We are experts in emulsifiers and stabilizers for bakery, confectionary, dairy, ice cream, margarine and fine foods - and we are happy to share our expertise with you. Our company values can be defined in just three words: loyalty, responsibility and commitment.

Palsgaard loyalty means that we act as a reliable and honest business partner for our customers. We treat information confidentially and keep a business secret. Palsgaard responsibility means caring about the environment and being aware of our corporate social responsibility. We have a goal to be CO2 neutral by 2020 and are members of SEDEX and RSPO. Palsgaard commitment means we are dedicated to getting the best results for our customers' products - to the benefit of their customers. We care about our employees and have a declared aim that Palsgaard must be a pleasant place to work. Palsgaard heart work is the best way to achieve success - let us help you do so.

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As a manufacturer of mayonnaises, dressings, sauces and ketchups, your market position is largely determined by your ability to develop new and improved consumer products as well as optimizing the production process.

A successful company predicts their consumers’ future needs, and quickly masters the challenges of development.

Palsgaard is engaged in your company through research, know-how and professional working methods. One of the key elements in our work with our customers is simulating a variety of processes in our modern pilot plants in order to evaluate the quality and functionality of the customer’s final products.

Our pilot plants are set to match the customers’ set-up as closely as possible. Palsgaard has the following plants:

- Batch production: FrymaKoruma pilot plant, homogenizer system and high speed mixer / Stephan mixer
- Continuous production: GerstenbergSchröder pilot plant

Our highly skilled and experienced technicians will find the optimal solution through close cooperation with you.

Dialogue and trust are key words in the co-operation between Palsgaard, yourself and your company. A co-operation where your expertise combined with our knowledge and experience will optimize your company’s market position.
Palsgaard is one of the leading manufacturers of emulsifiers and stabilizers for the food industry worldwide. For mayonnaises, dressings, ketchups and sauces Palsgaard offers a wide range of:

- Stabilizer combinations
- Emulsifier and stabilizer combinations

Emulsifiers and stabilizers are only minor parts of the final products. They have, however, a significant impact on the quality of the final products, and this is why the creation of the right combination is extremely important in order to obtain the necessary and desired:

- Stability
- Viscosity
- Texture
- Mouthfeel
- Shelf life
- Other benefits

Our aim is to supply emulsifier and stabilizer solutions, with additional information regarding other ingredients, recipe suggestions, the process and other important information, which will help you in your production and development work.

In order to make the best solution, Palsgaard's blends consist of a range of different and carefully selected high quality raw materials e.g.:

Hydrocolloids: Guar gums, xanthan gums, alginates, locust bean gums and starches, native and modified.

Emulsifying agents: Citric acid esters of mono- and diglycerides of fatty acids, milk based ingredients and emulsifying starches.

The Palsgaard emulsifier and stabilizer solutions fit into your preferred production set-up and recipe:

<table>
<thead>
<tr>
<th>Process</th>
<th>Cold</th>
<th>Warm</th>
</tr>
</thead>
<tbody>
<tr>
<td>With eggs</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Without eggs</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Palsgaard will be pleased to assist you in finding the best emulsifier and stabilizer solution for your:

- Real mayonnaise
- Salad mayonnaise
- Low fat mayonnaise
- Dressing
- Low fat dressing
- Fat free dressing
- Sauce
- Fat free sauce
- Ketchup
- Other related products

### Influence of stabilizers on viscosity

<table>
<thead>
<tr>
<th>Viscosity in cP</th>
<th>0.00%</th>
<th>0.10%</th>
<th>0.20%</th>
<th>0.30%</th>
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</thead>
<tbody>
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<tr>
<td>100,000</td>
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<td>600,000</td>
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</tbody>
</table>

Palsgaard stabilizer
Mayonnaise

Different mayonnaises call for specific stabilizer and emulsifier / stabilizer solutions, as mayonnaise can vary from country to country, both by tradition and legislation. Each type of mayonnaise has its own characteristics and demands.

<table>
<thead>
<tr>
<th>Real mayonnaise</th>
<th>Salad mayonnaise</th>
<th>Low fat mayonnaise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fat content in a real mayonnaise is typically 80%. As emulsifier normally egg yolk is used, but other solutions could be based on milk proteins. Real mayonnaise is used as table mayonnaise; being delicious, decorative and ready to consume. By choosing Palsgaard stabilizer or emulsifier / stabilizer blends for real mayonnaise you will achieve:  - high stability  - nice and firm texture  - high or low viscosity  - extended shelf life  - improved mouthfeel  - optimized recipe</td>
<td>Fat content can be low or high and normally egg yolk is used as emulsifier. Alternative solutions could be milk proteins or emulsifying starches. Specific demands for salad mayonnaise:  - ability to adhere to the fillings  - resistance to the mixing process  - high water absorption capacity  - good mouthfeel</td>
<td>Fat content is normally below 60% and egg yolk is used as emulsifier. Alternative solutions could be emulsifiers based on milk proteins or emulsifying starches. The high content of water calls for specific characteristics of the emulsifier / stabilizer system in order to get the right mouthfeel, stability, and viscosity. By choosing Palsgaard stabilizer or emulsifier / stabilizer solutions for low fat mayonnaises, you will achieve:  - excellent stability even with very low fat content  - short texture similar to real mayonnaise  - delicious mouthfeel  - high or low viscosity as desired  - extended shelf life  - all vegetable based solutions if needed</td>
</tr>
</tbody>
</table>
Dressing

Market demands regarding quality and new types of dressings are constantly increasing and this gives challenges to the producer regarding innovation and optimization.

### Dressing containing fat

Dressing normally contains up to 40% fat. This requires an emulsifier / stabilizer solution. The stabilizers thicken the water in the dressing and keep the suspension of spices and herbs in the dressing. The emulsifier will ensure emulsion stability. Other demands are short texture and pourability as dressings are often available in bottles.

By choosing Palsgaard stabilizer or emulsifier / stabilizer solutions for dressings you will achieve:

- excellent emulsion stability
- good pourability
- short texture
- homogenous and stable suspension of spices and herbs in the dressing
- improved mouthfeel
- an all vegetable based dressing if desired

### Dressing without fat

Dressings without fat require stabilizers only for stabilizing the water and for keeping the suspension of spices and herbs homogenous.

The eating quality of dressings without fat will depend very much on other ingredients in the dressing and salad, which is why there are some specific demands to the dressing:

- very short texture
- adherence to the salad
- desired viscosity
- good pourability
- transparency as required

By choosing Palsgaard stabilizer solution for fat-free dressing you will achieve:

- excellent texture and creamy mouthfeel
- increased adherence to the salad
- complete transparency if desired
- a dressing that is easy to pour
## Sauce

For the wide range of different types of sauces on the market, Palsgaard offers the right stabilizer and stabilizer / emulsifier solutions.

<table>
<thead>
<tr>
<th>Sauce containing fat</th>
<th>Sauce without fat</th>
</tr>
</thead>
</table>
| Sauces often contain up to 40% fat, and egg yolk can be applied as emulsifier. Alternative solutions of emulsifiers, like citric acid esters of mono- and diglycerides of fatty acids, milk proteins or emulsifying starches, are also used in sauces. Specific demands for these sauces:  
- resistance to heat treatment if consumed warm  
- high or low viscosity as requested  
- very good mouthfeel and texture  
By choosing Palsgaard stabilizer or emulsifier / stabilizer solutions for sauces containing fat, you will achieve:  
- very good heat stability, if produced or consumed warm  
- excellent mouthfeel  
- viscosity and texture can be adjusted to meet the desired standard | Fat free sauces require stabilizers only for stabilizing the water and for keeping the suspension of spices and herbs homogenous. Specific demands for these sauces:  
- resistance to heat treatment if consumed warm  
- high or low viscosity as requested  
- very good mouthfeel and texture  
By choosing Palsgaard stabilizer solution for fat free sauces, you will achieve:  
- excellent texture and creamy mouthfeel  
- high stability |
Ketchup

By focussing on appearance and taste from tomatoes, Palsgaard offers a wide range of solutions for ketchups

Ketchup with different types of paste

Ketchup with high tomato paste content requires stabilizers to thicken the water in the product and to keep the suspension of the herbs homogenous.

At lower tomato paste content, the influence of the stabilizers on the quality of the final product is even bigger.

Palsgaard offers a range of different stabilizer solutions for ketchups with high and low tomato paste content.

Palsgaard stabilizer solutions for ketchup with other types of taste than tomato paste are also available.
Palsgaard has been developing and manufacturing emulsifiers and stabilizer systems for more than 85 years. Our research and development company, Nexus, was founded in 1949 and has taken out numerous patents for Palsgaard products.

Palsgaard produces ingredients in Denmark, China, Mexico and the Netherlands. Palsgaard production facilities are modern and cost-effective, and the basis of our quality products is the use of only the finest raw materials. To secure you a premium and safe product, we manufacture according to HACCP principles. Quality assurance documentation includes ISO 9001 certification as well as GMP and BRC. Most Palsgaard products are furthermore manufactured according to halal and kosher regulations.

Palsgaard offers the full range of high-functional emulsifiers and stabilizers. For specific applications, tailor-made products can be developed.