Discover Engevita® HiPRO BEYOND

Yeast protein
MAXIMISE PROTEIN CONTENT

MINIMUM 80% PROTEIN
FROM BAKER'S YEAST
(SACCHAROMYCES CEREVISIAE)

CLEAN FLAVOR AND SMELL
SUITABLE FOR SWEET AND SAVORY APPLICATIONS

NON FUNCTIONAL PROTEIN
IT DOESN'T ALTER THE NATURAL CHARACTERISTICS OF THE FOOD MATRICES.

COMPLETE AND SAFE PROTEIN
INCLUDING BRANCHED CHAIN AMINO ACIDS

SUSTAINABLE PROTEIN
A GLOBAL NEED

NON-ANIMAL PROTEIN
SUITABLE FOR VEGETARIAN AND VEGAN APPLICATIONS

REGULATORY STATUS
USA: SELF-AFFIRMED GRAS STATUS
EUROPE: FOOD INGREDIENT

NON-ANIMAL PROTEIN

Engevita® HiPRO Beyond is a very mildly flavored yeast protein from *Saccharomyces cerevisiae*, also known as baker's yeast. **Engevita® HiPRO Beyond** is a complete protein containing all essential and branched chain amino acids. It is a source of high quality, gluten free, vegan protein. It is allergen-free and non-GMO.

Engevita® HiPRO Beyond is suitable for a wide range of foods, where a dependable and sustainable source of protein is desired to enrich or complete the nutritional profile.

MINIMUM 80% PROTEIN

A complete protein, by definition, contains all the essential amino acids (EAA), including branched chain amino acids (BCAA). Complete proteins are usually from animal-based sources of nutrition, and soy as a plant-based source. Some EEA may be found in plant-based proteins, however, these are usually incomplete proteins. **Engevita® HiPRO Beyond** is a non-animal source complete protein, containing all EAA and BCAA.

Essential amino acids (EAA): These are amino acids that humans and other vertebrates cannot synthesize from metabolic intermediates and therefore they must be supplied by the diet. Those include histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan, and valine.

COMPLETE AND SAFE PROTEIN

Branched chain amino acids (BCAA): BCAA are essential amino acids and are synthesized in bacteria, plants, and fungi, but not in animals. The group includes isoleucine, leucine, and valine.

BCAA, and specifically leucine, are important for protein synthesis and muscle building, as they contribute to anabolism.

			(% of raw material)									
			Protein content	Histidine	Isoleucine	Leucine	Lysine	Cyr +Met (SAA)	Phe + Tyr (AAA)	Threonine	Valine	ΣEAA (%)
		FAO reference pattern (%)		1,9	2,8	6,6	5,8	2,5	6,3	4,8	3,5	
	Animals*	*Human muscle*	84	2,8	3,4	6,3	6,6	1,7	5,8	2,9	4,3	33,8
	Animals*	Milk	78	1,9	2,9	7,0	5,9	2,3	7,3	3,5	3,6	34,4
	Animals*	Egg	51	0,9	1,6	3,6	2,7	1,8	4,1	2,0	2,0	18,7
	Yeast	**Engevita® HiPRO Beyond**	**81**	**2,2**	**4,6**	**7,1**	**7,5**	**2,2**	**7,8**	**4,2**	**5,3**	**41,0**
Commercial plant-based protein isolates*	Cereals	Wheat	81	1,4	2,0	5,0	1,1	1,4	4,9	1,8	2,3	24,0
Commercial plant-based protein isolates*	Cereals	Corn	65	1,1	1,7	8,8	1,0	1,4	6,1	1,8	2,1	24,1
Commercial plant-based protein isolates*	Cereals	Brown rice	79	1,5	2,0	5,8	1,9	2,6	7,2	2,3	2,8	26,1
Commercial plant-based protein isolates*	Pulses	Soybean	80	1,5	1,9	5,0	3,4	0,5	5,4	2,3	2,2	22,2
Commercial plant-based protein isolates*	Pulses	Pea	80	1,6	2,3	5,7	4,7	0,5	6,3	2,5	2,7	26,3
Commercial plant-based protein isolates*	Tubers	Potato	80	1,4	3,1	6,7	4,8	1,6	8,0	4,1	3,7	33,4

Engevita® HiPRO Beyond
EEA content is superior FAO reference pattern for Essential Amino Acids.

Gorissen et al (2018). Protein content and amino acid composition of commercially available plant-based protein isolates. Amino acids, 50, 1685-1695

Why Not All Proteins Are Created Equal: The Truth About Protein Content Measurement

When it comes to alternative proteins, accuracy matters. Protein content in food ingredients is typically measured using the Kjeldahl method, which estimates protein levels based on nitrogen content. The standard conversion factor of **6.25** is widely applied—but did you know this factor is only truly accurate for **dairy proteins**? For **plant-based proteins**, research shows that the actual factor is lower—typically between **4.99** and **5.62**. Using **6.25** overestimates protein content by **10-15%**, leading to misleading nutritional values.The conversion factor for **Engevita® HiPro Beyond** has been precisely calculated at **6.24**, ensuring accurate protein content when using the nitrogen-to-protein calculation (N% * 6.25). This distinction is crucial for making informed decisions about protein sources.

NON FUNCTIONAL PROTEIN

CLEAN FLAVOR AND SMELL

Engevita® HiPRO Beyond harmoniously blends into complex food matrices without causing unwanted changes. It acts as a supportive element, enhancing nutritional content without compromising taste, texture, or appearance.

Preserves Taste and Texture:

Unlike other alternative protein sources, that may alter flavor profiles or textures, **Engevita® HiPRO Beyond** maintains the authentic taste and texture of the food it enriches with its nutritional profile. This ensures a consistent and enjoyable eating experience for consumers.

Supports Nutritional Goals:

Engevita® HiPRO Beyond provides high-quality protein that complements diverse dietary needs.

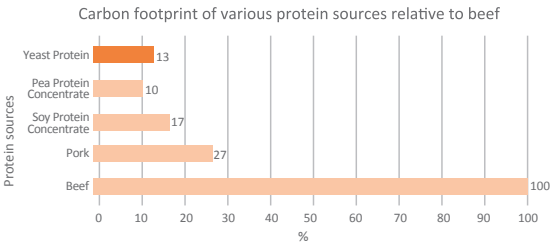
Versatility in Applications:

Due to its nature, **Engevita HiPRO Beyond** can be seamlessly incorporated into various food applications - from meat alternatives to dairy analogs, enhancing their nutritional content without compromising production processes.

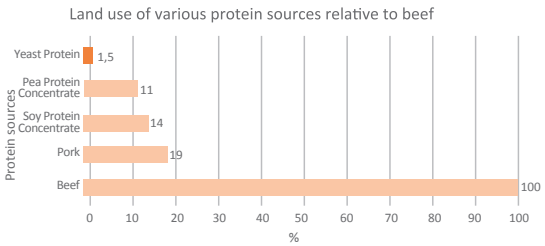
Processability:

Choosing our protein means selecting a product that not only excels in stability under extreme heat treatments like UHT but also avoids the negative impacts of Maillard reactions. This combination of features ensures that your food and beverage products will deliver superior quality, consistent taste, and excellent nutritional value, even after rigorous processing.

The carbon footprint and land use of protein yeast production.



When comparing the relative carbon footprint, the value found for yeast protein (13) was much lower than beef (100) and pork (27) and comparable to soy protein concentrate (17) and pea protein concentrate (10).



In terms of relative land use yeast protein is extremely competitive (1.5) compared to beef (100), pork (19), soy protein concentrate (14) or pea protein concentrate (11).

SUSTAINABLE PROTEIN

Yeast is a microbe that serves as a valuable source of single cell protein (SCP), relying on fermentation technology.

From a food security perspective, yeast protein presents a compelling alternative as its production is independent of seasonal constraints and can be achieved relatively quickly. Fermentation can be likened to a new form of farming. Yeast is recognized for its superior nutritional quality, making it a desirable source for SCP production. The use of controlled systems called "bioreactors" for SCP production is gaining attention from both research and industry. Moreover, yeast protein requires minimal arable land and does not directly compete with crop-based food commodities.

Yeast protein production is part of a circular economy where the substrate used in fermentation, such as molasses (a byproduct of the sugar industry derived from beetroots), is efficiently utilized. Vinasses, a byproduct of yeast production, can in turn be used as natural fertilizer for sugar beetroots and other crops.

Given the global population growth, yeast protein emerges as an attractive alternative to traditional protein sources like plants and meat. Yeast protein biomass also contains essential trace minerals and vitamins, including B-vitamins. Overall, nutritional yeast protein biomass represents a sustainable option for both human and animal nutrition, with a low environmental footprint.

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LALLEMAND

LALLEMAND BIO-INGREDIENTS