Stabilizers

**Acidified milk drinks**

To stabilize acidified milk drinks, different ingredients such as pectin, soy fibre polysaccharides (soluble soy fibre) and some types of carboxy methyl cellulose can be used. Blendhub works continuously evaluating different types of hydrocolloids in order to find the ones that bring optimal functionality, fulfilling customer requirements and offering, apart from stability, a broad range of textures adapted to each market.

- Premigum® XLB-15032
- Premigum® XLB-16022
- Premigum® XLB-16023
- Premigum® XLB-8034
- Premigum® XLB-15016
- Premigum® XLB-12054
- Premigum® XLB-15027

#CloudBlending by Blendhub

The flexibility and efficiency you need to design, produce and deliver powder based food.
Acidified milk drinks

**Premigum® XLB-15032**
Based on soluble soy fibre and pectin. It provides a fluid drink with very high stability.

**Premigum® XLB-16022**
Based on soluble soy fibre. It provides a very fluid drink with high stability.

**Premigum® XLB-16023**
Based on soluble soy fibre and guar gum. It provides a medium fluid drink with high stability and freshness.

**Premigum® XLB-8034**
Based on pectin. Traditionally the most extended. It provides a lot of freshness to the drink.

**Premigum® XLB-15016**
Based on pectin and guar gum. It provides slightly more viscous texture than the previous ones.

**Premigum® XLB-12054**
Based on carboxy methyl cellulose and guar gum. Used in Danao type drinks and also recommended for higher milk content drinks.

**Premigum® XLB-15027**
Based on carboxy methyl cellulose and phosphate. It gives a creamier texture.
Basic principle for acidified milk drinks stabilization

Stabilizers are used in acidified milk drinks to protect milk casein micelles in an acid environment like juice. Stabilizers avoid casein micelles aggregation, preserving small particle size and keeping them in suspension. Therefore, it prevents protein precipitation, occurrence of undesirable sediment with sandy texture at the bottom of the container and clarification of the rest of the beverage.

Stabilizers help to maintain original organoleptic characteristics of the acidified milk drink. Traditionally, high methoxyl pectin has been used for this purpose.

Acidification

Model of non-homogenised casein micelles, subject to different pH, with and without stabilizer-pectin.
Comparative chart of the acidified milk drinks clarification rates, stabilized with the following products and the indicated doses, by applying a centrifugal force of 4000 rpm. The lower the clarification rate, the higher drink stability provided by the stabilizer.

<table>
<thead>
<tr>
<th>Product</th>
<th>Freshness</th>
<th>Stability</th>
<th>Optimal Dose</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH range</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Premigum® XLB-15032</td>
<td>0.3%</td>
<td>***</td>
<td>***</td>
<td>3.8 - 4.1</td>
</tr>
<tr>
<td>Premigum® XLB-16022</td>
<td>0.3%</td>
<td>***</td>
<td>****</td>
<td>3.8 - 4.1</td>
</tr>
<tr>
<td>Premigum® XLB-16023</td>
<td>0.3%</td>
<td>***</td>
<td>****</td>
<td>3.8 - 4.1</td>
</tr>
<tr>
<td>Premigum® XLB-8034</td>
<td>0.3%</td>
<td>***</td>
<td>***</td>
<td>3.8 - 4.1</td>
</tr>
<tr>
<td>Premigum® XLB-15016</td>
<td>0.3%</td>
<td>***</td>
<td>***</td>
<td>3.8 - 4.1</td>
</tr>
<tr>
<td>Premigum® XLB-12054</td>
<td>0.3%</td>
<td>****</td>
<td>*</td>
<td>3.9 - 4.1</td>
</tr>
<tr>
<td>Premigum® XLB-15027</td>
<td>0.3%</td>
<td>****</td>
<td>**</td>
<td>3.9 - 4.1</td>
</tr>
</tbody>
</table>

*Recommended dose to stabilize 0.3% protein.

Measurement of the acidified milk drink clarification rate through STEP technology (Space + Time resolved Extinction Profiles) using equipment LuMiSizer 611.

Spontaneously occurred clarification forced in each sample by centrifugation and it is quantified by transmitting light at every point and every moment.
### General formula (by phases)

<table>
<thead>
<tr>
<th>Phase</th>
<th>INGREDIENTS</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phase A</strong></td>
<td>Juice</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Citric acid</td>
<td>To desired pH (optimal for final drink)</td>
</tr>
<tr>
<td><strong>Phase B</strong></td>
<td>Stabilizer</td>
<td>0.2 - 0.65*</td>
</tr>
<tr>
<td></td>
<td>Sugar</td>
<td>1.50</td>
</tr>
<tr>
<td></td>
<td>Water</td>
<td>Up to 100% of total formula</td>
</tr>
<tr>
<td><strong>Phase C</strong></td>
<td>Skimmed milk powder</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sugar</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Water</td>
<td>25.2</td>
</tr>
</tbody>
</table>

* Depending on stabilization recommendation as per product range table.
Acidified milk drinks

1 Phase A preparation:
• Add the juice to the mixing tank. If the juice is from fruit juice concentrate, add the concentrate and the water needed.
• Add the necessary citric acid for a pH of 3.8-4.1 in the final drink (add most of the citric acid in this phase and adjust the pH in the final drink. pH has to be below 4.5 before final correction).

2 Phase B preparation:
• Disperse the stabilizer in the sugar.
• In a different tank with agitation or recirculation, add the stabilizer with sugar to the water and heat up to 80°C.
• Mix at high speed until complete solution.
• Cool fast to 20-25°C.

3 Add Phase B to Phase A.

4 Phase C preparation:
• Disperse the skimmed milk powder in the sugar.
• In a different tank with agitation, dissolve the skimmed milk powder and the sugar in the water (recommended 45 - 50°C).
• Mix during 10 minutes and cool to 20-25°C.

5 Acidified milk drink preparation:
• Add slowly Phase C to Phases A+B, under agitation.
• Adjust slight variations to desired Brix and pH.
• UHT treatment: preheat to 65-70°C, homogenize at 180 bar, pasteurize at 120°C, cool to 4-6°C.
• Fill.

Notes:
If the recipe contains flavours, preservatives and / or colours, add at the end, before UHT treatment.
The recipe is an approximation, it can be different depending on the final drink characteristics.