2015 Clean Label Conference

CLARIA® Functional Clean-Label Starches

Wednesday April 1, 2015

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AGENDA

• CLARIA® Functional Clean-Label Starches
  ✓ Consumer Trends Driving Clean Label NPD
  ✓ Commercial and Technical Characteristics
  ✓ Dairy Technical Performance and Prototype

• Summary
CLARIA®
Functional Clean-Label Starches

Label-friendly starches with High Performance and Great Taste
The **clean-label category** is an opportunity for **fast growth and premium positioning** in North America.

<table>
<thead>
<tr>
<th>Category</th>
<th>Penetration</th>
<th>Growth</th>
<th>Price Premium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yoghurt</td>
<td>47%</td>
<td>39%</td>
<td>25%</td>
</tr>
<tr>
<td>Soups</td>
<td>48%</td>
<td>18%</td>
<td>5%</td>
</tr>
<tr>
<td>Sauces (cooking)</td>
<td>34%</td>
<td>8%</td>
<td>24%</td>
</tr>
<tr>
<td>Ready Meals</td>
<td>44%</td>
<td>6%</td>
<td>13%</td>
</tr>
</tbody>
</table>

Source: Innova Market Insights Analyses for Tate & Lyle, May 2014
NPL with clean-label claims: 'All Natural', 'Organic', 'Non-GMO' or 'No preservatives or additives', globally, between 2010 and 2013.
Introducing CLARIA® Functional Clean-Label Starches

New CLARIA® Functional Clean-Label Starches provide both high-performance and a cleaner label which allows food manufacturers to launch label-friendly products without compromising their quality.

That’s because CLARIA® Functional Clean-Label Starches:

- Match modified food starches in terms of process tolerance
- Offer clean taste and color comparable to modified food starches
- Label as ‘corn starch’ for a simplified label
- Are versatile across a broad range of applications and sophisticated processes
CLARIA® Functional Clean-Label Starches are tailored to perform similarly to modified food starches

- The process tolerance of CLARIA® Functional Clean-Label Starches is similar to the textural attributes of modified food starches.

- The proprietary processing used by Tate & Lyle enables CLARIA® starches to stay intact as particles after cooking under a range of different cooking conditions.

Microscopy shows CLARIA® starch granules stay intact when cooked

Yogurt - Microscopy : Iodine stain, 20x magnification
Tate & Lyle is launching 3 initial products: CLARIA® Essential, CLARIA® Plus and CLARIA® Elite

- Three waxy cook-up starches, which primarily target **UHT dressings, soups and sauces, chilled prepared meals, dairy desserts and yogurt**
CLARIA® Functional Clean-Label Starches demonstrate improved levels of process tolerance vs modified starches

Process tolerance is a function of the conditions, including temperature, acidity, and shear, that the starch undergoes during processing.

A range of process tolerance can be achieved through careful control of the proprietary manufacturing process used in preparing CLARIA® starches.
CLARIA® is getting great in-market feedback

‘We found a good cook out, good processability and glossy appearance.’ – Soup manufacturer

‘CLARIA® shows good viscosity, temperature stability, mouthfeel and taste, as well as color and very good glossiness’ – Sauce manufacturer

‘The paste color is equal to that of modified food starches (not brownish) and taste is quite neutral. As a result of these initial findings we are positive about the potential of the materials’ – Mayonnaise manufacturer

‘CLARIA® has a good binding capacity and is very creamy’ – Soup and Sauce manufacturer

“CLARIA® Elite in white mass is the best functional clean label starch I have tasted vs. current competitive products” – Fruit preparation for dairy industry manufacturer
Dairy Application
Stirred Yogurt with CLARIA® Elite Functional Clean-Label Starches

Labeled simply as “corn starch” or “starch,” Tate & Lyle’s CLARIA® Elite Functional Clean-Label Starches provides excellent texture, taste and color under challenging processing conditions for dairy applications, such as stirred yogurts.

Built with:
- CLARIA® Elite Functional Clean-Label Starches

Benefits:
- Excellent process stability
- Provides viscosity and creamy texture to stirred yogurt applications
- CLARIA® has a white color profile and does not impart dark colours on the final product

Prospective purchasers are advised to conduct their own tests, studies and regulatory review to determine the fitness of Tate & Lyle products for their particular purposes, product claims or specific applications.
CLARIA® starches demonstrate **neutral taste**, a **benefit** compared to other functional starches.

- **Stirred yogurt samples after manufacture and packaging.**
- **Samples were evaluated blind by a sensory panel for flavor and scored on a 5-point scale.**

In **acid stirred yogurts**, CLARIA® demonstrates **flavor improvement** over other functional clean-label starches.

![Flavor perceived by sensory panel](chart)

- **2.6** Other Clean Label Starch
- **3.5** CLARIA® Functional Clean-label Starch

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This information should not be construed as recommending the use of Tate & Lyle’s product in violation of any patent, or as warranties (expressed or implied) of non-infringement or its fitness for any particular purpose. Prospective purchasers are advised to conduct their own tests, studies and review of the intellectual property and regulatory space to determine the fitness of Tate & Lyle products for their particular purposes, product claims or specific applications.
CLARIA® starches demonstrate improved color and appearance

In acid stirred yogurts, CLARIA® Elite demonstrated:

- Similar performance to benchmarked modified food starches
- Improvement over other functional clean-label starches

Stirred yogurt samples, 24 hours after manufacture and packaging went through Hunter Colorimeter Analysis.

- Average L-scale color reading light vs. dark, where a lower number indicates darker product and a higher number indicates lighter product.

Other Clean Label Starch  CLARIA® Functional Clean-Label Starch  Benchmark modified food starch

Appearance properties

- Stirred yogurt samples were evaluated by a sensory panel.
- For each attribute, samples were scored on a 5-point scale.
Summary
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- Consumer demand for foods with simpler, more transparent labels continues to grow. **The clean-label trend is here to stay:** 1 in 4 new products have clean label claims, and these outgrow non-clean label NPL.

- **CLARIA® Functional Clean-Label Starches** can help you develop great tasting foods with simpler labels without compromising quality as they provide both high-performance and a cleaner label – as they simply label as ‘corn starch’.

- **CLARIA®** is backed by Tate & Lyle and offers a new source of supply.
Tate & Lyle offers a wide range of clean-label and label-friendly solutions

- **Soluble fibres**
  - PROMITOR® Soluble Corn Fiber, that offers **transparent fiber fortification, versatility and superior value**

- **Salt reduction solutions**
  - SODA-LO® Salt Microspheres that **taste, label and function like salt** - because it is salt!

- **Natural Sweeteners**
  - TASTEVA® Stevia Sweetener, enabling a **‘naturally sweetened’** claim
  - PUREFRUIT™ Monk Fruit Extract, enabling a **‘sweetened with monk fruit extract’** claim

- **Starches**
  - CLARIA® Functional Clean-Label Starches, **meeting demand for cleaner labels** while providing excellent performance similar to that of modified food starch
Appendix
The clean-label trend is global

- Market penetration is driven by developed regions
- Growth is driven by emerging regions

Source: Innova Market Insights Analyses for Tate & Lyle, May 2014
Consumers are driving demand for clean label foods
And the growth of clean-label starches globally

- We estimate the global clean-label market is worth US$ 463BN and grew by 5.3% per year (CAGR 2008-2013)

- Clean-label New Product introductions are globally growing at a faster rate than total product launches (15.9% vs 12.5%)

- 72% of American consumers are demanding foods that have recognizable ingredients on the label according to Innova. (2012)

- 35% of North American new product launches are positioned as label-friendly. (Innova, 2013)

- Clean-label is especially relevant in Yogurt, Baby Meals, Juice Drinks, Salty Snacks and Cooking sauces

- Given 1 in 4 New Product Launches contain starch, CLARIA™ is highly relevant
Thank You

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