TEXTURED INSECT PROTEIN

PRODUCT SHEET

SELECTION SIAL INNOVATION PARIS 2024 SELECTION

Divaks

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Divaks

Started in 2020, Divaks is developing fully automated vertically integrated insect protein business. Our goal is to create high-quality insect-derived ingredients for the food industry, that excel in nutritional and functional qualities.

Since the beginning of the company, we are committed to sustainable choices – we build our insect farms relying on the principles of circular economy, traceable materials, and a guarantee to ensure the best living, breeding, and rearing conditions to our insects.

This Product Sheet represents the nutritional, functional and sensory qualities of our hybrid textured protein, produced from insect and pea proteins.

GENERAL INFORMATION

TEXTURED INSECT PROTEIN FOR MEAT APPLICATIONS

Our ingredient combines functionality, nutrition, taste and sustainability, providing a desired ingredient for the meat alternative and extended meat applications.

The primary special ingredient in our textured protein is whole insect powder derived from yellow mealworms (*Tenebrio molitor*).

Perfectly blended with pea protein, it creates a hybrid textured protein that enhances your product with the finest nutritional, functional and sensory qualities, bringing quite an innovation.

NUTRITIONAL PROFILE

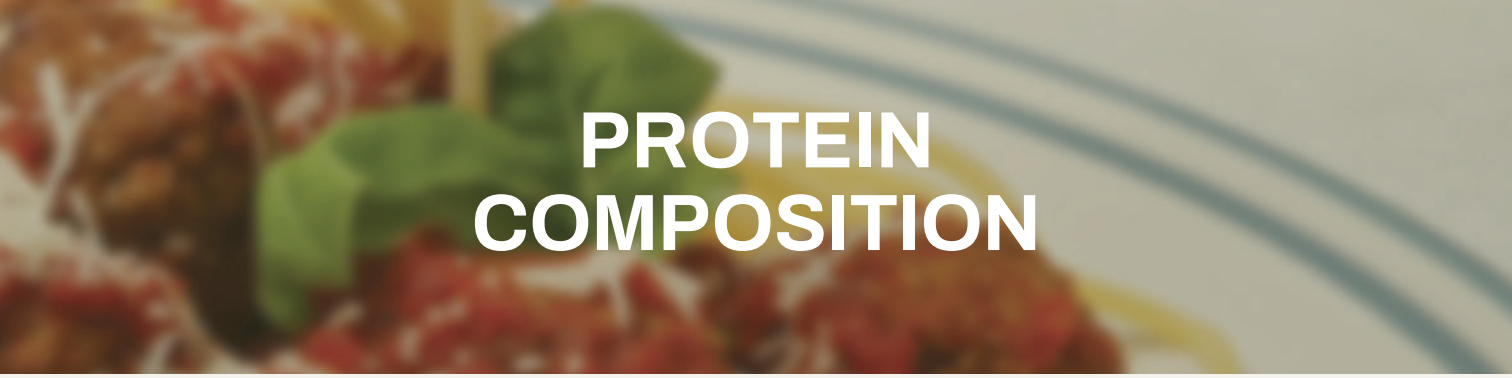
Our textured protein provides a protein content of over 61%, encompassing all essential amino acids. It also contains predominantly healthy fats, along with dietary fibers, adding significant nutritional value.

KEY NUTRITIONAL BENEFITS:

NUTRITIONAL CONTENT

per 100 g of product

Energy	1728 kJ/ 412 kcal
Protein	61,3 g
Fat	14,9 g
Saturated fat	3,7 g
Monounsaturated fat	6,8 g
Polyunsaturated fat	4,4 g
Carbohydrates	5,4 g
Sugar	0,4 g
Fiber	5,5 g
Salt	0,3 g
Iron	0,014 g
Cholesterol	0,05 g

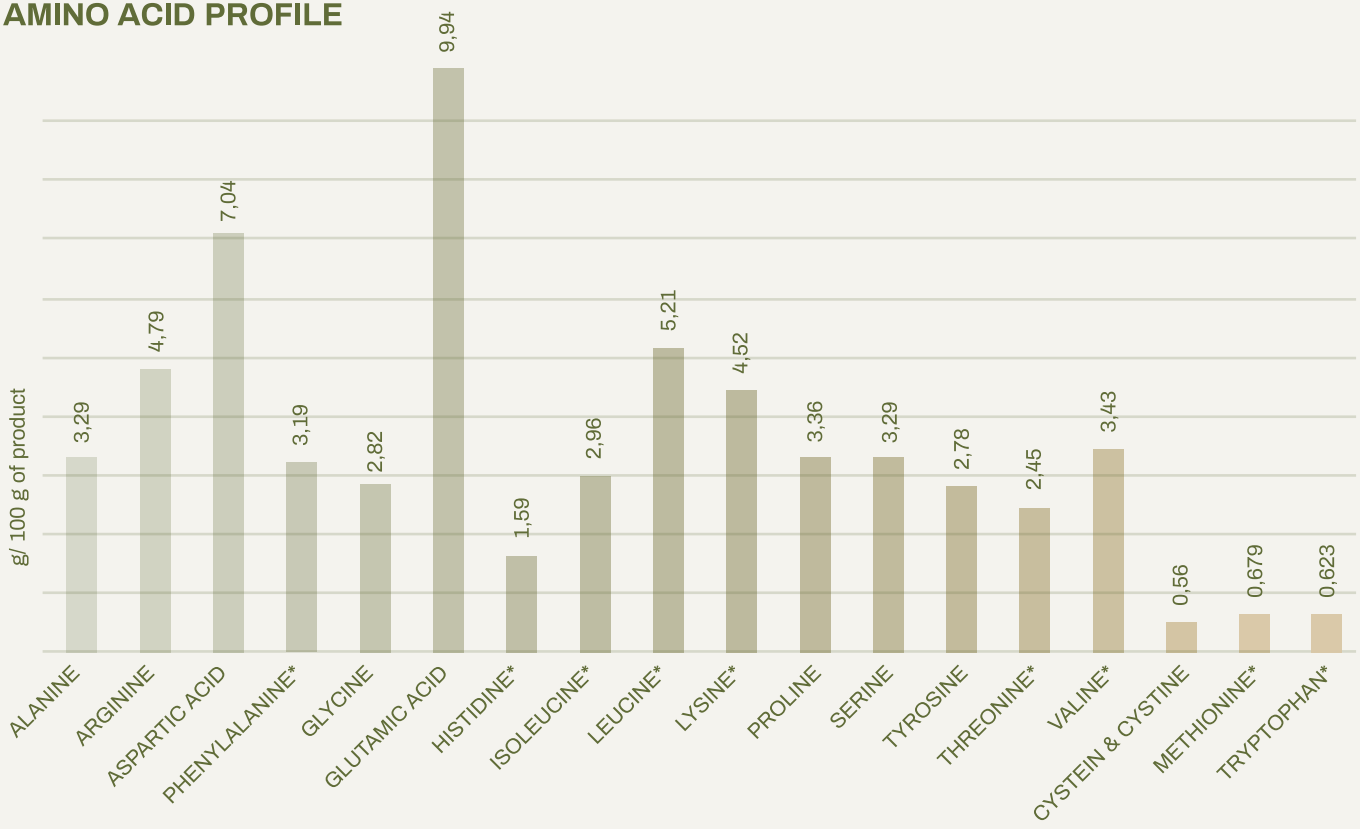


PROTEIN COMPOSITION

COMPLETE PROTEIN PROFILE

Combination of insect and pea proteins in our textured protein provides an excellent amino acid profile, with essential amino acids (EAAs) making up 40% of total protein quantity.

AMINO ACID PROFILE

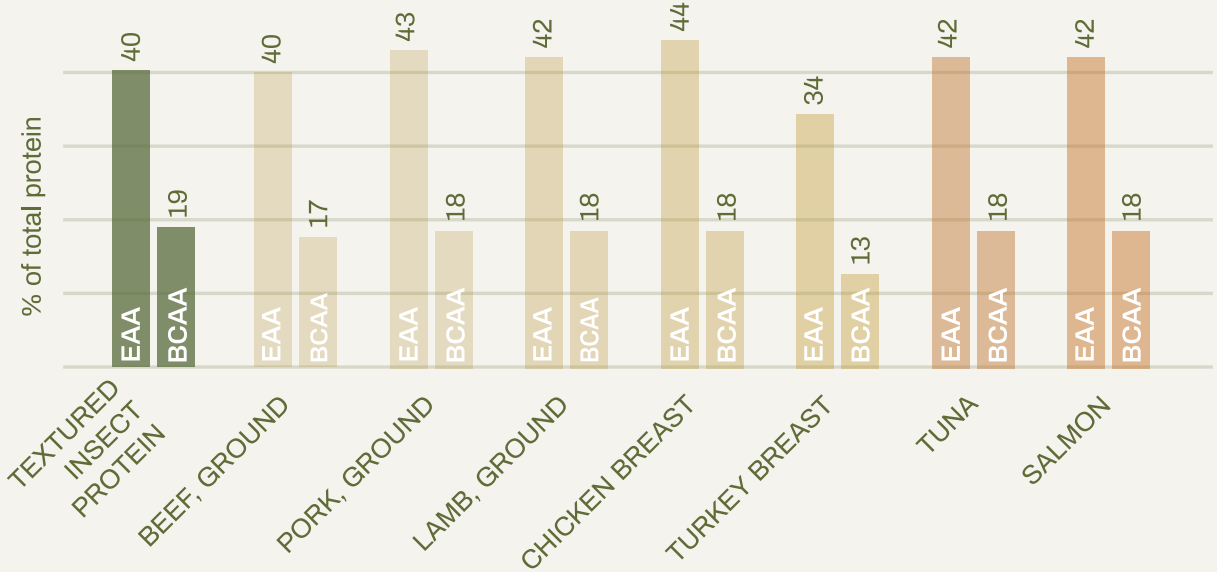


*Essential amino acids

PROTEIN COMPOSITION

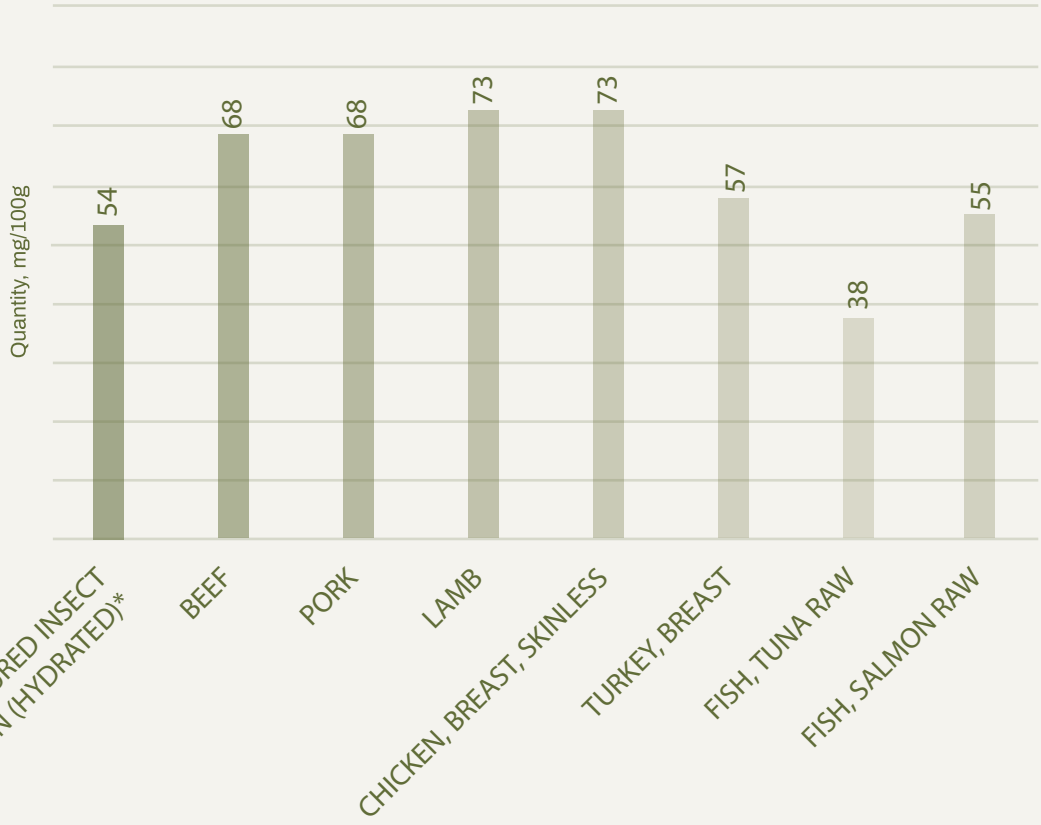
Textured Insect Protein is closely comparable to popular meat and fish options in terms of essential amino acids (EAAs) and branched-chain amino acids (BCAAs) quantities. It is particularly similar to ground beef, making it a viable alternative for those seeking high-quality protein sources.

ESSENTIAL AMINO ACIDS (EAA) VS BRANCHED-CHAIN AMINO ACIDS (BCAA)



Source: USDA database

AVERAGE CHOLESTEROL LEVELS IN DIFFERENT TYPES OF MEAT



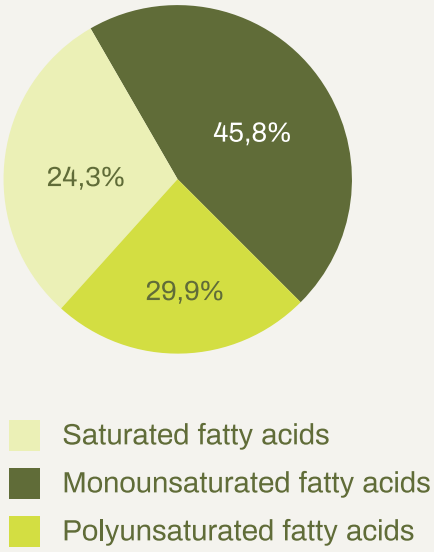
*Hydrated product (calculations done in accordance to TIP product's hydration capacity (2,2 g water per 1 g product)); thus, cholesterol amount in 100 g of the dry TIP is divided by 3,2.

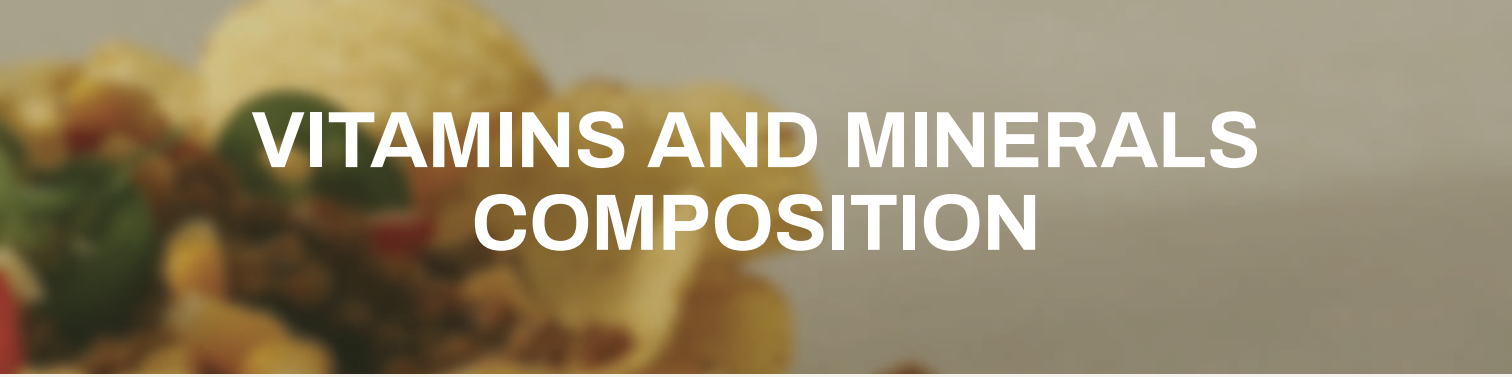
Source: Analysis Report No. TP24-22399 (Eurofins Labtarna Lietuva).

FATTY ACID PROFILE

FATTY ACIDS	% of total fat
Lauric Acid, (C12:0)	0,22
Myristic acid, (C14:0)	2,75
Palmitic acid, (C16:0)	17,09
Palmitoleic acid, (C16:1)	2,33
Margaric acid, (C17:0)	0,14
cis-heptadecanoic acid, (C17:1)	0,12
Stearic acid, (C18:0)	3,71
C18:1 C11	0,30
Oleic acid, (C18:1 n9)	42,45
Linoleic acid, (C18:2)	27,54
Arachidic acid, (20:0)	0,17
cis-11-eicosenoic acid, (C20:1)	0,15
α-Linolenic acid (C18:3)	2,10
Other	<1

OMEGA FATTY ACIDS	% of total fat
Omega-3	2
Omega-6	28
Omega-9	43





VITAMINS AND MINERALS COMPOSITION

VITAMINS

	per 100 g of product	% of DRI[1]
Vitamin E	2,48 mg	19,1
Vitamin K1	11,2 µg	16,0
Vitamin B9	80,7 µg	24,5
Vitamin B1[2]	55 µg	4,6
Vitamin B2	0,361 mg	22,6
Vitamin B3[2]	3,97 mg	24,8
Vitamin B5	1,54 mg	30,8
Vitamin B6	0,228 mg	13,4
Biotin	31,3 µg	78,3

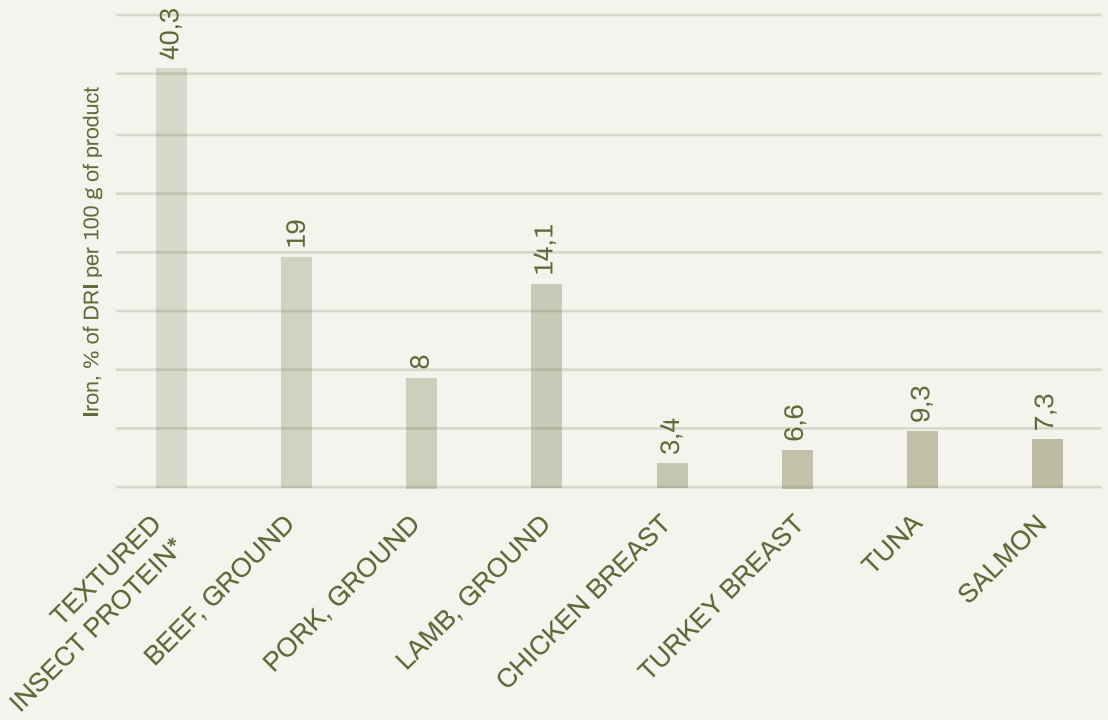
MINERALS

	per 100 g of product	% of DRI[1]
Potassium	1501 mg	42,9
Phosphorus	659 mg	119,8
Zinc	9,2 mg	56,3
Manganese	1,2 mg	38,7
Iron	14,2 mg	129,1
Copper	1,4 mg	85
Magnesium	124 mg	35,4
Calcium	88,3 mg	9,3

[1] Source for DRI calculations: https://multimedia.efsa.europa.eu/drvs/index.htm
[2] DRI calculated using recommended nutrient intake by World Health Organisation
source: https://iris.who.int/bitstream/handle/10665/42716/9241546123.pdf?sequence=1

VITAMINS AND MINERALS COMPOSITION

IRON CONTENT COMPARISON

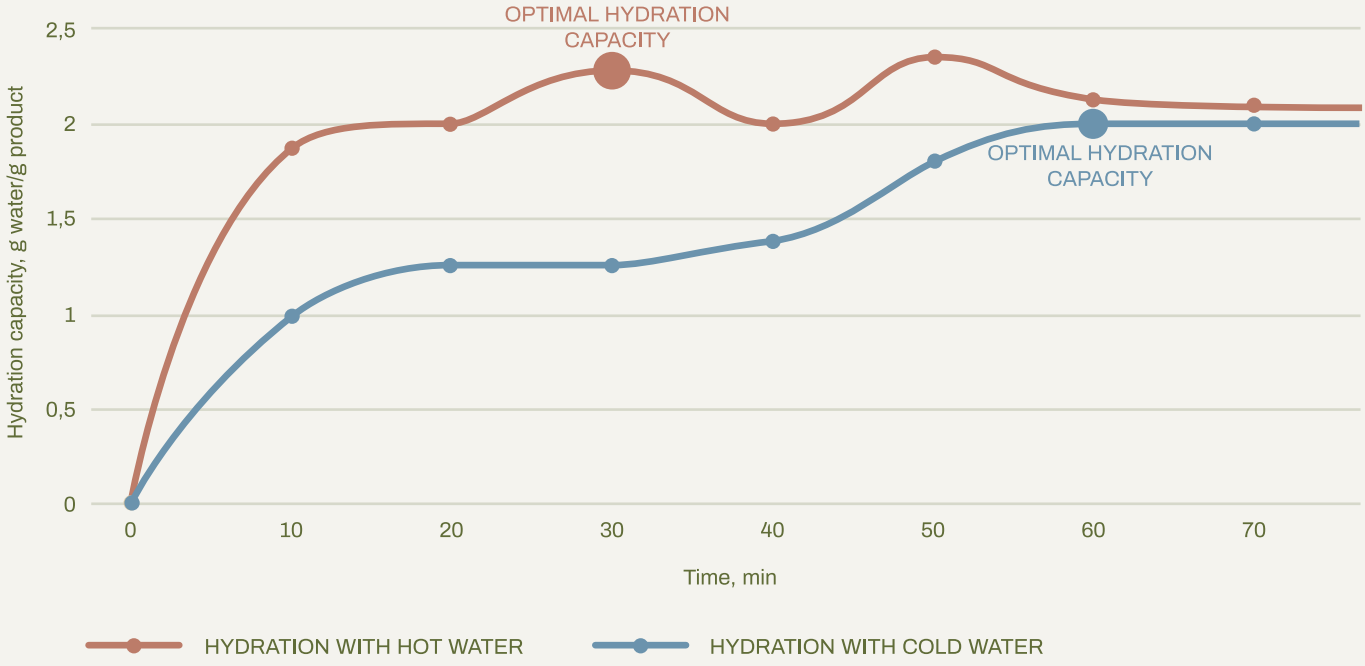


*Hydrated product. Source: USDA database

FUNCTIONAL PROPERTIES

HYDRATION CAPACITY

Due to the dry form of textured insect protein, a hydration step is required for the product to become juicy and tender. When hydrated with hot water for the recommended duration of 30 minutes, the product's water absorption capacity is 2,2 g of water per g of product. Although hydration with cold water takes longer, the final absorption capacity is comparable, reaching 2,0 g of water per g of product after 60 minutes.



HYDRATION INSTRUCTIONS

During hydration, textured insect protein undergoes a slight transformation in appearance, similar to many plant-based textured proteins. After the hydration, this versatile protein can be fried, oven-baked, simmered, or prepared in any desired way.

HYDRATION INSTRUCTIONS USING HOT WATER

1. Pour the hot 85-95°C temperature water over the textured insect protein in the container at the ratio of 1:2,2 (1 part of product and 2,2 parts of water), for example, 100 g of textured insect protein and 220 g of water.
2. Leave the mixture to hydrate for 15 minutes, then mix thoroughly and leave to hydrate for another 15 minutes.
3. After a total of 30 minutes, drain the excess water if needed.
4. Use hydrated textured proteins to produce final products.

HYDRATION INSTRUCTIONS USING COLD WATER

1. Pour the cold water from the tap over the textured insect protein in the container at the ratio of 1:2 (1 part of product and 2 parts of water), for example, 100 g of textured insect protein and 200 g of water.
2. Mix textured protein with water so that the protein would be well moistened and leave to hydrate for about 30 minutes.
3. After 30 minutes, repeat the mixing step and leave to hydrate for another 30 minutes.
4. After a total of 60 minutes, drain the excess water if needed.
5. Use hydrated textured proteins to produce final products.

KEY FEATURES

MEAT-LIKE TEXTURE

When hydrated, the ingredient acquires a juicy and tender texture, similar to meat products

MEAT-LIKE FLAVOUR

Subtle, clean flavour, naturally resembling red meat flavour with slight umami undertones

NUTRITION

Provides complete proteins, healthy animal-origin fats and high levels of dietary fibre

HIGH FUNCTIONALITY

The ingredient exhibits high value and rapid water-binding capabilities

SUSTAINABILITY

Insect proteins are produced in a more environmentally friendly way than traditional ones

POSSIBLE APPLICATIONS

Textured insect proteins are a game-changer, serving as an alternative or extention for meat products like burger patties, meatballs, fillings or toppings for savoury dishes and ready meals. These proteins elevate the nutritional profile of products while maintaining the flavors and textures we love.

MEAT SUBSTITUTES

Recommended use level:
5-30%

- Burgers
- Meatballs
- Sausages
- Ground meat

MEAT & POULTRY PRODUCTS

Recommended use level:
5-30%

- Burgers
- Meatballs
- Sausages
- Ground meat

PREPARED MEALS & DISHES

Recommended use level:
5-30%

- Stews
- Deli-style dishes
- Burritos, sandwiches, fajitas

MAXIMUM USE LEVELS IN FOOD

Meat analogues – 100%
Meat preparations - 40%

ADDITIONAL INFORMATION

Format	Granules
Size	Irregular in size and shape (width - 7mm, length - 15mm)
Colour	Brownish to brown
Flavour	Slightly nutty, umami
Protein source	Insects (*Tenebrio molitor*), peas
Storage conditions (for dry product)	Max 18 months at +5°C - +25°C temperature
Storage conditions (for hydrated product)	Max 24 hours at +2°C - +10°C temperature
Supply form	Plastic bags
Allergens	May contain traces of gluten, soy, milk and lupine.
Purpose of use	The product is prepared for indirect human consumption for any group of consumers except baby food preparation
Regulations	Regulation (EU) No 1169/2011, Regulation (EU) 2015/2283 and Regulation (EU) 2022/169

The above-mentioned information is based on our experience as well as on internal standardized tests and is not to be interpreted as a warranty or guarantee in any form, as conditions beyond our control can affect the quality of the product. In case of doubt, the user should always make every effort to ensure that the products used are appropriate for the purpose intended.

CONNECT WITH US

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