



Palsgaard®

GLOBAL PRODUCT CONCEPT

# Plant-based hot chocolate — without milk, but will you notice?

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GLOBAL PRODUCT CONCEPT

## Plant-based hot chocolate created with Palsgaard® AMP 4455 and Palsgaard® PGPR 4190

### BACKGROUND

There is an increasing demand for plant-based products in practically all kinds of foods – including a plant-based alternative to the well-known and delicious milk chocolate loved by consumers worldwide. The relatively soft consistency, nice meltdown and clean flavour release are defined by the mixture of cocoa butter, cocoa butter equivalent (CBE) and milk fat, and the combined cocoa and milk flavour make the eating experience next to perfect.

Taking out the milk components to create a plant-based alternative is therefore not an easy task and some challenges have to be solved.

Removing the milk fat creates a harder product and you lose the feeling of eating milk chocolate. This can be solved by replacing the milk fat with a proper milk fat replacer like Illexao VN 70 from AAK. This product will create the creamy milk-chocolate like meltdown and at the same time preserve the bloom stability known from milk chocolate.

Removing the non-fat milk solids (milk powder) will make the chocolate darker with a loss in milky taste. The milk powder has to be replaced with a vegetable product which can bring back the light colour without getting a sandy/powdery eating sensation. One of the good solutions is to add sweet rice flour like e.g. Nutrizmol from Beneo. This product provides a moderate sweetness, a light colour and preserves the nice mouthfeel without a sandy or powdery mouthfeel.

A well-known and very expensive challenge is the fact that when you are making plant-based chocolates and replacing the milk components, there is a need for 2 – 3 % extra fat to make the chocolate flow properly. Having to add 2-3% extra cocoa butter for functional reasons only, is basically adding cost to the product for no reason.

Fortunately, Palsgaard A/S has a unique solution to avoiding additional costs – namely the emulsifier duo Palsgaard® AMP 4455 and Palsgaard® PGPR 4190.

Palsgaard® AMP 4455 is a highly functional alternative to lecithin, and with it having more than double the strength of lecithin, you can replace at least 2-3% cocoa butter in the recipe, without changes in the flow properties. Or in this case, avoid adding extra cocoa butter to a bar of plant-based chocolate, and this way keep the cost down to a reasonable level.

Co-emulsifier Palsgaard® PGPR 4190 will reduce especially the Yield value of the chocolate. This will ensure that unwanted air bubbles can escape and that the chocolate, even if it contains inclusions will float and fill the mould efficiently to create a perfect desired shape.

### PRODUCT ADVANTAGES

#### Palsgaard® AMP 4455

- Efficient reduction in viscosity without increasing the fat content
- Reduce the difficulties when working with inclusions
- Reduce production energy
- Neutral taste, uniform functionality
- Produced in a CO<sub>2</sub>-neutral factory

#### Palsgaard® PGPR 4190

- Efficient reduction in Yield value without increasing the fat content
- Secure a successful moulding process without air bubbles and poor shape
- Secure easy coating and fewer damages to the inclusions
- Neutral taste, uniform functionality
- Produced in a CO<sub>2</sub>-neutral factory

GLOBAL PRODUCT CONCEPT – PLANT-BASED CHOCOLATE

## Rice-based chocolate tablets for plant-based hot drinks

### CHALLENGES IN PRODUCT DEVELOPMENT REQUIREMENT

- To maintain the same or similar sensory profile (especially flavour) using plant-based milks, such as rice, almond, and soybeans.
- There is no competition of flavours by plant-based milk and chocolate bar

### PALSGAARD TECHNOLOGY

- Palsgaard® AMP 4455 – primary emulsifier
- Palsgaard® PGPR 4190 – co-emulsifier

### PRODUCT ADVANTAGE

Plant-based alternative to conventional milk chocolate

Good performance on sensory properties using plant-based milks



### EVALUATION

- **Sensory evaluation:** using plant-based milks (almond, soybean and rice).
- **Evaluation Parameters:** Colour, flavour, appearance

### RESULTS

- Good stability
- Good performance on dispersion (solubility)
- No sedimentation
- Good mouthfeel and flavour, especially in almond and soybean milks.

PALSGAARD® AMP 4455 & PALSGAARD® PGPR 4190

## Plant-based chocolate tablets for hot drinks – Recipe Suggestion



### Recipe

	Percentage
Cocoa butter	26.35
Cocoa mass (liquor)	12.00
Rice compound <sup>1</sup>	9.00
Palsgaard® AMP 4455	0.50
Palsgaard® PGPR 4190	0.15
Standard sugar	52.00
<b>TOTAL</b>	<b>100.0%</b>

<sup>1</sup> From Beneo

### Composition

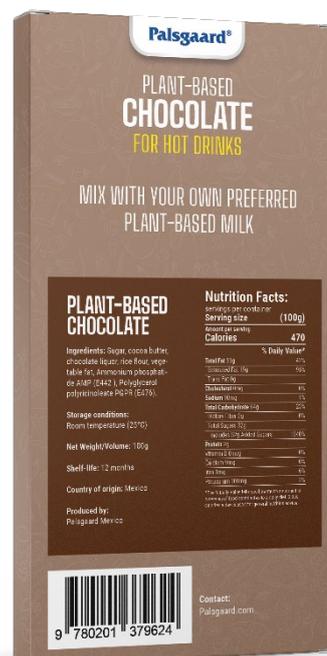
	Percentage
Total Fat	33.00%
Carbohydrates	23.00%
Protein	2.00%
Palsgaard AMP® 4455	0.50%
Palsgaard PGPR® 4190	0.15%

## Procedure

- Mix all powders: Standard sugar and rice compound
- Add Cocoa butter and cocoa Liquor (previously melted)
- Mix until reaching a homogeneous paste
- Add emulsifiers (PGPR and AMP)
- Tempering: Start to 45°C - 50°C, cool the chocolate while mixing to 28°C, and finally, heat to 30°C.
- Finally, moulding: refrigerate the sample at 5°C for 30 min and release the samples from moulding.

## Procedure (hot drink)

- Dosage: 90 g of chocolate per 1 litre of plant-based milk
- Heat the milk more than 45°C
- Add the chocolate and mix
- Keep mixing until reaching the boiling point and mixing
- Stop heating and mixing when you reach a homogeneous system
- Enjoy ☺



## ORDER SAMPLES

To order samples of Palsgaard® AMP 4455 and Palsgaard® PGPR 4190, please contact your local Palsgaard office via [Palsgaard.com](http://Palsgaard.com)