Clean Label Conference

VERDAD® POWDERS
CLEAN LABEL ANTIMICROBIALS
FOR PROCESSED MEATS.

Clean Label Conference
March 28-29, 2017
Verdad® Powders

Customer Benefits:
- New innovative building blocks
- Increased formulation flexibility
- Powder convenience
- Low Na (35% less)
- Clean label powdered mold inhibition
- Cost effective
Verdad® Powder: Cultured Sugar & Vinegar (NY116 Prototype)

Formulated for Cured Meat

Main Benefits:

- **Food Safety:** Pathogen protection
- **Shelf life enhanced:** Inhibits spoilage organisms
- **Lower Sodium:** 35% less
- **No Flavor / Color impact**
- **Clean / Natural labeling:** Cultured Sugar, Vinegar
- **Easy to use powder**
- **Backed by research**
Verdad® Powder: Cultured Sugar & Vinegar (NY164 Prototype)

Formulated for Uncured Meat

Main Benefits:

✓ **Food Safety:** Pathogen protection
✓ **Shelf life enhanced:** Inhibits spoilage organisms
✓ **Mold inhibition:** high moisture meat snacks
✓ **Lower Sodium:** 35% less sodium
✓ **No flavor / color impact**
✓ **Clean / Natural labeling:** Cultured Sugar, Vinegar
✓ **Easy to use powder**
✓ **Backed by research**
Verdad® Powder: Cultured Sugar & Vinegar (NY168 Prototype)

Formulated for **Meat Snacks**

**Main Benefits:**

- **Food Safety:** Pathogen protection
- **Shelf life enhanced:** Inhibits spoilage organisms
- **Mold inhibition:** High moisture meat snacks, pet treats
- **Lower Sodium:** 35% less sodium
- **No flavor / color impact**
- **Clean / Natural labeling:** Cultured Sugar, Vinegar
- **Easy to use powder**
- **Backed by research**
Listeria monocytogenes in pork ham (NY116 Prototype)
Verdad® Powder Prototypes

Applications:

<table>
<thead>
<tr>
<th>Verdad® Powder Prototypes</th>
<th>Recommended use level</th>
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<tbody>
<tr>
<td>NY116 - Cured RTE</td>
<td>1.25 – 1.65%</td>
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<tr>
<td>NY164 - Uncured RTE</td>
<td>1.85 – 2.35%</td>
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<tr>
<td>NY168 – Meat Snacks</td>
<td>0.75 – 0.95%</td>
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</tbody>
</table>

Suggested labeling: Cultured Sugar, Vinegar

FSIS approvals:

- Cultured Sugar: FSIS approved (7120.1).
- Vinegar approval: 9CFR.
Corbion Listeria Control Model

Food characteristics

Listeria growth in Test using CLCM

About this graph

Contact Us

For additional support or further information on our latest product innovations, please contact your inquiry to: lng@corbion.com

*Corbion is not responsible for the representation. Please review company policies before the release of information.
## Corbion’s shelf life tools

**CPC – Corbion Preservative Comparator**

- CPC tool shows percentage inhibition
- Data on single strains generated in broth
- Effect of pH, water activity, moisture and temperature can be changed

### Data Table

<table>
<thead>
<tr>
<th>Food Characteristics</th>
<th>Preservation cases</th>
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<tr>
<td></td>
<td>Compare cases</td>
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<tr>
<td>pH: (°)</td>
<td>5.1</td>
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<td>aW: (°)</td>
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<tr>
<td>moisture: (%)</td>
<td>80</td>
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<td>temperature: (°C)</td>
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### Preservatives

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### Relevant Micro-Organisms

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<tr>
<th>Inhibitory effects:</th>
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New Verdad® Prototype Powders

Summary

New Verdad® Prototype Powders benefits:

• Food Safety
• Shelf-life
• Low sodium content
• No flavor impact
• No color impact
• Convenience
• Reduced freight and storage charges