CAVAMAX® W6 – THE EMULSIFYING DIETARY FIBER FOR TOPPINGS AND FILLINGS

Description
Icing and frosting enhance the overall appearance of bakery goods and improve their flavor, sweetness, texture and shelf-life. They usually contain large amounts of hard fats, impacting the nutritional quality of the bakery item. CAVAMAX® W6 alpha-dextrin allows you to replace the hard fats in your products with healthy vegetable oils. At the same time, CAVAMAX® W6 significantly increases the heat stability of the icing, which is a big advantage during transport or in warmer climates.

Functional Properties
CAVAMAX® W6 is a naturally occurring, soluble dietary fiber enzymatically derived from starch. It has excellent emulsifying properties and forms stable oil-in-water emulsions by interacting with fatty acids. The fatty acid-CAVAMAX® W6 structure stabilizes liquid oil efficiently and results in icing and frosting preparations that are easy to process. CAVAMAX® W6 can easily be combined with common hydrocolloids, such as xanthan, guar gum and starches.

Exemplary Formulation of Icings / Frostings

<table>
<thead>
<tr>
<th></th>
<th>Basic Vanilla Icing / Frosting (SG*~1.0) Percentage [%]</th>
<th>Whipped Icing / Frosting (SG*~0.8) Percentage [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Powdered sugar</td>
<td>61.6</td>
<td>39.9</td>
</tr>
<tr>
<td>Soybean oil</td>
<td>12.4</td>
<td>21.4</td>
</tr>
<tr>
<td>Granulated sugar</td>
<td>–</td>
<td>10.4</td>
</tr>
<tr>
<td>Sorbitol</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>CAVAMAX® W6</td>
<td>3.0</td>
<td>3.5</td>
</tr>
<tr>
<td>Corn syrup, 42 DE</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Corn syrup, 63 DE</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Flavor</td>
<td>0.2</td>
<td>0.25</td>
</tr>
<tr>
<td>Salt</td>
<td>–</td>
<td>0.1</td>
</tr>
<tr>
<td>Potassium sorbate</td>
<td>0.05</td>
<td>0.05</td>
</tr>
<tr>
<td>Citric acid</td>
<td>0.04</td>
<td>0.04</td>
</tr>
</tbody>
</table>

Add water to 100%

*SG = specific gravity

CAVAMAX® W6 – Stabilization of Oil-in-Water Emulsions

Oil-in-water emulsions can be stabilized by adding CAVAMAX® W6 alpha-dextrin.

CAVAMAX® W6 – Key Benefits for Icing and Frosting Preparations

- Emulsifying dietary fiber
- 100% vegetarian grade
- Replacement of hard fats with vegetable oils
- Better nutrition profile by replacing solid and trans fats
- Easy viscosity modulation
- Spreadable even at refrigerated temperatures
- Improved heat stability
Procedure
Basic vanilla icings / frostings (SG ~ 1.0):
1. Add water to sauce pan followed by citric acid, potassium sorbate, sorbitol, CAVAMAX® W6 and half the powdered sugar (granulated sugar can be used in place of powdered sugar in this step).
2. Heat until dissolved (60 °C / 140 °F to 65 °C / 150 °F).
3. Transfer to a mixing bowl containing the corn syrups and whisk for 1 minute at medium speed.
4. Add flavor powder then slowly blend in oil over 1 minute while mixing at medium speed. Liquid flavors can be blended into the oil before addition.
5. Whip at high speed for 1 minute then scrape down sides. Continue to whip for 2 more minutes.
6. Add second portion of the powdered sugar and blend in using the leaf paddle. Cream until smooth.

Whipped vanilla icings / frostings (SG ~ 0.8):
1. Add water to sauce pan followed by granulated sugar, citric acid, salt, potassium sorbate, sorbitol, and CAVAMAX® W6.
2. Heat until dissolved (60 °C / 140 °F to 65 °C / 150 °F) and transfer to a mixing bowl.
3. In a separate bowl, combine oil and corn syrups. While mixing, add a dry blend of the powdered sugar and flavor. For liquid flavors, add directly to the oil.
4. Cream the oil / sugar mixture using the leaf paddle.
5. Slowly add the creamed oil mixture to the wet ingredients while mixing on low speed until homogenous.
6. Once blended, whip on high speed for 1 – 3 minutes while periodically scraping down the walls of the vessel until the target specific gravity is obtained (typically ~ 0.80).

Formulation Flexibility
The sensory attributes of icings and frostings prepared with CAVAMAX® W6 can be adjusted by modifying the sugar, water and fat. In these applications, CAVAMAX® W6 allows manufacturers to use soybean or any other vegetable oil instead of hard fats for easier processing. As CAVAMAX® W6 also acts as an aeration aid, it supports whipped icing and frosting formulations with a specific gravity < 1.0. The stability of the resulting icings and frostings is much greater under high temperature stress conditions, i.e. above 40 °C / 104 °F during transport or in warmer climates.

Wacker Chemie AG, Tel. +49 89 6279-1346
Wacker Chemical Corp., Tel. +1 517 264 8671
Wacker Chemicals (China) Co., Ltd., Tel. +86 21 6100 3535
Wacker Química do Brasil Ltda., Tel. +55 11 4789-8087
info.biosolutions@wacker.com, www.wacker.com/socialmedia

The data presented in this medium are in accordance with the present state of our knowledge but do not absolve the user from carefully checking all supplies immediately on receipt. We reserve the right to alter product constants within the scope of technical progress or new developments. The recommendations made in this medium should be checked by preliminary trials because of conditions during processing over which we have no control, especially where other companies’ raw materials are also being used. The information provided by us does not absolve the user from the obligation of investigating the possibility of infringement of third parties’ rights and, if necessary, clarifying the position. Recommendations for use do not constitute a warranty, either express or implied, of the fitness or suitability of the product for a particular purpose.