Palsgaard® PGPR 4150 Product Profile

Product Type:

Palsgaard® PGPR 4150 is a polyglycerol polyricinoleate (PGPR) with unique functional properties.

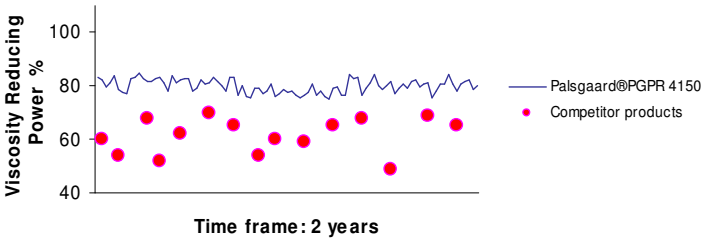
Application Areas:

Palsgaard® PGPR 4150 is specially designed to reduce the Casson yield value and plastic viscosity in chocolate and compound products. As Palsgaard® PGPR 4150 is mainly reducing the yield value it is usually used in combination with ammoniumphosphatide (Palsgaard® AMP 4448) or lecithin to achieve optimal results. The unique functionality enables production of very low fat chocolates.

Functional Properties:

Palsgaard® PGPR 4150 is the most functional and efficient PGPR in the market and has a strong effect on especially the Casson yield value in chocolate and compound systems. Palsgaard® PGPR 4150 is an excellent choice when reduced fat content is requested and the unique functionality makes it possible to work with recipes on the edge of what is possible. In standard formulations Palsgaard® PGPR 4150 will do the job at a very low dosage. Typically Palsgaard® PGPR 4150 should be dosed approx. 25 – 35 % lower than other PGPR's in the market and this makes it a very cost efficient product.
Below graph show the unique performance of Palsgaard® PGPR 4150 in comparison to PGPR products in the marked.(the red dots). Palsgaard® PGPR 4150 differentiates from other PGPR types with its uniformity and superior performance.

Palsgaard® PGPR 4150 versus competition



Palsgaard® PGPR 4150 - Small drop – big effect

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The functionality of Palsgaard® PGPR 4150 is precisely monitored and controlled in chocolate, which ensures our customers an outstanding batch-to-batch stability and a uniform production at the chocolate producer.
The unique production process of Palsgaard® PGPR 4150 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.
Apart from high functionality, low dosage, batch-to-batch stability and flavour the main benefits of Palsgaard® PGPR 4150 are as follows:

General
- Low dosage – big effect
- Cost saving
- Low fat content
- Neutral in taste and odour
- Uniform and documented functionality

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® PGPR 4150, 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 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® PGPR 4150 is added and the viscosity is measured (Test viscosity)

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Calculation:

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

Palsgaard® PGPR 4150 will typically show a VRP of 82%

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® PGPR 4150 or additional technical information, please visit www.palsgaard.com to locate our local Palsgaard office

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