be installed through the wall of the tank.

G2 sensor at beverage line

Inmec G2 °Bx-Sensor for 2” line

The Brix sensor works as an independent unit, providing Brix measurement for a wide variety of beverage products.

- Precise measurement resolution
- Stable operation without frequent recalibrations
- Applicable for a wide range of beverage processes
- Plug and play functionality

Gateway Unit

- Product-specific settings
- Real-time measurement graph
- Remote services, WiFi and GSM
- Data collection and reporting

Gateway-unit

An optional Gateway unit provides additional and often beneficial features. On the operating screen, the line operator selects the product for processing. Each product has predefined parameters, including considerations for the alcohol content and °Bx level alarm limits.

The Gateway unit not only includes an operating display, but also data collection and remote assistance features. Technical support from the supplier is available remotely whenever needed. Connected to the facility's information system, the Gateway provides product and production batch-specific reporting for tracking purposes.

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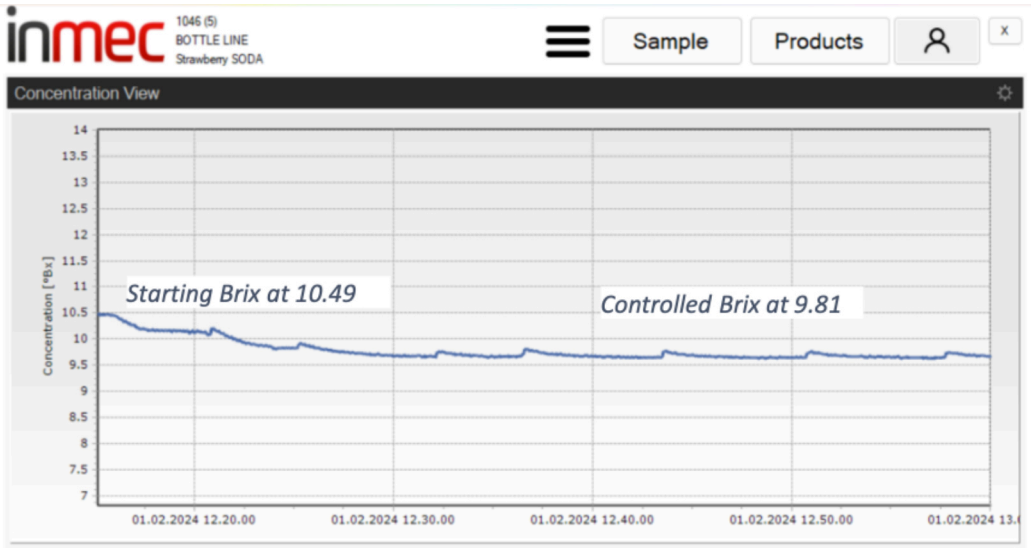
Savings Calculation

The graph illustrates actual measurement situations at the beverage packaging line.

At the starting point the measured Brix level is at 10.5 °Bx,
then the Brix is gradually adjusted to the target level of 9.8 °Bx.

The graph helps to assess **the significant potential for raw material savings**, in this case sugar.



Potential savings:

Annual production: 20 hours/day x 4300 litres/hour x 300 days/year = **25 800 000** litres/year
Start situation: Average Brix level: 10.49 °Bx
Achievable average Brix level: 9,81 °Bx
Line capacity: 4300 litres/hour
Sugar Price: 0,30 USD/kg
Manual run: (Av.10,49 °Bx): Sugar cost/year: 25 800 000 l * 0,1049*0,30 $/kg = **$811 926**
Brix control: (Av. 9,81 °Bx): Sugar cost/year: 25 800 000 l * 0,0981*0,30 $/kg = **$759 294**

Annual savings: $811 926 - $759 294 = *$52 632*