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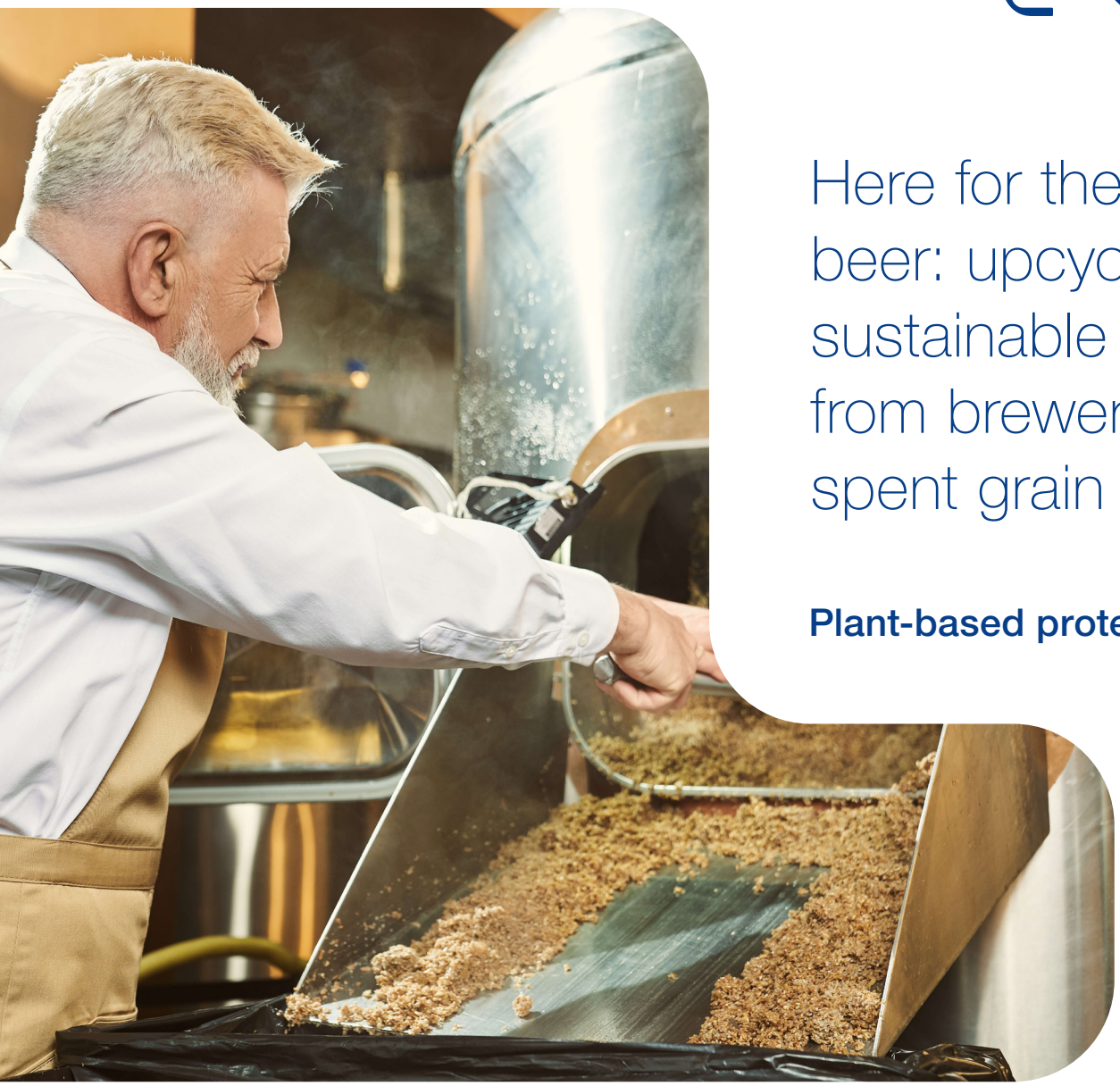


Here for the beer: upcycling sustainable protein from brewer's spent grain

Plant-based protein, US

Sustainable sources of high-quality protein are essential in meeting the ever-increasing global demand for healthy, affordable, and nutritious food. Alfa Laval's expertise within protein makes it an ideal technology and solutions

Innovation in this arena is exciting and fast-paced, and one of the latest newcomers to the market is a US-based business, which has not only developed a sustainable plant-based protein, but which uses a waste product from the brewing process as its feedstock.

EverGrain™, a wholly owned subsidiary of global brewing giant Anheuser-Busch InBev, has developed a cutting-edge process to extract high-quality protein isolate from spent grain from the beer brewing process.

The resulting product – EverPro® – is then sold as an ingredient to food companies for incorporation into a variety of products, including sports nutrition shakes and coffee drinks. Its high nutritional value, mellow taste and market-leading solubility in beverage application make it ideal for boosting the protein content across a range of consumer product categories.

"EverPro is a nutrient-dense plant-based protein, which is sustainably produced from Barley that is grown and made in the USA," says Greg Belt, CEO of EverGrain.

"It is completely water soluble with a clean taste, making it a very versatile ingredient and suitable for numerous products including ready-to-drink and ready-to-mix beverages, such as protein shakes and coffees, as well as smoothies and energy bars."

And with sustainability at the core of its operation, EverGrain, is turning what was previously dried and sold as low-value animal feed into a sustainable source of high-quality, highly nutritious, plant-based protein.

“With this cutting-edge process, we can harvest barley’s hidden nutritional capacity – helping us serve up not just another protein, but a better protein,” says Steffen Muench, EverGrain’s Head of R&D. “And what’s more, through upcycling, we can do all this using the land we already have – not one extra acre is needed to utilize all the nutrients saved in barley for the good of people and planet.”

Commercial production of EverPro started in June this year at EverGrain’s brand-new facility in St Louis, Missouri, following years of research and development with industry and research experts.

Separation and fluid handling technology for the installation has been supplied by Alfa Laval, which included six large decanters, reverse osmosis systems, valves, pumps, and tank cleaning equipment.

Foodec:
Alfa Laval Foodec decanter centrifuges are ideal for industries where delicate food and beverage products are processed – and where easy cleaning is crucial.

Membrane filtration systems:
Alfa Laval designs, manufactures and installs complete cross-flow membrane filtration systems.

EverGrain has a continued high focus on process optimization and plans are in the pipeline for the construction of a pilot facility where improvements in overall yields will be developed alongside reductions in water use.

Finetuning is essential in the highly competitive protein isolate marketplace and Alfa Laval is well placed to provide EverGrain with technical expertise going forward, says David King, Food Separation Director for Alfa Laval in the US.”

“We have expert knowledge in separation, evaporation and membranes that goes back decades. We can help them to become as technologically advanced and commercially efficient as they can be and supporting them with our service reach and expertise around the world.

“This is just the start of their journey. The global reach of AB InBev means that EverGrain really does have the capacity to feed the world – taking an inedible waste product that was previously dried and sold as animal feed and turning it into quality protein.”

Upcycling potential
Brewer’s spent grain accounts for up 85 percent of leftovers from the brewing process. According to one estimate, up to 20 billion pounds or approx. 10 billion kg of spent grain is produced as a by-product from beer production in the USA every year. It is essentially only the sugars in the grains which are spent during the brewing process, while remaining fibres, proteins and other nutrients can be extracted and converted into human food.

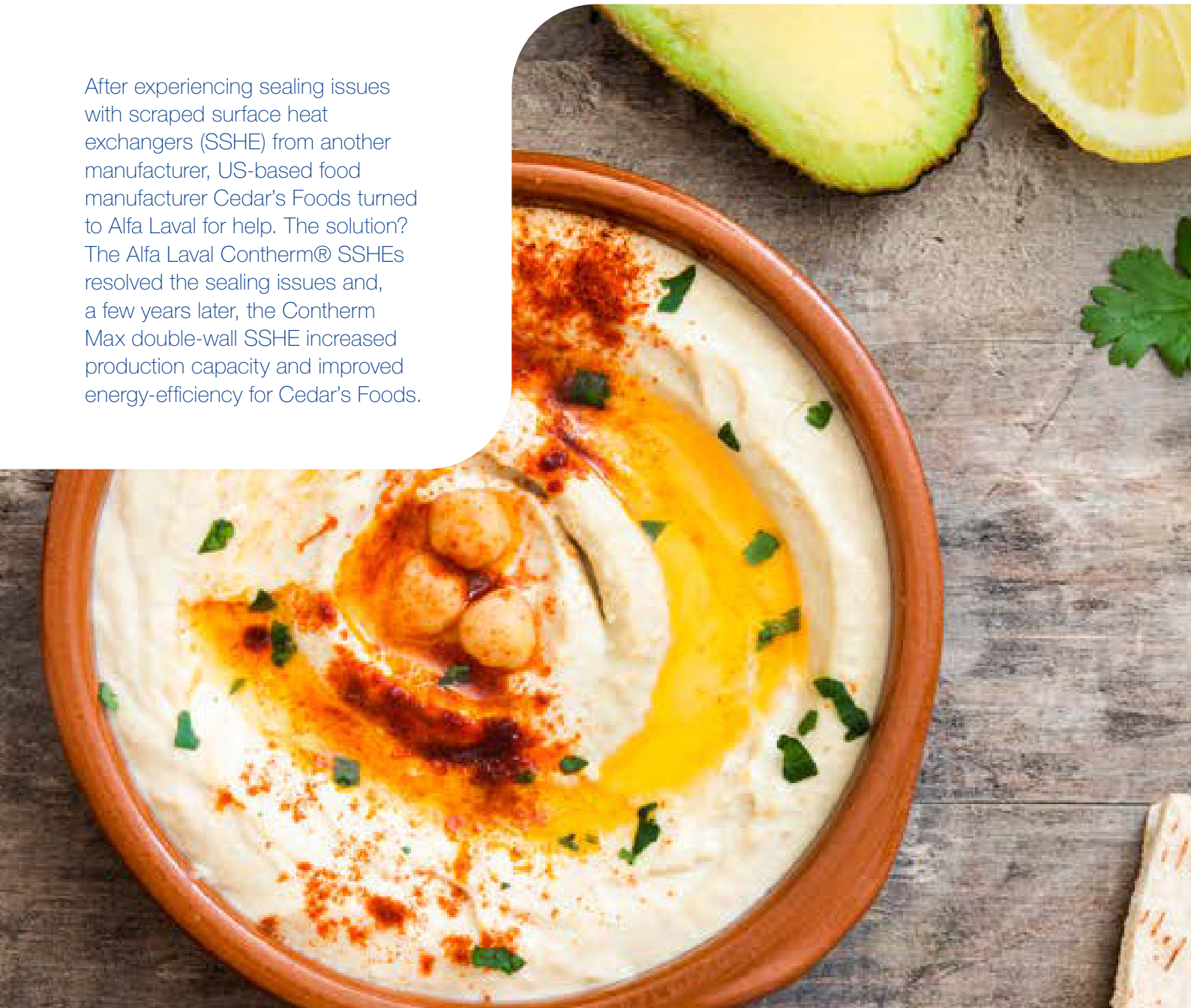
About EverPro®
EverPro, created by AB InBev’s sustainable ingredient company EverGrain, is the world’s first commercially available upcycled barley protein. EverPro was deliberately formulated and is scientifically proven to have unmatched solubility and viscosity levels compared to whey or pea and is at or above parity in absorption and digestibility. Makes it a great fit for sports and nutrition beverage applications. Because EverPro is made using a proprietary process to upcycle barley protein from brewer’s spent grain (BSG), it emits lower carbon and uses significantly less land and water, it is one of the most sustainable proteins on the planet and is certified by the Upcycled Food Association. EverPro’s first ever large-scale facility came online June of this year in St. Louis, MO.

CASE STORY

Contherm Max for quality clean-label food production that is reliable and energy efficient

Cedar's Foods, USA

After experiencing sealing issues with scraped surface heat exchangers (SSHE) from another manufacturer, US-based food manufacturer Cedar's Foods turned to Alfa Laval for help. The solution? The Alfa Laval Contherm® SSHEs resolved the sealing issues and, a few years later, the Contherm Max double-wall SSHE increased production capacity and improved energy-efficiency for Cedar's Foods.



The double-wall Contherm® Max offers 4.5 times more surface area than the largest standard-size Contherm unit.

More capacity: Provides the thermal equivalent of three traditional single-wall scraped-surface heat exchangers.

More ready to go: Plug-and-play operation with 80% smaller footprint.

More product quality: Gentlest possible product treatment ensures high product quality.

More lifetime savings: Lower total cost of ownership with energy savings of up to 33%.

More than you thought possible with Contherm!

Today's consumers are demanding healthier, clean-label foods free from preservatives. Cedar's Foods is the leading brand of hummus in the natural foods sector and maintains specific product certifications to reinforce its commitment to the quality of its products. Cedar's Foods is committed to providing consumers with Mediterranean products that stand true to its brand pillars: simple recipes, the best ingredients and honest preparation.

To produce all-natural, clean-label hummus, US-based Cedar's Foods relies on pasteurization. When the seals of the company's original SSHEs had reliability and capacity issues, downtime was costly. Cedar's Foods' chief operating officer Nick Scangas decided to find out more about Alfa Laval Contherm systems. After much discussion, Alfa Laval supplied five Contherm SSHEs to heat, pasteurize and cool Cedar's hummus according to design specifications.

Strong partnership, 30% growth in annual business: On-time delivery, outstanding thermal and mechanical performance, and deep trust have shaped the partnership between Cedar's Foods and Alfa Laval – not to mention outstanding performance from the Contherm SSHEs. "We needed a solution to heat our product to a temperature that would kill contaminants, then cool it back down and put it in our cup," says Scangas of the hummus pasteurization process. "We needed something extremely reliable. That was the Alfa Laval Contherm." The Contherm easily withstood the high hummus pasteurization pressures that the original SSHEs did not, effectively eliminating seal failures. The advantage for Cedar's Foods: reliable performance and more uptime. "We could focus on our core business and trust the technology," says Scangas.

Increase in capacity: After years of smooth hummus production and increasing demand for its all-natural, clean-label hummus, Cedar's Foods needed to expand its production capabilities. At that time, Alfa Laval was developing the Contherm Max, a new double-wall SSHE with a much larger surface area and up to three times the capacity of the standard Alfa Laval Contherm. Dozens of trials had taken place in the Alfa Laval Customer Testing Center to confirm heating, cooling and cleaningin-place performance. But it was first at Cedar's Foods that the Contherm Max prototype was tested under actual operating conditions. "There was no hesitation at all from me," Scangas says. "I trusted the relationship and the equipment so much that I just said, 'Let's do it.'" However, high demand for Cedar's Foods hummus prompted the company to use the prototype to transition directly into full-scale production.

The Contherm Max prototype did not disappoint, proving to be production-worthy – so much so that Cedar's Foods bought it. To scale up to commercial production, Cedar's Foods also bought two Contherm Core units for heating and another two Contherm Max units for cooling. A few months later, the new production line was up and running. For Cedar's Foods, the advantages of the Alfa Laval Contherm Max were clear: rapid rampup of the plant's production capabilities, reliable performance and the ability to satisfy growing consumer demand.

Plug-and-play system with installation and energy savings: Another advantage: a compact footprint and ease of installation as a plug-and-play system can reduce installation costs by up to 30%. Due to Contherm Max's larger capacity, Cedar's Foods can run fewer systems with lower overall power requirements, which delivers energy savings. "Our utility company analyzed energy consumption at the plant. The energy savings from the Contherm Max are significant and represent about 25% of our investment," Scangas notes.

Reliable service and support: As Cedar's Foods continues to expand its business, Alfa Laval is there to provide advice, service and support. "Alfa Laval has been a true partner," says Christopher Gaudette, chief financial officer at Cedar's Foods. "You can pick up the phone and you will have somebody at our facility within an hour. It's not a matter of time, it's a matter of urgency. It's about us being able to continue to ensure production uptime."

Gaudette appreciates the support and knowledge transfer his team receives from Alfa Laval. Cedar's Foods employees understand how to operate and maintain the scraped surface heat exchangers. This ensures more uptime. To meet growing demand, Cedar's Foods purchased two additional pasteurizers, including six Contherm Max units. Since the partnering with Cedar's Foods, Alfa Laval has installed more than 30 heat exchangers on the organic hummus maker's production lines.

"The support is more valuable here than any piece of equipment," Scangas concludes. "It's been outstanding. That's why I'm going to be buying more systems. There's just no second choice."

How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com

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Complete plant for India's biggest producer of non-GMO soy protein isolate

Food processor, India

A complete plant was designed, engineered, installed and commissioned by Alfa Laval for a major food processor in India. A long-standing customer of Alfa Laval, the company has bought several separators, heat exchangers and flow components for the dairy as well as oils & fats side of its business for many years. As a result, when they decided to make this strategic move into the soy protein isolate market, Alfa Laval was the obvious choice.

CASE STORY

Extracting more value out of your vegetable protein plant
If you are running a vegetable protein plant or planning to build a new one, you might benefit from recovering valuable vegetable proteins from your waste streams. The timing to consider these opportunities might be just right. Industry forecasts suggest that the plant-based protein market will grow by about 6% year on year to a EUR 13.4 (USD 16.3) billion global market by 2025.

“In this plant, we are using almost all of our core products, and in significant numbers – 9 decanters, 4 separators, 3 membrane systems and 1 evaporator, as well as flow components like pumps and valves and Alfa Laval’s hygienic fittings,” says Pankaj Maheshwari, VP Alfa Laval Food Systems, India. “This is a complete soy processing plant in a new market and opens new opportunities in India and globally. We partnered with our customer and developed it through tests in our test center, and this is a knowledge we will apply in our work with other customers going forward with Alfa Laval technology.”

Soy protein isolate is a highly refined and purified form of non-GMO soya protein. It is made from defatted untoasted soya grits, which have had most of the non-protein components, fats and carbohydrates removed. Because of this, it has a very neutral flavour and is mainly used to increase protein content, enhance moisture retention, and improve the texture of meat, vegetarian and vegan products.

“This project is a good example of what can be achieved with good cooperation and open discussions,” says Sumit Pingle, Alfa Laval’s Industry Manager for Protein. “Right from the start, it has been a constructive partnership. It has been exciting to be involved in something new and for it to be such a success – to our mutual benefit.”

In 2022, the global soy protein isolate market had a value of USD 2,987 million or EUR 2,724 million. Soy protein isolate is a key additive to spike the protein content of plant-based foods at a time with growing consumer preference for more sustainable food options.

The market is pegged to reach a value of USD 4,152 million or EUR 3,787 million by 2033, with a CAGR of 3 percent during the forecast period between 2023 and 2033. Soy protein isolate is playing an increasing role in the production of infant formula and foods, prepared meals and foods, health drinks and plant-based meat substitutes. In addition, the demand for organic soy protein isolate is again rising on the back of consumer awareness and preferences for sustainable food options.

Growth in markets in the Asia Pacific region is propelled mainly on the back of preferences for clean labels and predominantly on the back of traction from more affluent consumer segments.
(Source: **Future Market Insight, 2023**)

Emission savings

Greenhouse gas emissions from animal-based foods are typically twice those of plant-based foods (FAO, 2021).

Sustainable food

More protein contributes towards closing the gap in the additional 70 percent more food needed in 2050.

How to contact Alfa Laval

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