



# Best-practice line for whole bean soya beverages



## Application

For production of whole bean soya beverages.

## Highlights

- A complete proven technical solution for whole bean soya beverages – for higher protein content, 100% bean yield, zero extraction loss in protein yield, and lower TCO
- Optimised and controlled production throughout the entire process
- Produces high-quality products that meet stringent safety standards
- Solution based on extensive knowledge and experience in key technologies: extraction, grinding, mixing, in-line blending, UHT, homogenisation and CIP
- Whole bean soya processing technology pioneer – creating the right quality product (taste, mouthfeel), while eliminating yield losses in the extraction process

## An end-to-end line concept for handle every production need

This best-practice line is designed for production of whole bean soya beverages from soya beans. The line includes whole soya extraction (grinding, trypsin inhibitor deactivation and fine grinding) and processing to achieve the desired product characteristics. Application of different process configuration – grinding, enzyme deactivation, fine grinding or grinding, enzyme deactivation, fibre separation and okara fine grinding – allows either complete or partial utilisation of okara in the manufacturing process. Post-extraction treatment in terms of powerful high-shear mixing helps create multiple different product formulations and optimise their properties; sterilisation through UHT, followed by aseptic storage and aseptic filling ensures food safety and long life under ambient conditions.

We provide a combination of processing technologies for the best-practice line for whole bean soya beverages based on extraction, including: Tetra Pak® Extraction System – Soya, Tetra Pak® Pasteurizer BF, Tetra Pak® High Shear Mixer, Tetra Pak® In-line Blender B, Tetra Therm Aseptic VTIS, Tetra Pak® Homogenizer, Tetra Pak® Aseptic Tank, Tetra Pak® CIP unit and Tetra Pak filling machines.

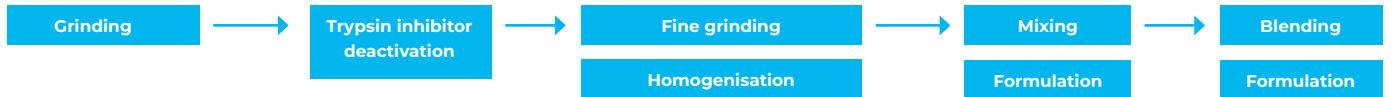
# Line overview

Combining several processing technologies

## Extraction in Tetra Pak® Extraction unit

## Formulation

- 1 Tetra Pak® Extraction unit – soya extraction
- 2 Tetra Pak® Pasteurizer BF
- 3 Tetra Pak® High Shear Mixer & Tetra Pak® Homogenizer
- 4 Tetra Pak® High Shear Mixer
- 5 Tetra Pak® In-line Blender B



## Process description

### Tetra Pak® Extraction unit

### Formulation

#### 1 Grinding

- Dry grinding
- No soaking of beans required
- Whole or dehulled beans
- Rapid conversion from raw material to product
- Flexible for various needs
- NaHCO<sub>3</sub> dosing (optional)
- Grinding under water
- Continuous process
- Closed, hygienic system
- Critical technology for creating a product with consistent, high quality
- Carried out in multiple stages to achieve two key quality parameters – average particle size below specific value and particle size distribution within a narrow range

#### 2 Trypsin inhibitor (TI) deactivation

- Deactivation of TI for human consumption
- Using steam injector for direct steam injection
  - » Consistent temperature control
  - » Low thermal impact
  - » Minimum 20 hours before CIP
- Optional indirect TI deactivation increases energy efficiency

#### 3 Fine grinding and homogenisation

- Combination of grinding methods and homogenisation for effective reduction of beverage particles
- Achieve desired particle size for pleasant mouthfeel

#### 4 Mixing in Tetra Pak® High Shear Mixer

- Quick and effective mixing and processing
- Reduces air incorporation
- Ensures the right product quality
- Can reduce the need for functional ingredients

#### 5 Blending in Tetra Pak® In-line Blender B

- Allows for more precise and efficient measuring of ingredients and the blended product
- Combines several liquid streams into a single large stream

## UHT

## Cleaning

## Filling

6 Tetra Therm® Aseptic VTIS unit

7 Tetra Pak® Aseptic Tank

8 Tetra Pak® CIP unit P

9 Tetra Pak filling machine

UHT treatment

Storage

UHT

Cleaning

Filling



## UHT

## Cleaning

## Filling

### 6 Continuous heat treatment with Tetra Therm® Aseptic VTIS unit

- Low overall heat load minimises impact on taste, colour and nutritional value
- Suitable for a wide range of dairy and plant-based products
- Highest operational efficiency for direct UHT systems on the market

### 7 Buffering in Tetra Pak® Aseptic Tank

- Handles high or low viscosity products, with or without fibres, with smaller or bigger particles
- Provides safe storage between processing and packaging, minimising product losses
- Cleaning in place and production monitoring enhance efficiency
- Can be customised with e.g. agitators and cooling jacket, to further increase safety and quality
- Available as a separate unit or as a functional component in integrated lines

### 8 Cleaning with Tetra Pak® CIP unit P

- Simple and modular, easy to install and use with premium performance
- Cost effective, enables economical use of water and detergents
- Flexible – adapt cleaning programs to meet specific production needs

### 9 Filling with Tetra Pak filling machine

- Highest package output in the industry
- Lowest possible operational cost
- High food safety (unique aseptic process FDA filed)

## **Automation solutions for total control and top performance**

- Maximise efficiency and enable future-proof flexibility
- Enable complete control with full traceability
- Cut human error to a minimum and streamline your entire operation

## **Tetra Pak® Services**

We provide customised service solutions maximise your operational excellence, minimise your cost and environmental impact, and ensure the right product quality every time, throughout the lifecycle of your operation a complete range of services including:

- Automation services
- Production improvement services
- Installation services
- Maintenance services
- Parts and logistics services
- Quality management services
- Remote services
- Training services

## **Guaranteed performance on parameters that matter**

We guarantee the performance we promise, with key performance indicators based on your production scenario and predefined in a contractual agreement, covering for example:

- Product losses
- Product quality
- Production time
- Capacity