Faster Clean Label Bakery Formulation with Predictive Capabilities of Performance

Encore Plus™ 5450
Encore Relax™ 5451
Encore Strong™ 5452

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The Clean Label Bakery Challenge

What consumers don’t want

...but bakers need
Traditional Bakery Ingredients
Many are NOT Label Friendly

• Dough Strengtheners
   - Azodicarbonamide (ADA)
   - Sodium stearoyl lactylate (SSL)
   - Diacetyl tartaric acid ester of mono- and diglycerides (DATEM)
   - Potassium iodate

  → Dough strength and tolerance
  → Uniform grain and increased volume in baked product

• Dough Relaxers
   - L-Cysteine
   - Sodium metabisulfite

  → Dough extensibility and machinability
  → Control shape and size in baked product

https://openclipart.org
Delavau’s Clean Label Solutions

Optimized Dough Conditioner Systems
Optimized Dough Conditioner Systems

Encore Plus™ 5450
Wheat flour, dried yeast, ascorbic acid, enzymes

Encore Relax™ 5451
Wheat flour, dried yeast, enzymes

Encore Strong™ 5452
Wheat flour, ascorbic acid, enzymes

✓ Approved for food use in the United States as well as many other countries
✓ Produced in the United States of America using global raw materials
✓ Kosher
What Makes These Systems Unique?
Delavaud’s Approach

Predictive Capabilities of Performance
• Dough conditioner systems are designed to optimize dough rheology and finished product attributes
• Predictive capabilities allow reduction of the number of bake trials

• Dough rheology method
  AACCI 54-60.01
• Internal laboratory bread roll method
We focused on gluten-dominated region of curve where dough conditioners have the greatest effect.
Predictive Capabilities of Performance
Bread Roll Method

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<th>INGREDIENT</th>
<th>% FWB</th>
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<tr>
<td>Flour</td>
<td>100</td>
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<tr>
<td>Sugar</td>
<td>2</td>
</tr>
<tr>
<td>Salt</td>
<td>1.75</td>
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<tr>
<td>Shortening</td>
<td>2.5</td>
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<tr>
<td>Yeast</td>
<td>3</td>
</tr>
<tr>
<td>Water</td>
<td>60</td>
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- Batch straight-dough process
  - Mix
  - Divide, round and mould
  - Proof
  - Bake
Delavau’s Approach

A Case Study: Encore Strong™ 5452
Optimized Dough Conditioner Systems
Encore Strong™ 5452

- The strengthening systems increase Development Time in line with a stronger gluten structure
Optimized Dough Conditioner Systems
Encore Strong™ 5452

- The strengthening systems decrease GWI indicating a stronger gluten structure
Optimized Dough Conditioner Systems

Encore Strong™ 5452

- A drop-tray abuse test was developed to simulate dough handing and conveying
- The strengthening systems provided tolerance against abuse

<table>
<thead>
<tr>
<th></th>
<th>Not dropped</th>
<th>Dropped after proof</th>
<th>Height loss % *</th>
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* *p = 0.05
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Optimized Dough Conditioner Systems

- Encore Plus™ 5450
- Encore Relax™ 5451
- Encore Strong™ 5452

Delavau’s Approach

- This methodology of dough rheology data collection and analysis allows directional predictions of bake performance, enabling faster product development and less bake line trials

- Optimized CL conditioners perform as effectively as traditional ones to modify dough rheology and bake performance