Whey Permeate
Taste and texture enhancement at a cost benefit
Why Whey Permeate could be right for you:
3 unbeatable product benefits

Functional Bulking Benefits
- Whey Permeate is a free flowing bulking agent, which dissolves fast.
- It has a high wettability and flows easily, making it ideal for use in applications such as instant soups, sauces, powder beverages, and seasoning.

Pleasant Flavour
- Whey Permeate contains at least 85% lactose – this is the reason for its mild, appealing flavour.
- Whey Permeate has a sweet dairy flavour, making it ideal for applications such as chocolate and confectionary. Since it does not have the salty mineral flavour typical of other permeate products, it ensures optimum usage at a much higher dosage.

Cost Savings
- Whey Permeate can easily replace other, more expensive filler ingredients, such as pure lactose, whey powder, and others.
How Whey Permeate is produced

FLOW CHART

MILK → CHEESE → WHEY → SPRAY DRYING → SWEET WHEY POWDER

WHEY PROTEIN → PERMEATE

CRystALLISATION → SPRAY DRYING → ARLA WHEY PERMEATE

CRystALLISATION → DRYING → LACTOSE

MOTHER LIQUOR
Whey Permeate beats other bulking agents on taste

Whey Permeate is a cost-efficient dairy replacer for lactose, sweet whey powder, and/or demineralised whey powder in many food applications.

**Whey Permeate vs. Lactose**
Whey Permeate provides a strong, milky flavour compared to lactose. In a one-to-one sensorial taste comparison, Whey Permeate will appear sweeter due to the flavour enhancement effect of the minerals.

**Whey Permeate vs. Sweet Whey Powder/Demineralised Whey Powder**
In a one-to-one sensorial taste comparison, Whey Permeate will appear less salty and acidic and sweeter than Sweet Whey Powder. There are only minor taste differences between Whey Permeate and Demineralised Whey Powder.

 REPLACEMENT may require a substitution other than 1:1. The level of other sweet ingredients may need to be adjusted, as Whey Permeate carries a slightly sweeter profile.
Recommended usage of Whey Permeate in your product

**Chocolate and Confectionary**
- Provides mild sweetness and a pleasant milky flavour
- Acts as a flavour enhancer due to mineral content
- Can be used at high concentration, providing more dairy bulking solid without excess sweetness

**Dairy**
- Whey Permeate is a natural dairy ingredient, ensuring a clean label
- Especially useful where higher non-protein and non-fat solids are desired to add volume to powder
- Acts as a flavour enhancer to other added flavours, like chocolate and vanilla

**Instant soups and sauces**
- Adds volume to powder products and blends well with other ingredients, acting as an enhancer for other flavours and spices
- Binds volatile flavour components, resulting in less flavour loss during processing and storage
- Very efficient browning agent, providing colour and burnt sugar notes

**Seasoning and snacks**
- Adds volume to seasoning mix, which raises consumer appeal through highly visible seasoning
- Enhances other dairy solids such as cheese or cream powder, yielding a milky flavour
- Blends well with other ingredients in the seasoning and results in good adherence of the blend to, e.g. chips

**Vending mix and powder beverages**
- Acts as a dairy filler and sweet bulking agent, adding volume to powder
- Adds sweet, milky flavours to the beverage
- Provides a pleasant mouthfeel to drinks due to the mineral content, especially calcium

**Bakery**
- Whey Permeate contributes to the maillard reaction and caramelisation during baking, resulting in enhanced browning of the crust and contributing to toasted brown and burnt sugar notes
- Provides a milky, sweet flavour to bread, cakes and cookies and acts as a flavour enhancer in custards, fillings and icing.
### CHEMICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein (N x 6.38) as is</td>
<td>max. 3 %</td>
</tr>
<tr>
<td>Lactose monohydrate</td>
<td>min. 85 %</td>
</tr>
<tr>
<td>Ash</td>
<td>max. 7%</td>
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<tr>
<td>Moisture</td>
<td>max. 3.5 %</td>
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<tr>
<td>Bulk density</td>
<td>level 0.7 g/cm³</td>
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</tbody>
</table>

### MICROBIOLOGICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
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<tbody>
<tr>
<td>Total plate count</td>
<td>max. 10,000/g</td>
</tr>
<tr>
<td>Enterobacteriaceae</td>
<td>max. 10/g</td>
</tr>
<tr>
<td>Staphylococcus aureus coagulase +</td>
<td>absent in 1 g</td>
</tr>
<tr>
<td>Yeast/Mould</td>
<td>max. 100/g</td>
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<tr>
<td>Salmonella</td>
<td>absent in 125 g</td>
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### PHYSICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
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<tbody>
<tr>
<td>pH (10% solution)</td>
<td>5.8 – 6.5</td>
</tr>
<tr>
<td>Scorched particles</td>
<td>Disc A</td>
</tr>
<tr>
<td>Bulk density</td>
<td>level 0.7-0.8 g/cm³</td>
</tr>
<tr>
<td>Colour</td>
<td>pale yellow</td>
</tr>
<tr>
<td>Flavour/odour</td>
<td>bland, slightly salty</td>
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### PACKAGING

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
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<tbody>
<tr>
<td>25 kg paper bags</td>
<td></td>
</tr>
<tr>
<td>1000 kg big bags</td>
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</tbody>
</table>

### SHELF LIFE

Minimum 12 months if stored in closed bags under cool and dry conditions.

### Quality is our most important parameter

- Full commitment to the environment and our responsibility
- Natural whey ingredients
- Uniform high product quality – every time
- Traceability of every product
- Complete security of supply. The capacity, logistics, and documentation you need
- State-of-the-art, HACCP and ISO certified production sites
- Dedicated R&D lab and pilot plant
Global Sourcing of Whey Permeate

Danmark Protein
Location: Videbæk, Denmark
Production capacity: 22,500 MT p.a.

AFISA, J/V with SanCor
Location: Porteña, Pcia. de Cordoba, Argentina
Production capacity: 24,000 MT p.a.

Partnership with TINE Meieri
Location: Verdal and Jæren, Norway
Production capacity: 20,000 MT p.a.

If you would like to find out more about Whey Permeate, please contact us at lactose@arlafoods.com or call +45 8939 1000
Arla Foods Ingredients Group P/S

Arla Foods Ingredients Group P/S is a leading supplier of nutritional and functional milk-based ingredients to the global food industry. Whey Permeate is distributed by the Permeate and Lactose business area, dedicated to developing value-added products. Arla Foods Ingredients Group P/S is constantly on the lookout for new and better ways to provide its customers with better solutions and tools to meet any challenge.

As a part of Arla Foods, one of Europe’s principal dairy groups, Arla Food Ingredients Group P/S has production facilities in Denmark, Argentina, Norway and Germany, application centers in Denmark and Argentina and approximately 600 employees worldwide.

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