Accent™ 6500 Sodium Reduction Blend

REDUCE SODIUM WITH MINIMAL IMPACT ON DOUGH RHEOLOGY

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Sodium Intake Trends

- Average intake: 3,400 mg/day
- Recommended intake: 1500 - 2400 mg/day
- Push by governing bodies to reduce sodium intake

- 17% sodium intake comes from bread products*

*Reference: Morbidity and Mortality Weekly Report
https://www.hsrc.org/?view&did=469407
Sodium Functionality and Reduction Techniques

• Sodium Functionality
  ◦ Increases dough development time
  ◦ Improves dough tolerance
  ◦ Reduces dough stickiness
  ◦ Modifies dough handling

• Sodium Reduction Techniques
  ◦ Substitution by potassium chloride
  ◦ Salt mixtures
Accent™ 6500 Sodium Reduction Blend

*Ingredient Statement*: Calcium Carbonate, Citric Acid, Vitamin D3

- Patented Formulation
- Approved for food use in USA and many other countries
- Produced in the USA using global raw ingredients
- Kosher
Our Approach to Formulation

• **Predictive capabilities of performance**
  ◦ Our formulations are designed to optimize dough rheology and finished product attributes
  ◦ Instrumental analysis allows us to characterize our products quantitatively

Dough Rheology Method
AACCI: 54-60.01

Texture Analyzer – Internal
Dough Stickiness Method

Internal Laboratory Pan Bread Formula
Predictive Capabilities - *Dough Rheology*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
</tr>
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<tbody>
<tr>
<td>Development Time (min)</td>
<td>Time to C1 Torque</td>
</tr>
<tr>
<td>Stability</td>
<td>Time to (C1 – 11%)</td>
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Predictive Capabilities - Dough Rheology

Focus on gluten region for dough rheology predictions

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Rheology Data

- Development Time

- Reducing sodium by 25% reduces development time

- Addition of Accent™ 6500 negates the development time impact of sodium reduction
Rheology Data

• Development Time

- Reducing sodium by 45% reduces development time.
- Addition of Accent™ 6500 negates the development time impact of sodium reduction.
Rheology Data

- Stability

Reducing sodium by 25% slightly reduces the stability of the system.

Addition of Accent™ 6500 improves upon the stability of a 25% reduced sodium system.
Rheology Data

• Stability

- Reducing sodium by 45% slightly reduces the stability of the system
- Addition of Accent™ 6500 improves upon the stability of a 45% reduced sodium system
Dough Stickiness – *Texture Analyzer*

**Variable** | **Definition**
--- | ---
Contact Distance (mm) | Distance traveled by probe while in contact with sample
Dough Stickiness - TA

- Sodium reduction has a significant impact on dough stickiness
- Addition of Accent™ 6500 reduces the stickiness of a reduced sodium system
Lab Trials – *Pan Bread Method*

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>%FWB</th>
</tr>
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<tbody>
<tr>
<td>Malted Patent Bread Flour</td>
<td>100</td>
</tr>
<tr>
<td>Sugar</td>
<td>6.0</td>
</tr>
<tr>
<td>Salt</td>
<td>1.8</td>
</tr>
<tr>
<td>Shortening</td>
<td>3.0</td>
</tr>
<tr>
<td>Compressed Yeast</td>
<td>5.3</td>
</tr>
<tr>
<td>Water</td>
<td>59</td>
</tr>
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</table>

- **Batch Straight-Dough Process**
  - Mix
  - Divide, round, and mould
  - Proof (60-65min)
  - Bake (20 min)
Lab Trials – *Pan Bread Method*

<table>
<thead>
<tr>
<th>Sample</th>
<th>Dough Descriptions</th>
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<tr>
<td>Full Sodium</td>
<td>Low extensibility, elastic, <strong>low stickiness</strong></td>
</tr>
<tr>
<td>25% Reduced Sodium + 2.80% fwb Accent 6500</td>
<td>Low extensibility, some elasticity, <strong>low stickiness</strong></td>
</tr>
<tr>
<td>25% Reduced Sodium</td>
<td>Medium extensibility, reduced elasticity, <strong>some stickiness</strong></td>
</tr>
<tr>
<td>45% Reduced Sodium + 2.80% fwb Accent 6500</td>
<td>Medium extensibility, reduced elasticity, <strong>some stickiness</strong></td>
</tr>
<tr>
<td>45% Reduced Sodium</td>
<td>High extensibility, low elasticity, <strong>medium stickiness</strong></td>
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- No significant impact on finished product dimensions
Lab Trials – *Pan Bread Method*

- Photos of Inner Crumb

![Images showing bread samples with different sodium levels and Accent™ 6500].

- Full Sodium
- 2.8% fwb Accent™ 6500
- 25% Reduced Sodium
- 45% Reduced Sodium
• Allows you to effectively reduce the salt in your formula by up to 45%.

• **Not only for sodium reduction**
  • Claim Excellent Source of Calcium or Glass of Milk level Calcium
    • Dependent of usage level and reference quantity

• **Next Steps**
  • Developing flavor replacement solution utilizing yeast extracts