



Nordic Sugar
Member of Nordzucker Group

fibrex®

makes a better bread

Create healthier bread with prolonged freshness



Fibrex® from Nordic Sugar is a natural fiber product produced from processed sugar beet with a unique composition and water holding ability that is unaffected by heating, freezing and thawing. Fibrex can be used to increase the water content, prolong the freshness and enhance the softness of bread over time as well as prevent frozen dough from drying out. Fibrex will also give a welcome contribution to the dietary fiber content.

Fibrex is available in a wide range of sieve sizes making it easy to create a wide variety of desirable breads. Add Fibrex to your bread recipe and enjoy the extended freshness and shelf life benefits of this natural fiber.

Benefits

- Increased water content in the dough
- Prolonged freshness and enhanced softness
- Dietary fibre contribution
- Unique product range
- E-number free
- GMO free
- Gluten free



Fibrex® makes a better bread

Improved softness

Fibrex 595 (<0.125 mm) has been incorporated in a basic white toast bread to evaluate the impact on volume and softness. In the trials Fibrex was incorporated in a flour blend at dosages of 2%.

The addition of water to the flour and flour/ fiber blend was analysed on a Brabender Farinograph mixer to achieve a similar dough consistency.

For the trials commercial white wheat flour with the following typical specification was used:

Moisture content	14 – 15.5%
Amylogram gelatinization temp.	80.5 – 84.5°C
Wet gluten	27.5 – 30.5%
Protein	11.9 – 13.1%
Falling number	260 – 330 sec.

The flour contained ascorbic acid.

The baking trials were performed by a professional test baker in a industrial baking laboratory. Doughs were made simultaneously for every test using 2 speed spiral mixers. All breads were shaped to similar tension using a Rondo Kombi and evenly distributed onto tin trays,

proven and baked in rack oven. The tests were repeated three times to confirm the results.

The finished breads were analysed for weight, volume and softness.

To measure and evaluate softness a modified version of AACC method 74-09.01 was used.

Results

Figure 1 shows the percentage increase in water absorption for the flour/ fiber blend as determined by the Farinograph. With the blend of 2% Fibrex and 98% flour the water absorption increased by roughly 6% from 59.6% to 62.9%.

Figure 2 illustrates the volume of the breads after baking. The results confirm that neither the volume nor the volume/weight is significantly affected by inclusion of Fibrex at this level.

In figure 3 the results from the texture analyser are outlined. A higher value indicates harder bread and as demonstrated by the inclusion of Fibrex in the flour/fiber blends gives a positive development of the softness over time. Figure 4 shows the development with regards to the firmness measured in test repetitions two and three where the same positive developments are confirmed.

Farinograph results

	Development time	Stability	FU*
100 % wheat flour Water absorption 59.6% <i>(corrected for 14% moisture content)</i>	2.5 min	4.7 min	42
98% wheat flour + 2 % Fibrex 595 Water absorption 62.9% <i>(corrected for 14% moisture content)</i>	2.3 min	13.5 min	25

*Brabender Farinograph E ICC Standard 115/1
(ICC / 12min after max)

Test Recipe

Ingredient	Reference Wheat flour 100%	Fibrex 595 98% Wheat flour/ 2% Fibrex 595
Salt	1.8%	1.8%
Sugar	1.0%	1.0%
Yeast (fresh)	4.0%	4.0%
Bread improver	1.0%	1.0%
Water	59.6%	62.9%

Farinograph results

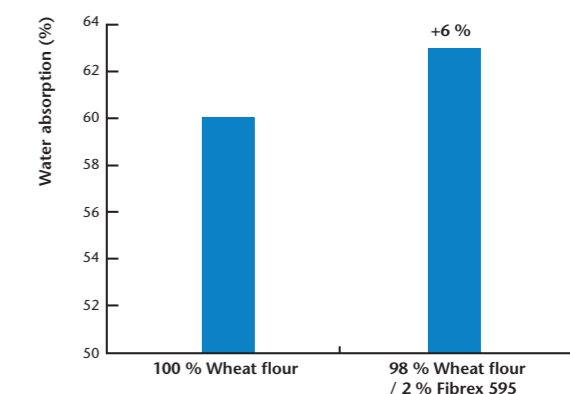


Fig 1

Volume

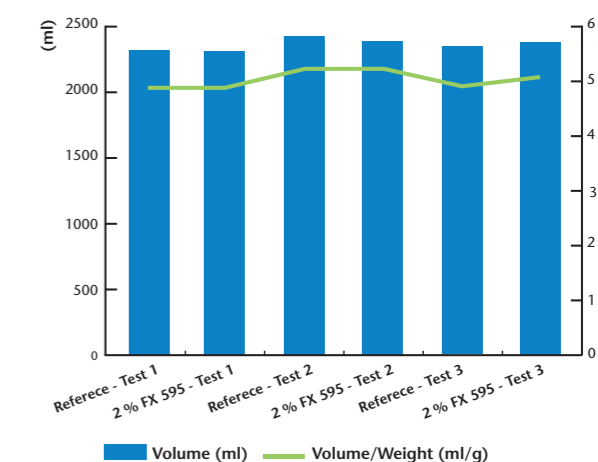


Fig 2

Bread firmness

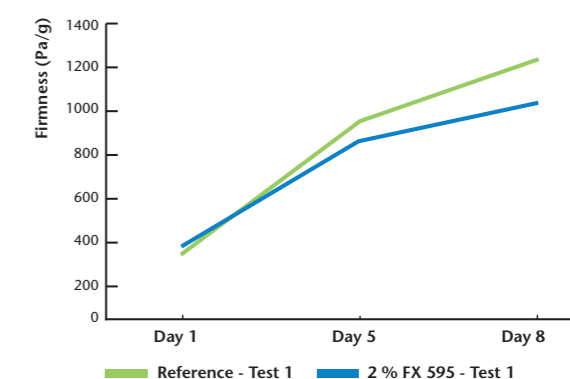


Fig 3

Bread firmness

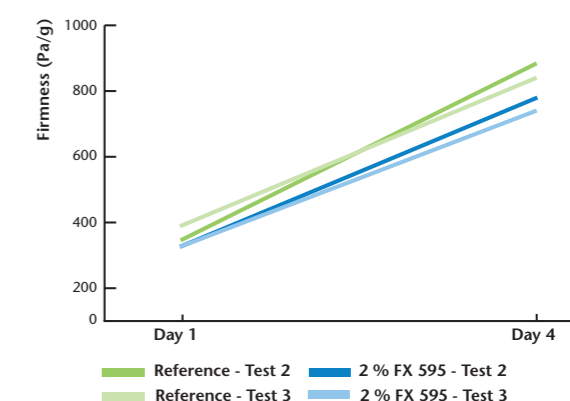


Fig 4



Application advice

FibreX is easy to use and can either be added on top of your normal recipe or by a reduction of flour by following our recommendations below. With a dosage of FibreX 595 in the range from 0.5% to 2% and addition of water in the ratio between 2:1 and 3.5:1 our experience has shown that it is possible to make a softer dough without compromising process ability and volume. Initially the dough may feel slightly wetter but will equilibrate after few minutes resting. The application advice should only be seen as a guideline and final amount of flour to remove or water to add will be dependent on flour type and recipe. If added on top in higher dosages we would also recommend adjusting the level of salt. For the coarser FibreX particle sizes pre-soaking is recommended to ensure full hydration before mixing.

Application advice, existing recipes

Dosage, percent of flour

FibreX	Flour	Type of bread	Fraction
+1.5	-6.0	White/toast bread	595
+2.0	-8.0	Sweet fermented goods	595
+2.0	-8.0	All other types of bread	595, 600, 610, 630
+2.5	-10.0	Coarser bread	595, 600, 610, 630

Application advice, on top of existing recipes

Dosage, percent of flour

FibreX	Water	Type of bread	Fraction
+1.5	+3.0 - 4.5	White/toast bread	595
+2.0	+4.0 - 6.0	Sweet fermented goods	595
+2.0	+4.0 - 6.0	All other types of bread	595, 600, 610, 630

FibreX is available in different particle sizes

Recommended types for bakery use	Size in (mm)
FibreX 595	<0.125
FibreX 600	<0.5
FibreX 610	0.4 – 1.4
FibreX 630	Flaked

Composition of FibreX

Average nutritional value/100g	
Energy KJ/kcal	800/200
Protein (g)	8
Sugar (g)	5.5
Fat (g)	1
Dietary fiber (g)*	67
Minerals (g)	4

*According to AOAC 45.4.07/NMKL 129. Some hemicelluloses, particularly arabans are exceptionally soluble in alcohol and therefore not recovered in the fibre analysis. However, their degree of polymerisation is well above 10 and they are therefore fibre according to current Codex Alimentarius and EU definitions. Taken this into account, the total fibre content is approx. 73%.

