

Corn Protein in Icing



Protein ingredients can be added to confectionery products to aid in water and fat retention. Another benefit is protein fortification. An experiment was run to evaluate the impact of adding corn protein to an icing formula. The experiment compared a control and test sample.

Corn protein was produced by Cargill with at least 85 wt% corn protein (dry basis) and less than about 1.5 wt% oil (dry basis), as described in patent application WO20161544CPI. The formula could be adapted to use corn protein with a minimum of 65 wt% protein and less than 3 wt% oil (dry basis) and anticipate the same finding.

An example involves white icings. Icings with and without the addition of corn protein were prepared using the formula and process procedures listed. Corn protein replaced powdered sugar in this example.

FORMULA

Ingredients	Control (%)	Test (%)
Powdered Sugar	57.8	52.8
Corn Protein	0.0	5
Water	18.2	18.2
Granulated Sugar	11.3	11.3
Gelogen™	5.8	5.8
Corn Syrup Solids	4.6	4.6
Hard Fat Flakes	2.3	2.3
Total	100.00	100.00

PROCESSING PROCEDURE

1. Add water, granulated sugar, corn syrup solids and Gelogen to the Vorwerk pitcher
2. Heat the mixture to 100°C and hold for a minimum of 3 minutes with the hole in the center covered
3. Turn off heating (set to 50°C)
4. Add the fat and allow it to melt (approx. 30 seconds – 1 minute)
5. Increase the mixing spread and add the powdered sugar
6. Allow the temperature to decrease to 40-50°C, and apply to the doughnuts
7. Allow 20-30 minutes for the icing to set

RESULTS

The test sample was more yellow-brown in color as compared with the control sample. The test sample was also thicker than the control sample, resulting in greater icing pick-up.

Bostwick Value after 30s	
Control	15.5
Test	9



Control icing (left) and test icing with corn protein (right).



Control icing on donut (left) and test icing with corn protein on donut (right).

CONCLUSION

Corn protein can be used in a formula to create an icing which looks like a maple frosting.