

ALPHADEXTRIN AS DIETARY FIBER

Dietary fibers are an important component of a healthy diet. They support gastrointestinal health and may reduce the risk of coronary heart disease and other lifestyle-related ailments. Since most people in the Western world do not achieve the recommended daily intake of 25–30 g, the enriching of food with dietary fiber has become a growth market. Creating fiber formulations for use in different food applications can prove challenging. With CAVAMAX® W6, our alphasdextrin, these problems are eliminated.

Adding fiber ingredients to food or beverages is frequently difficult. Complicating factors here are high viscosity, poor stability, taste problems, discoloration, and loss of crunchiness.

CAVAMAX® W6 Alphasdextrin: The Solution

Alphasdextrin is a naturally occurring cyclic oligosaccharide which is produced enzymatically from starch. It is a well-defined, chemically pure substance and thus has consistent technical properties. It is a non-digestible, yet fully fermentable, water-soluble dietary fiber.

For a Variety of Applications

CAVAMAX® W6 solutions are haze-free, colorless and odorless, and have a low viscosity and a neutral taste. This makes the product highly appealing to the rapidly-growing market for health beverages. It is ideal for carbonated and non-carbonated, transparent soft drinks. Additionally, it can be used for a variety of other food products such as baked goods, dairy products and cereals.

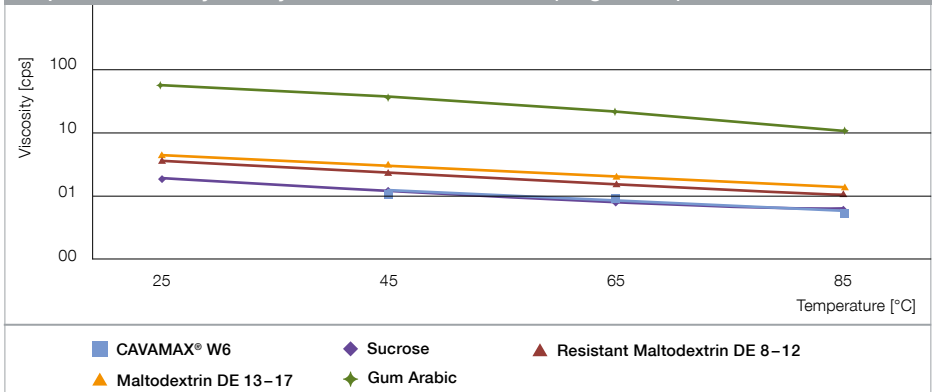
Benefit: Low Viscosity

CAVAMAX® W6 is a readily soluble dietary fiber with a viscosity similar to that of sucrose (see Graphic 1).

Benefit: High Stability

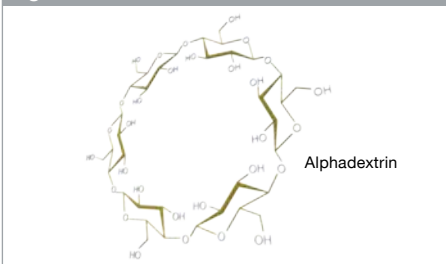
CAVAMAX® W6 remains stable at temperatures of up to 100 °C (212 °F) and a pH of 2.4, without showing signs of degradation (see Graphic 2).

Graphic 1: Viscosity of Polysaccharides and Sucrose (30 g/100 ml)



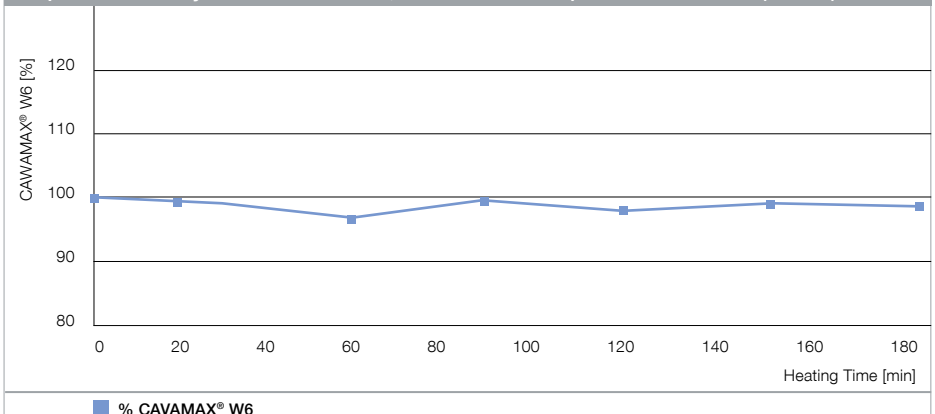
The viscosity of dietary fiber often limits how and to what extent it can be used – with CAVAMAX® W6 this is not the case. The viscosity behavior of CAVAMAX® W6 is similar to that of sucrose.

Figure 1



WACKER is a leading manufacturer of alphasdextrins and offers large volumes in food-grade quality.

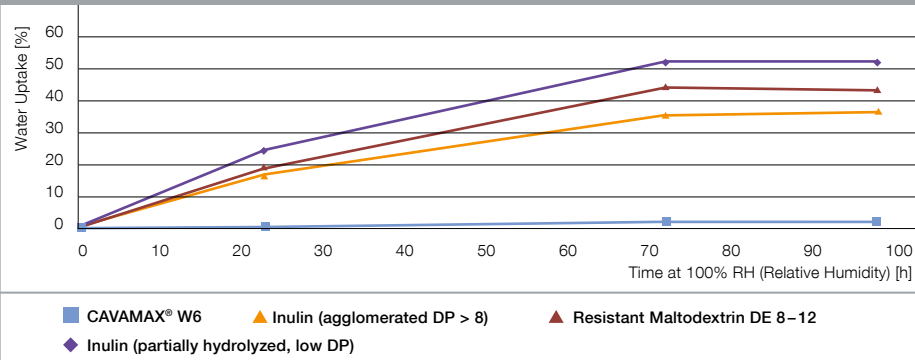
Graphic 2: Stability of CAVAMAX® W6, 10% Solution at pH 2.4 and 100 °C (212 °F)



CAVAMAX® W6 is highly stable under strong heat and acid conditions whereas other soluble fibers often are not.



Graphic 3: Water Absorption of Various Soluble Fibers



Benefit: Non-hygroscopic

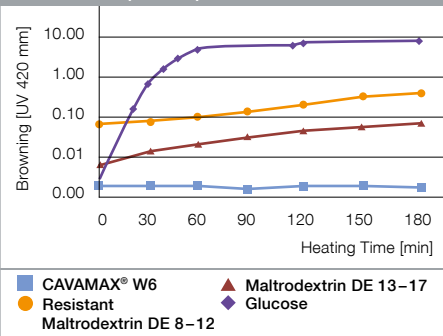
Water adsorption can reduce the shelf life of crispy foods. With CAVAMAX® W6 breakfast cereals and savory snacks remain crunchy (see Graphic 3).

Benefit: No Browning

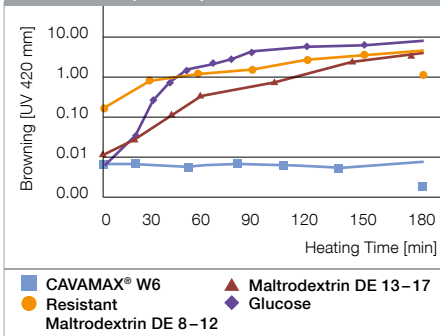
Many dietary fibers contain reducing sugars. Their reaction with proteins (Maillard reaction) can lead to browning and undesirable color changes. CAVAMAX® W6 contains no reducing sugars. Accordingly, it does not encourage the browning of food, regardless of the pH (see Graphic 4a/b).

CAVAMAX® W6 is non-hygroscopic and does not affect crunchiness.

Graphic 4a: Maillard Reaction at pH 4.5 and 100 °C (212 °F)



Graphic 4b: Maillard Reaction at pH 8.5 and 100 °C (212 °F)

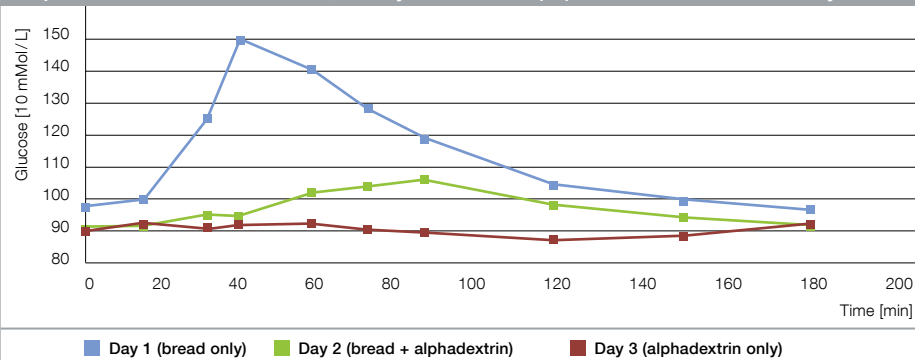


Benefit: Health Effects on the Glycemic Index

The positive effect of CAVAMAX® W6 on the glycemic index (GI) has been demonstrated in a clinical trial. On the first treatment day, 12 males were given 100 g of white bread, corresponding to 50 g of starch. Three hours after consumption, their blood glucose and blood insulin levels were measured. On the second treatment day, the same amount of bread was consumed along with 10 g of CAVAMAX® W6 (in 250 ml of water). And on the third treatment day, 25 g CAVAMAX® W6 alone was consumed. In between treatment days, there was a wash-out period of at least 48 h. It was shown that the usual peak in blood glucose after consumption of starch-containing food is both significantly smaller and delayed when CAVAMAX® W6 is administered in parallel (see Graphic 5). CAVAMAX® W6 itself, as a soluble fiber, does not raise blood sugar.*

CAVAMAX® W6 does not encourage the browning of food or undesirable color changes, whether at pH 4.5 or at pH 8.5.

Graphic 5: With CAVAMAX® W6, the Glycemic Index (GI) of Bread was Lowered By 50%



* University of South Australia. Gallaher et al., Fed. of Am. Soc. for Exp. Biology Journal, 21, 2007

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