Discover How an Acidulant Can Lower Your Sweetener Usage Up to 15%.

Sweet and sour flavors need to be balanced in food and beverage formulas to achieve the optimum flavor profile. Sensory analysis proves pHase® lowers pH with low sour intensity. Consequently, less sweetener is required to achieve this sweet and sour balance.

pHase®, citric and phosphoric acid were evaluated in both High Fructose Corn Syrup (HFCS) and Aspartame sweetened systems at a pH of 3.2. In the pHase acidified samples, the sweetener concentration was reduced by 5–20%.

**Results:**
The results indicate that sweetener levels can be reduced by 15% with minimal difference in perceived sweetness.

(See data points on reverse side.)

Evaluation Procedure:
Rate the strength of sweet and sour on a 0-15 point intensity scale. Zero (0) represents none and 15 represents very strong. Scale incorporates the ability to use tenths of a point.

<table>
<thead>
<tr>
<th>Citric Acid</th>
<th>HFCS-55</th>
<th>Aspartame</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sweet</td>
<td>Sour</td>
</tr>
<tr>
<td>Phosphoric, 75%</td>
<td>12.0</td>
<td>4.0</td>
</tr>
<tr>
<td>5% reduction</td>
<td>10.7</td>
<td>2.8</td>
</tr>
<tr>
<td>10% reduction</td>
<td>10.5</td>
<td>3.0</td>
</tr>
<tr>
<td>15% reduction</td>
<td>11.0</td>
<td>3.2</td>
</tr>
<tr>
<td>20% reduction</td>
<td>9.8</td>
<td>4.0</td>
</tr>
</tbody>
</table>

Evaluate product using the following procedure:
- Evaluate samples by sweetener type in a random order.
- Sip room temperature sample from a plastic soufflé cup.
- Evaluate each product using consensus balloting.
- Expectorate.
- Record qualitative observations.

Attribute Definitions:

Sweet:
The taste on the tongue stimulated by sucrose and other sugars, such as fructose, glucose, etc., and by other sweet substances, such as Saccharin, Aspartame, and Acesulfame-K.

Sour:
Tastes on the tongue stimulated by acids such as citric, malic, phosphoric, etc.