



**Limagrain  
Ingredients**

# Your guide to **pet food ingredients**



**Naturally  
Innovating  
Solutions**



Develop top-quality  
pet food products  
with ingredient solutions  
from Limagrain Ingredients

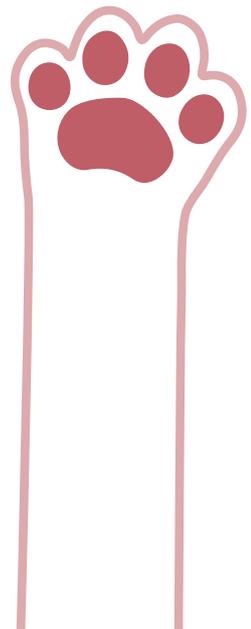
*Flours | Puffed grains | Functional ingredients  
Fibre | Plant-based proteins*

● Naturally Innovating

# Summary



- 04  The Limagrain DNA
- 05  Our ingredients in full transparency
- 06  An expert partner at your service
- 07  Your challenges, our solutions
- 08-11  **Health & Nutrition** solutions
- 12-16  **Texturising** solutions
- 17-19  **Process Support** solutions
- 20  Contact us







# The Limagrain DNA

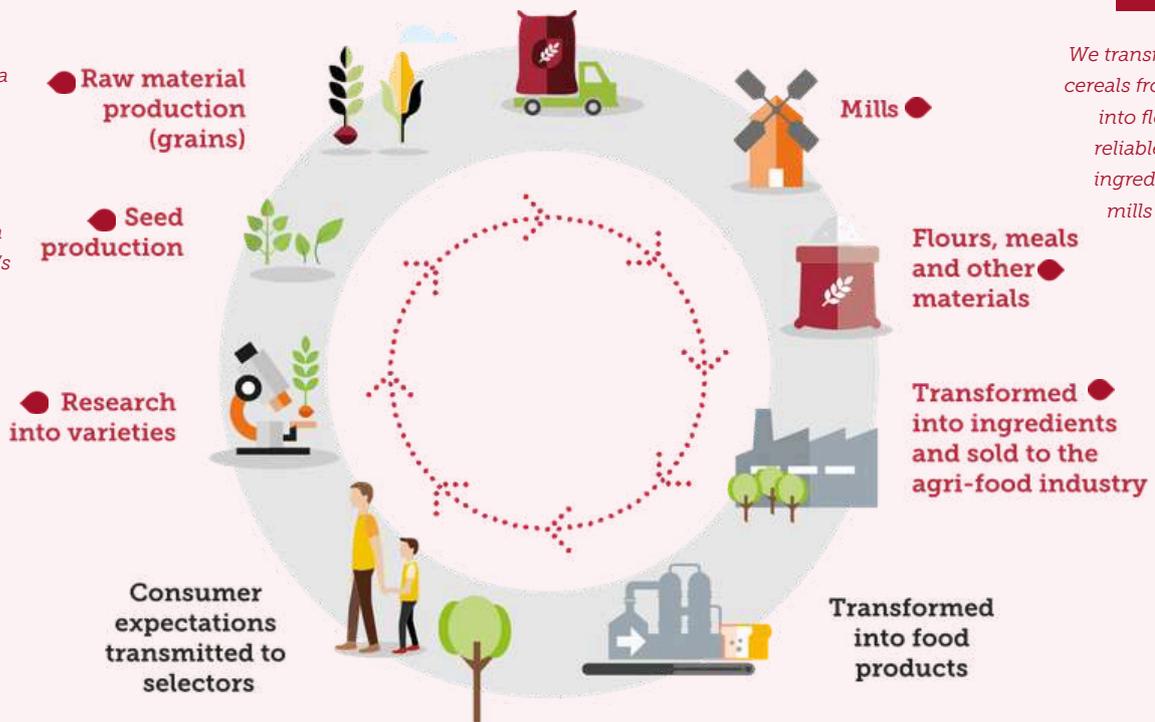
We are the only actor capable of ensuring control of its entire chain  
from variety selection to ingredients production



## From the *Barn* to the *Bowl*



*Limagrain Ingredients, a subsidiary of Limagrain group, an agricultural cooperative and the world's 4th largest seed company, benefits from being part of the Group's variety selection and corn and wheat production.*



*We transform grains and cereals from our partners into flours and meals, reliable and nutritious ingredients, using our mills and processing workshops.*

## *Our commitment to excellence*

**WHY?**

With our long history of studying grains and cereals and their functional characteristics, Limagrain Ingredients offers natural and nutritional ingredient solutions capable of meeting the needs of pets, as well as the expectations of both their owners and the industry

# Our ingredients in full transparency

**R&D CENTRE  
FUNCTIONAL FLOURS**  
FRANCE  
ARQUES

**OFFICE  
R&D CENTRE**  
**FUNCTIONAL FLOURS  
PUFFED GRAINS (PRESCO)**  
NETHERLANDS  
WEERT

**OFFICE**  
GERMANY  
GREVEN

**CORN & WHEAT MILLS  
SNACK PELLETS  
MIXES & IMPROVERS**  
FRANCE  
RIOM - ENNEZAT

**HEADQUARTERS  
R&D CENTRE**



## MARKET EXPECTATIONS

- More *pleasure*
- More *transparent*
- More *healthier*
- More *affordable*
- More *convenient*
- More *safer*
- More *sustainable*
- More *natural*
- More *personalised*



## INDUSTRY EXPECTATIONS

- Control of food safety
- Respect of environment & animals
- Traceability
- Control of costs
- Innovation
- Master of process, texture & taste



We are proud to supply pet food manufacturers with top-quality ingredients that meet the most demanding requirements of consumers. Our certifications include:



# An expert partner at your service

## Leading through innovation

Our dedicated R&D team collaborates with leading pet food manufacturers to develop innovative solutions that meet the highest industry standards. Our expertise in grains and cereals translates into cutting-edge products that deliver real benefits.



### What we can offer

A dedicated team with "80" years of cumulated experience in feed and pet food!



R&D expertise & application knowledge:  
Continuous innovation for superior ingredients



Operational excellence & stability of supply, best quality standards (Food and Feed grade)



"Inno (-vation) day" meetings focused on your specific needs for innovation and enhanced applications



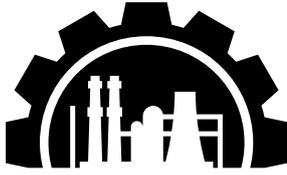
### Get more from our solutions

Partner with Limagrain Ingredients for a smoother experience, supported by precise product documentation. Our expert teams are equipped to manage your pet sensory evaluations, food quality, palatability, and shelf-life studies, along with R&D and analytical services at our laboratories in the Netherlands and France.



**GET IN TOUCH**

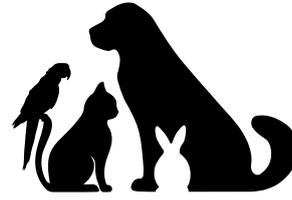
# Your challenges, **our solutions**



Industrial challenges



Pet parents expectations



Pets nutritional needs

Our ingredients are designed to meet the highest industrial standards while ensuring the health and satisfaction of pets and peace of mind for pet parents.

## **3 focus areas** addressing the evolving needs and industrial challenges of the pet food market

*Health & Nutrition*

*Texturising*

*Process Support*

Dry pet food



Pet snacks & treats



Semi-moist and wet pet food



*Natural & Functional*

ingredients for a all pet food applications



Mueslis

# Health & Nutrition solutions

## Nutritional powerhouses



### Looking for ingredients that support digestive health claims?

Our PRESCO ingredients are carefully selected and cleaned whole grains that are treated with a unique pressure-cooking process and have a guaranteed high level of pre-gelatinised starch.

#### Benefits:

- Highest level of starch gelatinisation, highly digestible energy
- Naturally rich in fibre, beneficial for the gut microbiota
- Wholegrains with attractive smell & taste
- Easily digestible nutrients
- Binding effect
- A wide range to chose from:
  - Cereals: Wheat, Corn, Rice, Barley, Sorghum, Oat
  - Formats: Puffed whole grain, pelletized or flour (coarse to fine)

A wide range of attractive pre-gelatinised cereals to meet the nutritional needs of pets



*Natural* puffed grains for semi-moist, dry treats



### A reference in cold-pressed pet food

*High nutritional value* and excellent *binding properties* for pelleted dog food



# Health & Nutrition solutions

## Nutritional powerhouses



How to you provide your pets with a natural nutritional boost?

**Bet on the natural quality of oats!**

*Benefits: Excellent ancient grain for pets that can be included up to 40% in their diets*



### Presco Baby Oat Milled

- **Highly digestible** because of the PRESCO puffing process

- **Higher energy and protein level** compared to conventional cereals



- Excellent **amino acid profile, rich in lysine** compared to conventional grains

- Full of **linoleic acid** to keep the skin healthy

- Excellent **source of dietary fibre**, enriched in fermentable fibre to **improve gut health**

## Nutritional values\*

Starch	Protein	Fat	Fibre	Particle size
58% of which 89% is pre-gelatinised (direct available energy)	13.5%	6.0%	1.2%	75% < 1.0mm

\*indicative data



# Health & Nutrition solutions

## Nutritional powerhouses



Looking for **grain-free** nutritional solutions?

### Presco Yellow Pea

*Grain-free*  
plant-based power for  
*cold-pressed petfood*



High-performance ingredient developed for natural, low-processed pet nutrition.  
**100% yellow pea** & Clean-label.

Product name	Applications	Description	Particle size	Starch content	Protein content	Fat content	Fibre content
Presco Yellow Pea	<ul style="list-style-type: none"> <li>Cold-pressed</li> <li>Low processed petfood</li> </ul>	Puffed whole pea pelletized	8mm pellets	45% incl. 80% pre-gelatinised	21%	1.4%	4.6%
PetFlour 25503	<ul style="list-style-type: none"> <li>Cold-pressed</li> <li>Snacks &amp; treats</li> <li>Sausage type</li> <li>Raw petfood</li> </ul>	Pre-gelatinised pea flour	50% < 250 µm 5% > 1000 µm	47%	22%	0.4%	5.4%
PetFlour 25701		Heat-treated faba bean flour	95% < 630 µm	44%	28%	1.4%	2.3%

### PetFlour Pea / Faba Bean

Functional flours made from pulses are specially designed for non grain pet food. In addition they are rich in starch and high in protein. They are therefore an excellent choice for producing high-end snacks and treats.



## What benefits can fibre bring to pet food formulations?

Fibre play an important role in pet health:

- Soluble and fermentable fibre as a prebiotic nutrient to ensure good gut fermentation and stimulate the intestinal microbiota
- Non fermentable fibre for good stool quality and calorie reduction

### LifyWheat, high-fibre inside

An innovative solution for a higher consumption of fermentable fibre and strong health benefits for pets

- 20 years of research
- 1 unique flour
- 10 times richer in fibre
- 80% of Resistant Starch

Benefits: ideal to **stimulate the intestinal microbiota** and for formulating healthy diets for diabetic dogs (*slow sugar response*)



# Health & Nutrition solutions

## Nutritional powerhouses



Our range of Health & Nutrition ingredients is meticulously crafted to offer the highest quality ingredients, rich in essential nutrients, to ensure the well-being and vitality of pets. Combining our extensive operational expertise with the latest nutritional science, we are able to create ingredients that meet the specific dietary needs of pets, no matter what pet food application you're looking for.

### Our recommended solutions to boost the nutrition of your pet food products based on your specific requirements:

Application	Health & Nutrition benefits	Ingredient / ingredient family	Raw material available	Formats available	Clean Label	Grain-Free	Other benefits
Dry pet food Wet pet food Snacks & Treats 	<b>X</b> High-fibre, high digestible starch, high energy	Presco Wheat	Wheat	Puffed whole grain, pelletized or flour (coarse to fine particle size)	✓		High binding and shaping, Batch to batch consistency with standardized high quality
	<b>X</b> High digestible starch, high energy	Presco Corn	Corn	Puffed whole grain, pelletized or flour (coarse to fine particle size)	✓		
	<b>XX</b> High digestible starch, high energy	Presco Rice	Rice	Puffed whole grain, pelletized or flour	✓		
	<b>XX</b> High digestible starch, high energy	Presco Barley	Barley	Puffed whole grain, pelletized or flour	✓		
	<b>XX</b> High digestible starch, high energy	Presco Sorghum	Sorghum	Puffed whole grain, pelletized	✓		
	<b>XXX</b> High-fibre high digestible starch, higher protein level, better amino acid profile, linoleic acid for health skin	Presco Oat	Oat	Puffed whole grain flour	✓		
	<b>XXXXX</b> Grain-Free, highly digestible, alternative to animal protein	Presco Yellow Pea	Pea	Puffed whole pea pelletized	✓	✓	
	<b>XXXXX</b> High protein content, Grain-Free	PetFlour Pea	Pea	Pre-gelatinised flour	✓	✓	Texturising
	<b>XXXXX</b> High protein content, Grain-Free	PetFlour Faba Bean	Faba Bean	Heat-treated flour	✓	✓	

Get in touch with our expert team for extra details or for any specific question you may have

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# Texturising solutions

## Perfect texture for happy pets

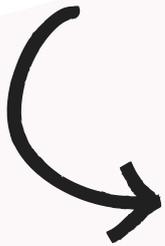
### How can I create the ideal texture for dental sticks?

**PetFlour** PetFlour, our range of Clean Label functional flours brings extra added value to your pet food products, naturally.  
Binding nature to nutrition

Benefits : Improve elasticity and hardness of the sticks for a long-lasting chewing experience

A whole range of functional ingredients to choose from!

Our recommendations based on your specific needs !



Ingredient	Our solution	Grain-free	Stick flexibility	Stick hardness	Expansion rate	Shine	Palatability **
Extruded maize flour	PetFlour 22501 22502	✗	+++	+++++	+++	+++	++++
Extruded wheat flour	PetFlour 21501	✗	+++	+++	+++++	+++	++
Extruded pea flour	PetFlour 25503 (coarse)	✓	+++++	+++++	+++++	++++	++++
Extruded rice flour	PetFlour 23501	✗	++++	++++	++	++++	+++

In addition, our ingredients **Presco Flour** - pre-gelatinised whole grain flours - can bring an improved texture and a nutritional boost to your dental sticks!

- 2 very fine granulometries available (<250µm & <600µm).
- A cost-effective option and a great complement to our PetFlour heat-treated functional flours

Puffed whole corn flour	Presco Corn Flour 250	✗	+++	+++++	++++	++	+++++
	Presco Corn Flour 600	✗	++	++++	++++	++	+++++



# Texturising solutions

## Perfect texture for happy pets



### How can I make my muesli more appealing?

Ideal for birds and rodents mueslis, our puffed grains help bring a differentiated texture & visual aspect to the products while keeping a great palatability.

#### Benefits:

- Different formats from whole grains to flakes or crushed grains
- Attractive pop-corn like aroma for maximum acceptance
- A wide variety of raw materials to choose from:



Wheat



Wheat kernels



Broken wheat



Wheat flakes



Rice



Sorghum



Corn



Puffed maize



Corn flakes



Tasty Corn



Barley



Durum wheat



Millet



Spelt



Dutch quinoa



# Texturising solutions

Perfect texture for happy pets



## Are TVPs the future of texture?

Our future range of Texturized Vegetable Proteins will combine Limagrain Ingredients' expertise in heat-treated flours & the power of TVPs within our integrated chain.

### PRESSED PET FOOD

Inclusion levels up to 20%

### WET PET FOOD

Substituting meat chunks

### SNACKS

Inclusion levels depend on product/process

As more consumers embrace plant-based diets, pet owners are increasingly opting for plant-based ingredients in pet food, driven by perceived health benefits, sustainability, and animal welfare. Our range of Texturized Vegetable Proteins (TVP) will be able to offer meat-like texturizing options in a variety of pet food applications.

*Benefits: Anti Nutritional Factors deactivated, Palatability, A sustainable choice, Declaration and labelling (Claims = Sustainable, Clean label, Highly digestible plant protein, Meat-like texture)*



**Upcoming innovation...  
Interested? Get in touch!**  
[info.ingredients@limagrain.com](mailto:info.ingredients@limagrain.com)



# Texturising solutions

## Perfect texture for happy pets



Our texturising ingredients are engineered to provide pet food formulations with the perfect desired texture. Whether you're crafting dry pet food, wet pet food, or snacks and treats, our innovative solutions ensure that your products stand out in a competitive market.

### Our recommended solutions to enhance the texture of your pet food products based on your specific requirements:

Application	Texturising benefits	Ingredient / ingredient family	Raw material available	Formats available	Clean Label	Grain-Free	Other benefits
Mueslis 	X Differentiated visual aspect	Presco Puffed grains	Wheat, Corn, Barley, Rice, Sorghum, Durum Wheat, Millet, Spelt, Dutch Quinoa	Puffed whole grains			Aroma Palatability Highly digestible
		Presco Flakes	Wheat Corn	Puffed flaked whole grains			
Snacks & Treats 	XXX Right hardness/elasticity for dental sticks, Smoother surface for baked cookies	Presco Flour	Wheat Corn	Puffed whole grain flour			Palatability Highly digestible Cost-saving
	XXX Soft/elastic texture for semi-moist treats	PetFlour Wheat	Wheat	Meal, Heat-treated flour			Water content control, High binding, Low microbiology
	XXX Hardness of dental sticks	PetFlour Corn	Corn	Pre-gelatinised flour			Water content control, High binding, Low microbiology
	XXX Flexibility, hardness and shine of dental sticks	PetFlour Rice	Rice	Pre-gelatinised flour			High binding Low microbiology
	X Flexibility, hardness and expansion of dental sticks	PetFlour Pea	Pea	Pre-gelatinised flour			High protein content
	X	PetFlour Faba Bean	Faba Bean	Heat-treated flour			High protein content



# Texturising solutions

Perfect texture for happy pets



**Our recommended solutions to enhance the texture of your pet food products based on your specific requirements:**

Application	Texturising benefits	Ingredient / ingredient family	Raw material available	Formats available	Clean Label	Grain-Free	Other benefits
Dry pet food 	<b>XXX</b> Soft texture for dry food	<b>PetFlour Wheat</b>	Wheat	Meal, Heat-treated flour	✓		Water content control, High binding, Low microbiology
	<b>XXX</b> Soft texture for dry food	<b>PetFlour Corn</b>	Corn	Pre-gelatinised flour	✓		Water content control, High binding, Low microbiology
	<b>X</b>	<b>PetFlour Pea</b>	Pea	Pre-gelatinised flour	✓	✓	High protein content
	<b>X</b>	<b>PetFlour Faba Bean</b>	Faba Bean	Heat-treated flour	✓	✓	High protein content
Wet pet food 	<b>XXX</b>	<b>PetFlour Wheat</b>	Wheat	Meal, Heat-treated flour	✓		Water content control, High binding, Low microbiology
	<b>X</b>	<b>PetFlour Pea</b>	Pea	Pre-gelatinised flour	✓	✓	High protein content
	<b>X</b>	<b>PetFlour Faba Bean</b>	Faba Bean	Heat-treated flour	✓	✓	High protein content
	<b>XXX</b> Smooth & creamy texture (hot viscosity)	<b>Innosense Viscopulus</b>	Wheat	Heat-treated flour	✓		Easily dispersible, High binding, Stability during cooking



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# Process Support solutions

## Enhancing pet food production



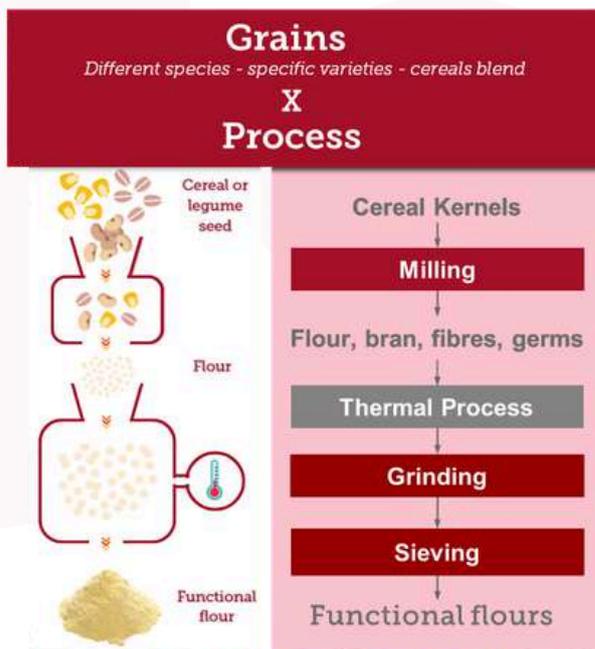
### How to better control the water content of your product?

To create a softer texture, the water content of your pet food must be higher. Our ingredients help to control the water activity in the product, which also helps prevent unwanted microbiological activity



Being the result of the synergy between our cereal expertise and the mastery of our hydro-thermal processes, our range of functional flours - PetFlour - is specifically designed to control the water content of your products and bring them the specific properties you're looking for.

The concept of functional flours



from specific seeds to highly functional ingredients...

#### Core process:

- Thermal treatment continuous & consistent process
- Grinding, sieving, blending
- Flexible combination

= Specific properties and



#### Benefits:

- Water content management = desired viscosity
- Oil content management
- 100% Clean Label "flour" solutions in the finished product
- Microbiology and stability: strict microbiological requirements & long shelf life
- A wide range to choose from:
  - Cereals: Wheat, Maize, Rice, Pea, Faba bean
  - Native, steamed, or heat-treated flours



# Process Support solutions

## Enhancing pet food production



### How can you effectively carry oily or fatty substances?

Discover our PRESCO carriers: natural and functional solutions for fixing and diluting for oily, fatty and liquid substances or additives

- Presco Wheat Carrier
- Presco Corn Carrier



#### Natural & nutritional

- ✓ A reassuring declaration: wheat, maize

#### Many *technical* benefits

- ✓ Liquid absorption capacity
- ✓ Dust free
- ✓ Flowability
- ✓ Improved shelf life
- ✓ Nutrition
- ✓ Low acid binding / buffering capacity



### Looking for cost-effective ingredients?

↳ **Presco Flour**

#### Nutritional values\*

Product	Particle size	Starch	Protein	Fat	Fibre
Presco Corn Flour 250	100% <250 µm	65% of which 84% is pre-gelatinised (direct available energy)	7.4%	3.4%	1.7%
Presco Corn Flour 600	85% <600 µm				
Presco Wheat Flour 250	100% <250 µm	62% of which 86% is pre-gelatinised (direct available energy)	10.5%	1.5%	1.9%
Presco Wheat Flour 600	85% <600 µm				

\*indicative data



A cost-effective option for **pet snacks & treats** and a great complement to our PetFlour functional flours

- Ideal texture & palatability
- A wide range
- Easy digestibility
- Nutritional boost
- Cost-effective



# Process Support solutions

## Enhancing pet food production



Our range of functional ingredients is designed to optimize production processes, ensuring consistent texture, stability, and quality in every product. From dry pet food to wet pet food and treats, our range of process support solutions simplifies your operations and delivers exceptional results.

### Our recommended solutions to improve the processability of your pet food products based on your specific requirements:

Application	Health & Nutrition benefits	Ingredient / ingredient family	Raw material available	Formats available	Clean Label	Other benefits
Dry pet food Wet pet food Snacks & Treats 	<b>XXX</b> High binding and shaping capacity	<b>Presco Wheat</b>	Wheat	Puffed whole grain, pelletized or flour (coarse to fine particle size)	✓	High-fibre, high digestible starch, high energy
		<b>Presco Corn</b>	Corn	Puffed whole grain, pelletized or flour (coarse to fine particle size)	✓	High digestible starch, high energy
		<b>Presco Rice</b>	Rice	Puffed whole grain, pelletized or flour	✓	High digestible starch, high energy
	<b>XX</b> Good binding and shaping capacity	<b>Presco Barley</b>	Barley	Puffed whole grain, pelletized or flour	✓	High digestible starch, high energy
		<b>Presco Sorghum</b>	Sorghum	Puffed whole grain, pelletized	✓	High digestible starch, high energy
		<b>Presco Oat</b>	Oat	Puffed whole grain flour	✓	High-fibre, high digestible starch, high energy, high protein level
	<b>XX</b> Liquid absorption capacity, dust free, flowability, improved shelf life, low acid binding / buffering capacity	<b>Presco Wheat Carrier</b>	Wheat	Puffed whole grain flour	✓	Nutrition
		<b>Preco Corn Carrier</b>	Corn	Puffed whole grain flour	✓	Nutrition
	<b>X</b> Highest binding effect, no shaping, water control management	<b>PetFlour Wheat</b>	Wheat	Meal, Heat-treated flour	✓	Texturising, Low microbiology
		<b>PetFlour Corn</b>	Corn	Pre-gelatinised flour	✓	Texturising, Low microbiology
<b>PetFlour Rice</b>		Rice	Pre-gelatinised flour	✓	Texturising, Low microbiology	

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