

Keimkraft®: Versatility and Nutritional Benefits

The popularity of sprouted grains has increased tremendously in the past few years. There are more and more baked goods commonly found in the market using sprouted grains, and they are no longer “specialty” products as they were before. Flours milled from sprouted grains have also become easily accessible to professional as well as home bakers, offering them a chance to expand their lines of healthy breads and pastries.

In 2013, we were introduced to Keimkraft®, a flour blend of sprouted grains, seeds and legumes produced in Austria. Keimkraft® has passed many strict standards to be certified organic, and it offers many health benefits. McDonald’s and other large supermarket chains in Switzerland are now using Keimkraft® in their baked products, and there is growing brand recognition among consumers in Switzerland.

Keimkraft® consists of nine different organically grown grains, seeds and legumes that are individually germinated, dried, milled, and finally blended in a facility in Pöttelsdorf, Austria. Below is a list of the ingredients and what is nutritionally significant about each component.

- Wheat
Rich in B vitamins (folic acid, B9 and niacin, B3).
- Corn
Only grain containing large quantities of provitamin A out of the 9 grains.
- Spelt
Contains valuable mineral nutrients like magnesium, zinc, and phosphor.
- Millet
Contains large levels of silicic acid and iron.
- Flaxseed
Rich in essential amino acids, potassium, iron, phosphor, magnesium and B vitamins.
- Alfalfa
Particularly high levels of mineral nutrients, contains amino acids and phytochemicals.
- Red Clover
One of the best sources for isoflavonoids, high levels of mineral nutrients.
- Pea

Potassium, calcium, phosphor and iron are abundant. Good source of vitamins B1 and B2.

- Lentil

High levels of proteins and carbohydrates; rich in iron, potassium, magnesium and calcium.

The recommended usage level of Keimkraft® is to substitute 10-15% of flour in existing formulas with Keimkraft®. By using the specified amount of Keimkraft®, the nutritional benefits became much closer to products made with whole grains than those made with white flour (Figure 1 and 2).

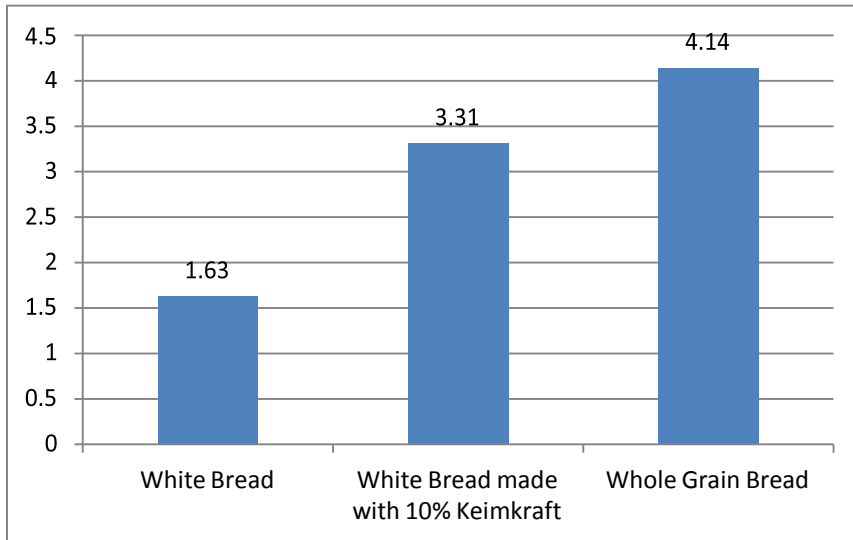


Figure 1: Vitamins (unit in mg) in 100g bread made with white flour (left), white flour with 10% Keimkraft® (center), and whole grain flour (right)

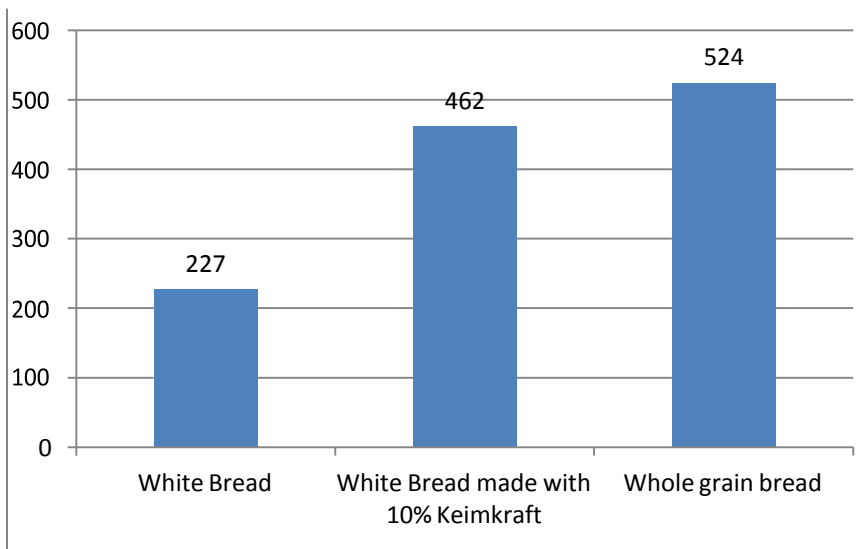


Figure 2: Minerals (unit in mg) in 100g bread made with white flour (left), white flour with 10% Keimkraft® (center), and whole grain flour (right)

When 10-15% of flour is substituted with Keimkraft®, there is not a significant impact on the bread's appearance and texture. With a visual and textural appeal very similar to white bread, Keimkraft products have about the same nutritional benefits as whole grain bread. According to FDA, bread can be labeled as "Good Source of", when 50g of the bread contains vitamins and minerals that are in a range of 10 to 19% of the Daily Value (DV) set by FDA. Following this guideline, a loaf of pan bread with 15% Keimkraft® can be labeled as "Good Source of Vitamin B1, B6, Iron and Phosphor" (Figure 3).

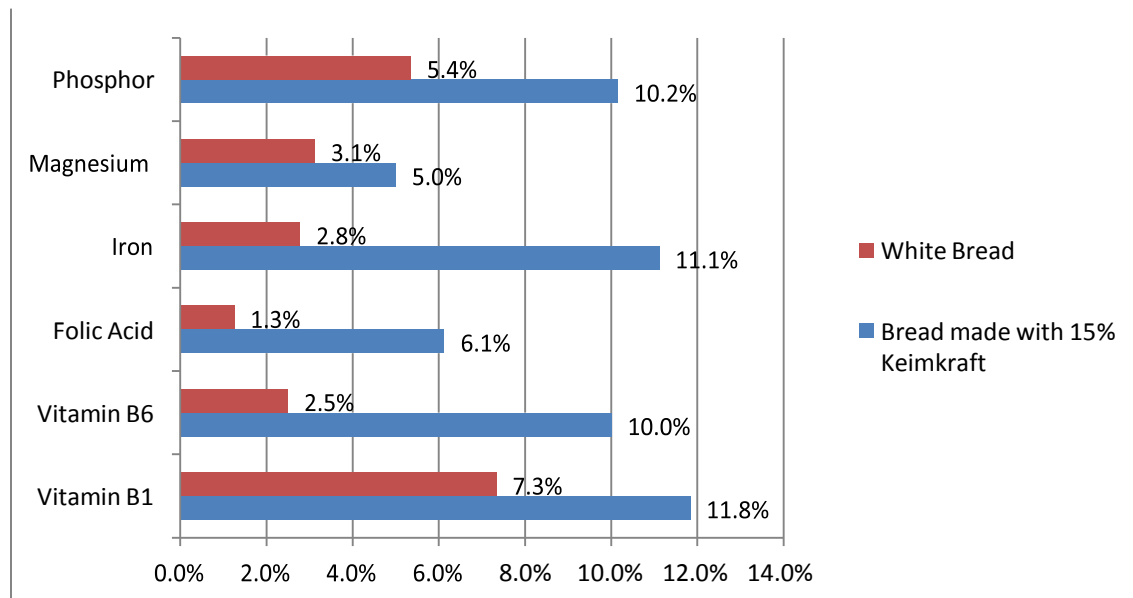


Figure 3: Percentages of Daily Value per 50g of bread

To test, we made baguettes, pan breads and croissants with 15% Keimkraft® and 85% bread flour, and compared with products made with 100% bread flour as control products (Figure 4-6). Baguettes and pan breads were also made with 100% whole wheat flour to show the difference in appearance. Dough was divided into the same weight (85g for croissant, 350g for baguette, 900g for pan bread) to show the differences in volume.

Modification made during the process were as follows:

- With the batches made with Keimkraft® and whole wheat, diastatic malt powder was removed from the formula to prevent excess browning during baking.
- Keimkraft® was soaked in equal weight of hot water (120F) for 30 minutes before added into the final dough.

- Hydration was adjusted to achieve the similar dough consistency.



Figure 4: Croissant made with 15% Keimkraft® (left), croissant made with 100% bread flour (right)



Figure 5: Baguette made with 100% bread flour (top), baguette made with 15% Keimkraft (center), baguette made with 100% whole wheat flour (bottom)

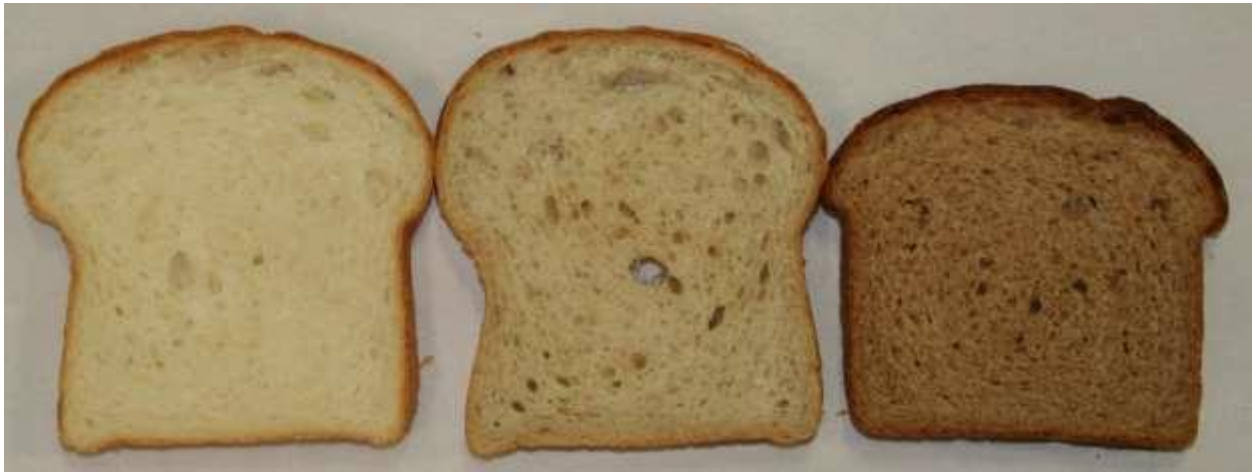


Figure 6: Pan bread made with 100% bread flour (left), pan bread made with 15% Keimkraft (center), pan bread made with 100% whole wheat flour (right)

What we have noticed is that adding Keimkraft® does not change the dough's behavior much. Because Keimkraft® is milled to a very fine particle size, it only adds subtle specks to the crumb of the bread. It also extends the shelflife of products by retaining the moisture. The volume of the products was very similar to the control products. The crumb appears tan color and has some speckles, but the crumb color is not nearly as dark as the ones made with whole wheat. After baking, crust of baguettes made with Keimkraft® did not stay crispy for a very long time, because of the Keimkraft®'s water retention property. Pan bread with Keimkraft® stays fresher for a longer time for the same reason. In terms of flavor, products made with Keimkraft® have more depth with a nutty sweetness that is unlike the sweetness of white sugar.

In conclusion, Keimkraft® is a great way to increase the nutritional value of our everyday baked items. It is versatile to use, and has advantages in both flavor and shelflife. Consuming more whole grains has a positive effect on everyone's health. However, especially young children dislike the harsh texture and flavor of whole grain products, and sometimes they cannot even digest the coarse bran particles; and in some cases, the lining of the intestines can become damaged. Keimkraft® definitely provides an opportunity for bakers to create products with added nutritional values that are palatable to greater demographics. The key to reach out more consumers is to make healthy bread with good flavor and texture that can be enjoyed on daily basis. Other types of sprouted grain flours are available in the market. They all have the benefits of increased level of vitamins and minerals, and easier digestibility.

Among them, Keimkraft® is particularly well balanced in nutritional value and is simple to use.

Hopefully, as is happening in Switzerland, these types of products become utilized in school lunches and fast food restaurants in the U.S. to provide better nutritional options for consumers without sacrificing the joy of eating good food.

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