

Crustless pan bread favored in ARGENTINA

The product of choice among Argentinean consumers is crustless pan bread, which they buy from small, artisan bakeries and eat as sandwiches. Important quality attributes of these loaves are a strong white color, a long shelf life and a fine, homogeneous texture. In the production process, special attention must be given to adequate mixing and carefully adjusted dough preparation in order to achieve the necessary uniform crumb structure.

Contrary to the widespread notion that Argentines live mainly on rump steak and roasts, the 40 million inhabitants of that country eat far more wheat products than beef. According to the association of the Argentinian milling industry, Federación Argentina de la Industria Molinera (FAIM), annual flour consumption is over 90 kg per head of the population. Some 3 million tonnes of baked goods are produced each year.

Most bakeries are of the smaller, artisan type, and there are considerable differences between businesses in the mechanical equipment available and the proficiency of the employees. For most Argentines, the daily trip to the baker is a matter of course; they see the advantages mainly in the low price and the freshness of the goods. Industrial products have no great significance in the bread sector at present. According to the association of the Argentinian bread industry, Federación Argentina de la Industria del Pan (FAIPA), 94% of the bread is baked by traditional methods and only 6% is produced industrially.

The product of choice among Argentinean consumers is crustless pan bread, which they buy from small, artisan bakeries and eat as sandwiches. Photos courtesy of Mühlenchemie.

by Robert Frank and Martina Mollenhauer

Despite its reputation as a meat consumer, country's annual flour consumption is over 90 kilograms per person

SANDWICH LOAVES ARE THE STANDARD

The favorite type of bread is light-colored, wheat pan loaves known as *pan de miga* (crumb bread) or *pan inglés* (English bread). These loaves are generally made for eating as sandwiches, rather like the Italian *tramezzini* or the traditional British teatime sandwiches.

The characteristic feature of the products is the absence of a crust. *Pan de miga* is baked in huge square or rectangular pans for a weight of 8 to 12 kg, with a tightly fitting lid. The crust is then removed, and the bread is cut into very thin rectangles from which the typical *sándwiches de miga* can be made.

Since Argentina is strongly influenced by Anglo-Saxon customs, consumers have a preference for products baked from bleached flour, such as those that have been popular in the U.K. for many years.

Therefore, one of the quality criteria for *pan de miga* is an extremely bright, white color of the crumb. The optimum flour has an ash content of less than 0.492%. Moreover,

Argentinian food law permits the use of bleaches. In order to remove the color from the pigments naturally present in the flour, and thus increase the brightness of the flour and the crumb, many bakeries use benzoyl peroxide, which has an oxidative effect.

Since sandwich loaves are intended to hold various spreads and fillings, the structure of the crumb is very important. It serves as a base for dressings like mayonnaise, so the texture must be homogeneous and fine. All the doughs should have a firm but elastic consistency. Besides suitably adjusted mixing and adequate resting time, the dough preparation process plays a key role, since the release of gases results in a finer, more uniform texture.

In the production of crumb bread, the dough is kneaded or rolled out vigorously and then rolled up. For fermentation it is divided into two or up to four parts, depending on the size of the pans, and placed in the greased molds. No more than one-third of the volume of the mould must be filled with dough. The moulds are set on racks and placed in the rest cabinet. Final proofing takes place in the open pan. As soon as the dough has risen to two-thirds of the pan volume, the loaves can be put in the oven with the lids closed.

It is inadvisable to put bread of this kind in the oven with very advanced final proofing, since there is a risk that overpressure will build up in the pan under the tightly closed lid due to the formation and expansion of carbon dioxide; this may cause the loaf to burst when the lid is opened after baking.

After baking, the lid is carefully removed from the pan, and the loaf is taken out and placed on a grid to cool.

A LONG SHELF LIFE IS EXPECTED

Argentinean consumers expect their pan loaves to stay fresh for several days. The bakeries have a number of options for meeting these requirements. Preservatives such as calcium propionate can be used to prevent mould and yeasts.

The addition of fats, various emulsi-



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fiers and suitable enzyme systems ensures a long shelf-life and a pleasantly soft crumb for the products.

The following is a typical recipe for *pan inglés/pan de miga*:

| | |
|---------------------------------|-----------|
| Flour | 100 kg |
| Salt | max. 2 kg |
| Fresh yeast | 1.5 kg |
| Fat | 0 - 1 kg |
| Water | 53 - 58 l |
| EMCEprop G (calcium propionate) | 300 g |
| EMCEvit C (vital wheat gluten) | 0 - 400 g |

Oxidative flour treatment

| | |
|-----------------------------------|------|
| ELCO P 100 K (ascorbic acid) | 6 g |
| Alphamalt Gloxy (glucose oxidase) | 15 g |

Stabilization of the emulsion/dispersion

| | |
|------------------------------|-------|
| Mulgaprime SSL | 150 g |
| Alphamalt LP / Alphamalt EFX | |
| Mega | 3 g |

Extension of the shelf-life of the crumb

| | |
|--------------------|------|
| Alphamalt Fresh 95 | 12 g |
|--------------------|------|

In practice, bakeries make some typical mistakes in the production of *pan de miga*, which mainly affect the structure of the crumb and the shape of the

loaves. The following is a brief overview of the most common faults and ways of avoiding them:

Problem: Deformed loaves, hollow sides.

Possible causes: Low-gluten flour type (*harina floja*); over-fermentation.

Solution: Adjust mixing time; reduce fermentation time; increase the amount of ascorbic acid and glucose oxidase (e.g. ELCO P 100 K or Alphamalt Gloxy); add EMCEgluten Enhancer.


Problem: Cracked sides

Possible cause: Very high-gluten flour type (*harina da fuerza*).

Solution: Add hemicellulase and/or L-cystein (e.g. Alphamalt H or EMCEsoft P) or increase the amount.

Problem: Large, unequal pores.

Possible cause: Sub-optimal processing.

Solution: Increase mixing time to improve the characteristics of the bread. Add emulsifiers (SSL, mono- and diglycerides), enzymes (hemicellulases, lipases) or enzyme-active soy flour (SoyNovo EAS). 

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