



## Palsgaard® PGPR 4125

## Product Profile

**Product Type:** Palsgaard® PGPR 4125 is a polyglycerol polyricinoleate (PGPR) with uniform high functional properties

**Application Areas:** Palsgaard® PGPR 4125 is specially designed to reduce the Casson yield value and plastic viscosity in chocolate and compound products. As Palsgaard® PGPR 4125 is mainly reducing the yield value it is usually used in combination with ammoniumphosphatide (Palsgaard® AMP 4448) or lecithin to achieve optimal results.

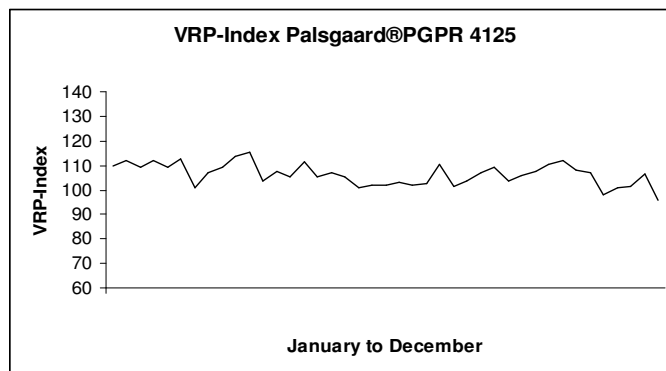
**Functional Properties:** Palsgaard® PGPR 4125 has a strong effect on especially the Casson yield value in chocolate and compound systems and is an excellent choice when reduced fat content is requested.

The functionality of Palsgaard® PGPR 4125 is precisely monitored and controlled in chocolate, which ensures our customers an outstanding batch-to-batch stability. This is a great benefit to the chocolate producer as the outstanding uniformity means a smooth chocolate production.

Apart from securing the functionality of Palsgaard® PGPR 4125, the unique production process has been designed in such a way, that the product is light in colour and completely taste and odour free. This is crucial when making the fine tasting chocolate products loved by the consumers.

Using Palsgaard® PGPR 4125 will improve the flow properties of your chocolate and enable a considerable fat reduction at the same time. This makes it easy for you to make high quality and nice looking chocolate at a competitive price.

Due to the sophisticated production and strict QA system, Palsgaard® PGPR 4125 has an outstanding stability in performance and the variation from batch to batch is very small. Below graph shows the exceptional functional stability (expressed as VRP-Index - explanation on page 2) of Palsgaard® PGPR 4125 productions over a period of 1 year.



The uniformity in functionality secure our customers a stable and smooth running production process

The benefits of Palsgaard<sup>®</sup> PGPR 4125 are as follows:

General

- Uniform and documented functionality
- Cost saving – reduction in fat content
- Neutral in taste and odour

Moulding

- Easier flow
- Easier distribution in moulds
- Less need for vibration
- Better coating of inclusions
- Avoid air bubbles

Coating

- Easier flow
- Uniform and complete coating
- Avoid air bubbles (leaks)
- Control of the chocolate layer

Ice cream coating

- Uniform coating
- Control of the chocolate layer
- Reduction of pinholes
- Resistance to water contamination

**The Palsgaard QA model:** In general PGPR is described by a number of chemical values such as hydroxyl value, acid value etc., which are not reflecting the functional properties of the product. In other words it is possible to produce a functional and a non-functional PGPR within the given legal specifications.

In order to secure the functionality of Palsgaard<sup>®</sup> PGPR 4125, Palsgaard has developed an analytical method, which describes the precise functionality of PGPR in chocolate – the so called viscosity reducing power (VRP) or viscosity reducing Index (VRP-Index).

VRP method shows the actual viscosity reducing power in percentage when adding 0.2% PGPR to a chocolate.

VRP - Method overview:

Equipment: Haake RotoVisco 1 – spindle Z38, Speed: 0.54 [1/s] (This speed is used as this is close to the functionality area of PGPR – it imitates e.g. slow moving chocolate in a vibrated mould)

Test milk chocolate based on sugar, cocoa mass, cocoa butter, milk solids and ammoniumphosphatide is manufactured and the viscosity is measured (Start viscosity).

0.2% sample Palsgaard<sup>®</sup> PGPR 4125 is added and the viscosity is measured (Test viscosity)

Calculation:

$$\frac{\text{Start viscosity} - \text{Test viscosity}}{\text{Start viscosity}} \times 100 = \text{VRP}$$

Palsgaard<sup>®</sup> PGPR 4125 will typically show a VRP of 70%

VRP-Index: Shows the VRP compared to a target PGPR. As it is impossible to make 2 identical test chocolates, the VRP level will change when changing test

chocolate. The analysis will also depend on equipment, calibration, sample preparation etc. In order to avoid these analytical disturbances, Palsgaard has introduced the VRP-Index method. Here a target PGPR is chosen as standard. This standard is analysed every day and the VRP result is used as index 100. The analysed batches are then compared to the standard using following calculation:

$$\frac{\text{VRP Test chocolate}}{\text{VRP Target chocolate}} \times 100 = \text{VRP Index}$$

VRP test chocolate/VRP target PGPR \* 100.  
Numbers above 100 shows stronger VRP than standard.

As standard Palsgaard A/S will provide the VRP-Index on the COA as the most important parameter showing a high and consistent quality and functionality of our product.

For more detailed description on how to measure the VRP please contact Palsgaard A/S – Bakery and Confectionery Group.

**Dosage:** Typical 0.1% - 0.5%  
Depends on the requested functionality and the legislation

**Additional inf.** To get your own cost-in-use calculation with Palsgaard<sup>®</sup> PGPR 4125 or additional technical information, please visit [www.palsgaard.com](http://www.palsgaard.com) to locate our local Palsgaard office