Sophisticated Solutions for Simplified Labels

October 29-30, 2013 • Hyatt Lodge, Oak Brook, Illinois, USA

2013 Technology Snapshot Presentation

Pristine® 500
Dough Strengthen & Conditioner
By: Corbion-Caravan
PRISTINE® 500
DOUGH STRENGTHENER
& CONDITIONER

Clean Label Conference
Chicago, IL
October 30th, 2013
Todays objectives

Dough conditioners
• General description
• Examples

Benefits of clean label dough conditioners

Pristine® 500
• Product description, features, and usage
• Ingredient statement and label claims
• Application examples

Clean label example
**Dough conditioners**

*Dough conditioners are ingredients added to dough to improve overall quality and baking performance.*

<table>
<thead>
<tr>
<th>Dough conditioner functions</th>
<th>Improve dough tolerance</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Improve gas retention</td>
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<tr>
<td></td>
<td>Improve loaf volume and symmetry</td>
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<tr>
<td></td>
<td>Improve internal crumb</td>
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<tr>
<td></td>
<td>Improve product texture – increase shelf life</td>
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</tbody>
</table>
### Dough conditioner examples

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Clean label</th>
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</thead>
<tbody>
<tr>
<td>• Potassium bromate</td>
<td>• Enzymes</td>
</tr>
<tr>
<td>• Iodates</td>
<td>• Ascorbic acid</td>
</tr>
<tr>
<td>• Azodicarbonamide (ADA)</td>
<td>• Lecithin</td>
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<tr>
<td>• Calcium Peroxide</td>
<td></td>
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<tr>
<td>• Lactylates (SSL &amp; CSL)</td>
<td></td>
</tr>
<tr>
<td>• DATEM (diacetyl tartaric acid ester of mono- and diglycerides)</td>
<td></td>
</tr>
<tr>
<td>• Ethoxylated mono-diglycerides</td>
<td></td>
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<tr>
<td>• Mono-diglycerides</td>
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Benefits of clean label dough conditioners

- **Clean and simple label**
  - Allow a clean and shortened ingredient list
  - Can be used in all natural products
  - Consumer appeal

- **Formula simplification**
  - Reduce the number of ingredients in the formula
  - Remove most or all chemical dough conditioners

- **Quality improvement**
  - Improve quality of finished products
  - Reduce waste

- **Cost reduction**
  - Reduce formula costs and increase yield
  - Can be used to reduce gluten
Pristine® 500

Product uses:
• Bread and/or other bread type products

Description:
• All natural dough strengthener and conditioner designed to remove undesirable additives while still maintaining dough strength

Features:
• Allows for the production of all natural and clean label bakery products
• Allows for a minimized ingredient declaration
• Has the potential to reduce overall ingredient costs
• Can be used to reduce gluten
Pristine® 500

Ingredient statement:
• Wheat flour, calcium sulfate, ascorbic acid (vitamin C) and 2% or less of the following: enzymes (contains wheat)

Allergens:
• Wheat

Label claims:
• Kosher
• Allows for clean label/natural claims

Suggested usage rate:
• Recommended at .5% based on flour
Pristine® 500 Applications

- Control- ADA, SSL, DATEM, ascorbic acid, and enzymes
- Pristine® 500 – enzymes and ascorbic acid
Pristine® 500 in 100% whole wheat bread

- Control: 2138
- Negative control: 1735
- Pristine® 500: 2253

Graph showing the shocked volume (ml) for each sample.
Pristine® 500 in white bread
Clean label example

*Clean label*, to Corbion-Caravan, encompasses products that are free of undesirable additives, minimize ingredient declaration length, and are all natural.

### 100% Whole Wheat Bread

Ingredients: Whole Wheat Flour, Water, Yeast, Wheat Gluten, High Fructose Corn Syrup, Soybean Oil, Calcium Propionate, Salt, Distilled Vinegar, Calcium Sulfate, Mono- and Diglycerides, Ethoxylated Mono- and Diglycerides, Sodium Stearoyl Lactylate, Calcium Peroxide, Ascorbic Acid, Azodicarbonamide, Enzymes

Number of ingredients = 17

### Natural 100% Whole Wheat Bread

- Ingredients: Whole Wheat Flour, Water, Sugar, Wheat Gluten, Yeast, Cultured Wheat Flour, Soybean Oil, Raisin Juice Concentrate, Salt, Distilled Vinegar, Calcium Sulfate, Enzymes, Ascorbic Acid

- Number of ingredients = 13
Dough conditioners are necessary to improve overall bread quality and robustness.

Consumers are looking for clean label and/or natural products, and chemical dough conditioners are not looked at favorably by consumers.

Pristine® 500 can reduce or remove label un-friendly chemicals from your label, while maintaining overall bread quality, dough strength and production tolerance.
Thank you for your time.

Questions?