
**Head:** Tom Heintel

**Location:** Bühler AG, Uzwil, Switzerland

**Area:** 300 square meters

**Operational since:** 2023

### Protein Application Center

The Protein Application Center is a collaborative space where customers can develop and validate their ideas in the field of protein processing. Equipped with the latest wet isolation techniques for separation of protein, starches, and fibers, the application center is operated in collaboration with Bühler's partner company endeco.

### What is unique about it?

At the Protein Application Center, customers can test their ideas on a small-scale but highly flexible batch line, including dairy processing for plant-based beverages. They can also test and validate processes on industrial-size machines for easy scale up.

The application center offers two different processes for protein isolation: isoelectric precipitation using decanter centrifuges and membrane isolation using ultrafiltration technology.

Valorization of side streams is also available: starch and fiber separation processes deliver highly purified side streams. Customers can also rely on the concentrated knowledge of renowned technology providers such as Bühler, endeco, MMS AG, and Flottweg in one application center. In collaboration with the Grain Innovation Center (GIC) and Extrusion Application Center, the Protein Application Center covers the whole bean-to-burger value chain.

### Key figures:

- Around 200 kg/h infeed for yellow peas on continuous process line
- Around 1kg/h infeed on small batch scale line
- 300 $m^2$ space to explore protein processing possibilities
- >15% CAGR (compound annual growth rate) expected for plant-based protein until 2030

**Raw materials:**

Traditional crops such as barley, corn, oat, and others; pulses (peas, beans, lentils, chickpeas, defatted soy meal); other protein sources, e.g., brewer's spent grain, algae, spent yeast on inquiry.

**End-product categories:**

Protein isolates, starch, and fibers. All end products can be further processed and widely used in different food and non-food products. Some examples of end products include plant-based dairy alternatives, meat analogues, gluten-free pasta, vegan chocolate, bread, noodles, binder for sauces and soups, paper, ethanol, edible and sustainable cutlery.

**Technology solutions available:**

- Wet milling or dispersing in water, depending on raw materials
- Decanter centrifuges for solid-liquid separation
- Membrane Separation Systems for solid-liquid separation (including micro-filtration, ultrafiltration, and reverse osmosis)
- Starch and fiber processing – including centrisieve, screw press, hydrocyclones, and a rotary vacuum filter
- Drying equipment – spray dryer and whirlflash dryer
- Highly flexible batch scale line with tabletop equipment – wet milling, decanter, membrane system, spray dryer, UHT line with homogenizer, fermentation unit, and extrusion system

**Services:**

Process development and validation in the field of protein isolation and/or processing and related areas such as downstream processing of biological and biotechnological wet separation processes.

**Collaborate with other Application & Training Centers to provide extended end-product value streams:**

**Upstream:**

- Grain Innovation Center (opening in 2024)

**Downstream:**

- Extrusion Application Center
- Food Creation Center
- Flavor Creation Center
- Energy Recovery Center
- Pasta Application Center

**Scan to learn more from the website:**

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