



The BOC quick guide to:

Frozen part-baked products

What's the value of frozen part-baked products?

Analysts Mordor Intelligence predict the global market for all frozen bakery products will reach \$25 billion by 2022, with a compound annual growth rate of 8%. Consumers are constantly seeking freshness and convenience and for bakery products, with their limited shelf life, freezing is the obvious solution, in particular if they can be part-baked first.

Why are they popular?

The quality of fresh bread comes from its crust (crispiness, colour and taste) and 'crumb' (flavour, softness, cell size and structure). However both undergo chemical and physical changes known as 'staling' soon after the bread is baked if stored at room temperature. This also happens to other bakery products such as cakes, cookies, croissants doughnuts, pizzas and pies. But the process can be forestalled if the product is part-baked and then frozen.

How is it done?

By interrupting the production cycle of bread and cakes at various points and freezing the product, be it dough, pre-proofed dough or part-baked goods, food producers can move the eventual time of baking by consumers as close as possible to the moment of consumption. The result? Convenient, fresh-tasting products in homes filled with the welcoming aroma of fresh baking.

Is this product just for the retail consumer market?

Not at all. Many shops and food outlets value the flexibility of part-baked frozen goods as they can bake off small amounts on demand and provide an ambience of 'freshness' and food authenticity on the premises for their customers. This also avoids waste which is important given that bread is a big contributor to the mountain of food thrown away, last estimated at around 24 million slices each day.*

What are the challenges of freezing part-baked products?

First you have to ensure the baked product has been correctly prepared for freezing. For example, in the pre-freeze bake it's vital that sufficient heat reaches the centre of your bread dough to obtain a stabilised crumb. However, too much heat will darken the crust which increases the likelihood of 'crust flake', weakening the crust's surface when the bread is eventually reheated after freezing and causing flaking.

One thing to keep in mind with cakes and fruit pies in particular is that they generally have a reduced freezing point because of their low moisture and higher sugar content. They should be handled rapidly when being moved in and out of storage freezers as they can warm up quickly. Cakes and pastries can lose both texture and flavour if exposed to temperatures much above -12°C for any length of time.

Can cryogenic freezing help?

Liquid nitrogen and carbon dioxide give you fast in-line freezing, preserving flavour and producing smaller ice crystals, preserving the quality of the baked product. You can apply cryogenics to fast-freeze rolls, pretzels, pizzas, part-baked breads and prepared bakery products. Suitable equipment includes spiral freezers, tunnel freezers and cabinets. A super contact freezer also works well for pizzas.**

*<http://www.wrap.org.uk/sites/files/wrap/hhfdw-2012-summary.pdf>

**http://www.lindegas.hu/en/processes/freezing_and_cooling/food_chilling_and_freezing/fruit_and_veg/index.html



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