

**EMSLAND GROUP<sup>®</sup>**  
using nature to create

## Noodles and Gluten-Free Pasta





### Noodles & Gluten-Free Pasta

*Noodles are consumed around the globe in many different forms, textures and tastes, often varying depending on the region. In addition to being a convenient food, noodle consumers are looking for a product with a higher quality and nutritional content.*

*Whether producing instant noodles, glass noodles, frozen noodles or chilled noodles, manufacturers must source a broad range of raw materials, with each ingredient playing a key role in the outcome of*

*the product. Starches can be applied to noodle products to enhance noodle texture, improve clarity and achieve faster rehydration.*

*Gluten-free food products such as gluten-free pasta remain popular food products for consumers. The largest challenges for gluten-free pasta manufacturers is achieving the right texture and high-quality product while managing the costs and nutritional content.*

## Instant Noodles

### Texture & Hydration

Instant noodles are precooked and dried noodles that are prepared by soaking in boiling water before eating. Therefore, easy hydration and a good water-holding capacity is very important. The typical texture of instant noodles is elastic and slippery. The main ingredient for instant noodles is wheat flour, which gives a short texture to the noodles. However, easy hydration as well as the typical elastic texture are challenging to obtain with wheat flour.

Native potato starch or modified potato starch, such as **Emes® EE**, are commonly used to enhance the gelling properties and hydration of the noodle. The gelling properties give the noodle the typical elastic and slippery texture.







## Glass Noodles

### Cost Effective Texture

Glass noodles or mung bean noodles are typically thin noodles that have a high transparency and elastic chew. They are traditionally made with mung bean starch, a relatively expensive starch source.

As mung bean starch and pea starch are similar in composition, native pea starch is a very suitable and cost-effective starch to replace mung bean starch in glass noodles.

## Frozen and Chilled Noodles

### Texture & Shelf Life

Frozen and chilled noodles are thick elastic noodles that are first cooked to completion and subsequently chilled or frozen. These noodles are ready-to-use and just need heating in boiling water. The challenge for these noodles is to maintain the elastic non-sticky texture during shelf life.

**Emden® KH 15** is a modified potato starch that maintains the texture of frozen and chilled noodles.

## Products for Noodles

	Potato starch	PS 2100	Emes EE	Pea starch	Emden KH 15
Applications	Instant noodles	Instant noodles	Instant noodles	Glass noodles	Frozen and chilled noodles
Type	Native potato starch	Native potato starch	Cook-up modified potato starch (E1420)	Native pea starch	Cook-up modified potato starch (E1440)
Description	Provides good hydration properties and elastic texture	Specialty starch with improved hydration properties	Provides premium hydration and elastic texture	Replacement for mung bean starch in glass noodles	Stabilizes the texture of frozen and chilled noodles after prolonged shelf life

All products are registered®





## Gluten-Free Pasta

Gluten-free food products, such as gluten-free pasta, remain popular food products. This accounts for people who suffer from coeliac but also for people that are gluten intolerant or those who wish to limit gluten levels in their diet.

Formation of the gluten protein network is fundamental for the texture and quality of pasta and this is the largest challenge for gluten-free pasta. Other challenges are price and nutrition.

Potato flakes and other potato ingredients are excellent ingredients for gluten-free pasta recipes, as they are free from allergens and have good binding and nutrition properties.

The Emsland Group has developed various recipes for gluten-free pasta. Next to potato flakes, these recipes also contain Emsland Group potato granules, starches and proteins. For more information contact us at [info@emsland-group.de](mailto:info@emsland-group.de).



## About the Emsland Group

**Using nature to create** is the guiding principle of the Emsland Group. As a global leader in refined products made from potatoes and peas, we offer a wide range of innovative products with the high quality and reliability that the Emsland Group name is known for.

**Our plant-based ingredients** include native, clean label and modified potato and pea starches, proteins and fibers, as well as potato flakes and granules, which can be used as thickeners, binding agents, emulsifiers and stabilizing additives for various applications. We serve a variety of industries and offer solutions for trends such as clean label, kosher, halal, gluten-free, vegan, fiber enriched, sustainability, as well as non-GMO raw materials.

**Innovation** is a core driving force at the Emsland Group. Experts at our Innovation Centre in Germany are constantly developing and optimising products and concepts to meet the evolving demands of both the industry as well as the end user. We work closely with customers to further develop our product portfolio and overcome challenges in a sustainable way.

**Sustainability** is a responsibility that, for us, does not begin in the factory, but in the field. Since 1928, we have been relying on the innovative power of nature and working in harmony with our natural resources in all our endeavours. Our team is dedicated to continuously working to develop products that are in line with newer sustainability benchmarks, helping to drive the global trend towards more environmentally friendly and sustainable options through the production of plant-based solutions.

The Emsland Group offers product solutions for the following food segments:

- Bakery
- Confectionary
- Dairy & Alternatives
- Food Coating
- Meat Analogues
- Meat, Poultry & Seafood
- Noodles & Gluten-Free Pasta
- Potato Products
- Potato Snacks
- Retail & Food Service
- Soups & Sauces

The table below offers an overview of the most common applications of our products in all food segments. For more complete information on the Emsland Group's products and applications, please contact us at [info@emsland-group.de](mailto:info@emsland-group.de).

Ingredients	Functionality	Food applications
Potato flakes <i>Emflake</i>	Texturizing, expansion, forming	Snacks, potato products, bakery
Potato granules <i>Emgranule</i>	Texturizing, expansion, forming	Snacks
Native pea and potato starch	Thickening, texturizing, water binding, expansion, anti-caking	Soups, sauces, noodles, meat, snacks, gluten-free products
Modified pea and potato starches <i>Emes, Emflo, Emden, Emox</i>	Thickening, texturizing, gelling, binding, expansion, forming	Snacks, soups, sauces, confectionary, food coating, baked goods, processed cheese and alternatives, meat and analogues, noodles
Cold water swelling or soluble native and modified starches <i>Emjel, Emfix</i>	Instant thickening, texturizing, binding, emulsifying	Snacks, soups, sauces, bakery fillings, baked goods, cheese and alternatives
Potato and pea dextrins <i>Emdex</i>	Film forming, texturizing (crispiness)	Food coating, filler, binder
Clean label pea and potato starches <i>Empure</i>	Thickening, gelling, texturizing, binding	Soups, sauces, potato products, meat analogues
Waxy potato starch <i>Emwaxy</i>	Expansion, thickening, texturizing	Snacks, meat, noodles, cheese alternatives, fruit preparations, bakery fillings
Pea protein isolate <i>Empro</i>	Nutrition (protein enrichment), texturizing, emulsification	Meat analogues, dairy alternatives, bakery, snacks
Pea and potato fiber <i>Emfibre</i>	Nutrition (dietary fiber, water and fat binding)	Meat and analogues, bakery, snacks
Blends <i>Embat</i>	Film forming, texturizing	French fry coating, tempura & adhesion batter

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The Emsland Group is committed to producing consistently high-quality ingredients. Customer health and safety, as well as transparency regarding our manufacturing methods, are top priorities.

To view a complete list of our certifications and qualifications, scan the QR code or visit [www.Emsland-Group.com](http://www.Emsland-Group.com)







# EMSLAND GROUP<sup>®</sup>

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Disclaimer: All information and data in this brochure are in accordance with the best practise experiences and laboratory examinations of Emsland-Stärke GmbH and Emsland Food GmbH hereafter called Emsland Group. The indications are based on the current state of development, technology and research and should be taken as information on the products of Emsland Group, but must not be understood as promise of characteristics.

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