

# Application note PromOat in soups, sauces and dressings

Lantmännen's PromOat Oat beta-glucan is a natural, clean label oat fibre that delivers health benefits and functionality without imparting the graininess normally present in oats. When used in the elaboration of soups, sauces, and dressings, PromOat can be included to enhance mouthfeel and provide with a smooth texture and emulsion stability without affecting the flavour.



# Level of Inclusion

### When using PromOat as a texturizer:

When PromOat is added to a formulation to provide with viscosity and mouthfeel, the inclusion level will depend on the initial viscosity of the formulation and the desired mouthfeel. A starting point is 1%, but this should be adjusted based on the desired characteristics of the end product.

PromOat can be used as an emulsion stabiliser. The concentration over which it has stabilising effect is 3% in the water phase, when used in a clean system (only water and oil). If other texturizers are present, the inclusion level will be lower. On the other hand, if it is desired to have a high-viscosity product, such as mayonnaise, the inclusion level of PromOat could be up to 5% when used as a-stand-alone stabiliser.

## Including PromOat for health claims:

Adding PromOat to the recipe allows for including a cholesterol reduction health claim. It could be of interest in, for example, vegetable soups.

In EU, one gram of beta-glucan per portion is required to include a health claim, whereas the FDA and Health Canada require 0.75 grams of beta-glucan per portion. PromOat contains up to 34% beta-glucan. Therefore, the level of inclusions are 2.34 grams of PromOat in the US and Canada and 3.13 grams in Europe (per portion).

# **Recommendations and other observations:**

#### Mixing recommendations:

The beta-glucan component (34% dwb) of PromOat is a typical hydrocolloid; hence, PromOat should be added to systems using methods suitable for hydrocolloids such as guar gum, swelling starches, xanthan gum and the like.

There are three options to incorporate PromOat:

Option 1: A high-shear mixer or blender should be used to ensure good dispersion and to break up any lumps formed during dissolution into the formulation.



Option 2: In formulations in which more than one dry powder additive is to be included, it is recommended to vigorously dry-slurry, dry-mix, or dry co-mill PromOat with the other dry ingredients. This makes the dissolution of PromOat faster and more efficient.

Option 3: PromOat can be incorporated into the fat phase before mixing with the aqueous phase. PromOat disperses adequately in oil, without forming lumps. The fat phase can be mixed with the aqueous phase and the beta-glucans will hydrate, providing with a smooth texture.

#### Other considerations:

- PromOat is stable at pH 3.5-8. The beta-glucans in PromOat start to depolymerise below pH 3.5 when temperature is increased.
- PromOat is stable at high temperatures. Formulations produced with PromOat can be subjected to UHT treatment.
- Formulations including PromOat are shear-thinning and have lower viscosity at higher temperatures. It is important to consider the temperature at which the product will be produced, stored, and consumed, to formulate the product.

# Recipes

In the following, you will find prototype recipes designed to better understand the applications of PromOat. These recipes include:

- Tomato soup
- Low-fat vegan mayonnaise
- Vegan aioli
- Salad dressing



# Prototype recipe: Tomato soup

Each 250 ml serving delivers 1 gram of beta-glucan, which is sufficient to make an EFSA cholesterol lowering health claim in the EU. One 250 ml serving delivers one third of the recommended daily intake of beta-glucan required to actively reduce blood cholesterol. PromOat Oat beta-glucan also enhances mouthfeel, for a creamier sensation.

Ingredients	%
Tomato, seedless, peeled, cut	65.82
Water	26.80
Skimmed milk powder	4.00
PromOat	1.18
Caster sugar	0.70
Butter	0.50
Table salt	0.50
Sunflower oil	0.30
Dried basil	0.20
Total	100.00

- 1. Weigh tomatoes and water
- 2. Cook tomatoes in cooker mixer at 95°C for 5 min with cutter speed of 100 rpm to stir
- 3. Mix PromOat with salt, sugar and milk powder and add them in the cooker-mixer
- 4. Add butter and oil
- 5. Mix with cutter for 4 minutes at 3000 rpm at  $95^{\circ}\text{C}$
- 6. Transfer soup in dosing machine
- 7. Fill and cap bottles
- 8. Sterilise in static retort at 118°C for 50 min (or until Fo value has reached at least 3)



# Prototype recipe: Low-fat vegan mayonnaise

PromOat is added to the recipe as a standalone hydrocolloid with an inclusion level of 4.20%, to provide with emulsion stability and to mimic the fatty mouthfeel of a full-fat mayonnaise.

Ingredients	%
Water	52.60
Extra virgin olive oil	26.30
Apple cider vinegar	10.50
Agave syrup	5.30
Salt	1.10
PromOat	4.20
Total	100.00

- 1. Mix PromOat with the oil phase.
- 2. Add the water phase while stirring at high mixing rate until emulsion is created.
- 3. Incorporate the rest of ingredients during mixing.



# Prototype recipe: Vegan aioli

Ingredients	%
Rapeseed oil	65.90
Water	23.30
Vinegar	3.90
Lemon concentrate	1.90
Mustard	1.90
Faba bean concentrate	1.20
PromOat	0.80
Garlic powder	0.80
Salt	0.40

#### Total

100.00

- 1. Mix the faba bean concentrate with the water for 3 minutes in high shear
- 2. Mix PromOat with the oil phase.
- 3. Slowly add the PromOat-oil mixture to the faba-water mixture for 1-2 minutes while mixing with low to medium shear.
- 4. Incorporate the rest of ingredients during mixing.
- 5. Store in fridge overnight, the viscosity will increase during the first 24 h.



# Prototype recipe: Salad dressing

PromOat is added to the recipe to stabilise the emulsion, increase the viscosity, and provide with an indulgent mouthfeel.

Ingredients	%
Water	62.91
Oil (rapeseed)	25.00
Caster sugar	3.50
PromOat	3.09
Salt	1.50
Egg yolk	2.00
Acetic acid solution (12%)	2.00
Total	100.00

- 1. Mix PromOat with the oil phase
- 2. Add the water phase while stirring at high mixing rate until emulsion is created
- 3. Incorporate the rest of ingredients during mixing

