A close-up photograph of a glass pitcher pouring a thick, white liquid, likely oat milk, into a glass. The background is a blurred, warm-toned surface, possibly oatmeal or bread. On the left side, there is a white rectangular text box with a lime green square above it.

**Wondering  
how** to  
incorporate  
enzymes in your  
oat drink?

Rethink Tomorrow

novozymes® 



Dear oat drink aficionado,

At Novozymes, we believe that it's always a good time for gifts.

In this one, you will find three kinds of oat drinks that go from sweet to sweeter to sweetest – just like the relationship we'd like to have with you, our prospective partner.

We've made these three oat drink prototypes with select enzymes from our Novozymes Oat 360 toolbox. The accompanying booklet will detail how we've used these enzymes in production to get the three different levels of sweetness. And finally, you'll also find the enzyme samples we've chose.

We hope you enjoy experimenting with it as much as we've enjoyed packing and sending it to you!

The absolute best wishes,  
The European Oat Beverage Team at Novozymes



# Low-sweetness oat beverages

Process flow to produce low-sweetness oat drinks



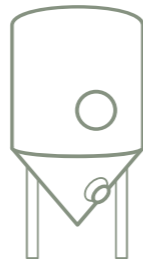
## Step 1

**Heat treated oat flour**  
Ratio between oat flour and H<sub>2</sub>O 1:4 to 1:6



## Step 2

**Liquefaction tank**  
Liquefaction enzyme addition  
70-85°C, 30-60 min



**Suggestion**  
Liquefaction:  
0.2%  
**BAN® 480 L**

## Step 3

**Decanting/centrifugation**



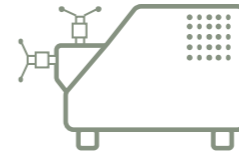
## Step 4

**Formulation**  
NaCl, oil, flavours, etc.



## Step 5

**Homogenization**



**UHT treatment**

## Step 6

**Packaging**



**Must low-sweetness = minimal taste?**

Not unless you use Novozymes BAN® 480 L. With the dual benefit of mild sweetness generation and starch liquefaction, BAN® 480 L delivers both flavor and process efficiency, and give you the opportunity to attain the low-sugar/zero-sugar claim and appeal to health-conscious consumers.

# Medium-sweetness oat beverages

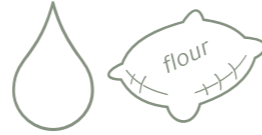
Process flow to produce medium-sweetness oat drinks



Other enzyme combos also possible

## Step 1

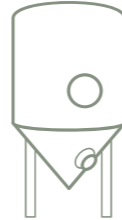
**Heat treated oat flour**  
Ratio between oat flour and H<sub>2</sub>O 1:4 to 1:6



## Step 2

**Liquefaction tank**  
Liquefaction enzyme addition  
70-85°C, 30-60 min

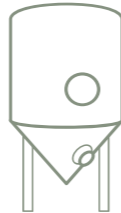
**Suggestion**  
Liquefaction:  
0.2%  
**BAN® 480 L**



 **Cooling 55-65°C**

## Step 3

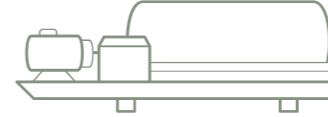
**Saccharification tank**  
Saccharification enzyme addition  
55-65°C, 15-30 min



**Suggestion**  
Saccharification:  
0.15%  
**Fungamyl® 800 L**

## Step 4

**Decanting/centrifugation**



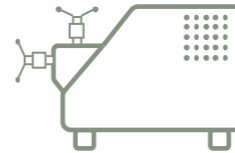
## Step 5

**Formulation**  
NaCl, oil, flavours, etc.



## Step 6

**Homogenization**



 **UHT treatment**

## Step 7

**Packaging**



### Medium Sweetness without added sugar

Together, Novozymes BAN® 480 L and Fungamyl® 800 L impart a natural, balanced sweetness that is reminiscent of dairy milk sweetness. This enzyme combo allows you to achieve this without adding any sugar or sugar supplements to your oat milk-alternative.

# High-sweetness oat beverages

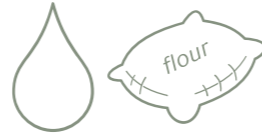
Process flow to produce high-sweetness oat drinks



Other enzyme combos also possible

## Step 1

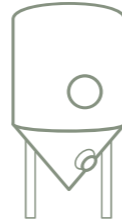
**Heat treated oat flour**  
Ratio between oat flour and H<sub>2</sub>O 1:4 to 1:6



## Step 2

**Liquefaction tank**  
Liquefaction enzyme addition  
70-85°C, 30-60 min

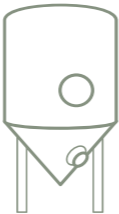
**Suggestion**  
Liquefaction:  
0.2%  
**BAN® 480 L**



 **Cooling 55-65°C**

## Step 3

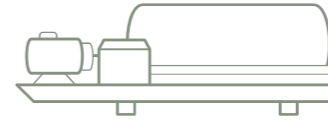
**Saccharification tank**  
Saccharification enzyme addition  
55-65°C, 15-30 min



**Suggestion**  
Saccharification:  
0.8% **Amylase®**  
**AG 300 L**

## Step 4

**Decanting/centrifugation**



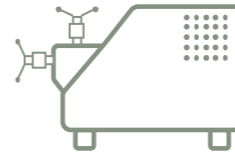
## Step 5

**Formulation**  
NaCl, oil, flavours, etc.



## Step 6

**Homogenization**



 **UHT treatment**

## Step 7

**Packaging**



### **A super (sweet) enzyme combo**

Make your choice of flavored oat milk-alternatives with the help of Novozymes BAN® 480 L and Novozymes Amylase AG 300 L. This enzyme combo yields a high level of sweetness in oat-based drinks without the use of added sugar or sugar supplements.

## Lower emissions could mean higher sales for your oat-based beverages

The sustainability benefits of oat drinks aren't just great news for the planet. They're also great news for companies and brands that communicate them to consumers. We hope these facts will help you develop stronger sustainability messaging for your products, so you can translate lower emissions into a higher market share.

**Making the switch:**  
an easy sustainability win



Source: studies conducted by Novezymes' sustainability team, which also defined emissions from a standard vehicle.

# Get in touch!

**Do you have any questions, doubts, or comments  
– let us know at [OatBeverageEU@novozymes.com](mailto:OatBeverageEU@novozymes.com)**

In the subject line, please mention if your query is  
business-related or technical/enzymatic-related.

We'd love to hear from you!

With warm regards,

Alexander, Magnus and Iannis  
[OatBeverageEU@novozymes.com](mailto:OatBeverageEU@novozymes.com)

Rethink Tomorrow



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