



Technical Paper

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A GUIDE TO DOUGHNUT TECHNOLOGY

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A key difference between doughnuts and other bakery products is that doughnuts are fried rather than baked. However, many of the underlying principles which are used to produce doughnuts are based on those which largely apply in the manufacture of other forms of fermented products and cakes.

There are two main types of doughnut; those which are yeast-raised (fermented) and those which are powder-raised (cake). This guide discusses recipe and process factors which contribute to the quality of both types of doughnut and considers how that product quality can be optimised in practice.

Yeast-Raised (Fermented) Doughnuts

Yeast-raised doughnuts are based on making a dough and are most commonly round or ball-shaped, though they can also be finger and ring-shaped. They have a light golden brown crust colour and are usually finished with a light dusting of granulated or caster sugar. On occasions a glaze or icing may be applied to part of the doughnut surface in place of the sugar, they may also be coated with an icing or frosting.



Round, fermented doughnuts

Internally the structure of the yeasted doughnut is similar to that of a fermented bread roll or bun and is usually relatively open with a soft but resilient feel to the crumb. In the 'ideal' product, fat absorption from the frying stage should be limited otherwise the product has a greasy mouthfeel (see below).

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Example of yeast-raised doughnut recipe for no-time dough

<i>Ingredient</i>	<i>% flour weight</i>
Bread flour ¹	100
Fat	8-20
Sugar	5-15
Salt	1-1.5
Dried milk solids ²	1-6
Improver ³	1-2
Yeast	5-10
Water ⁴	55-65

1. Depending on the strength of the bread flour up to 40% of it may be replaced with a pastry-type flour.
2. Should be fully heat-treated milk solids. Part of the milk solids may be replaced with dried egg solids to deliver a 'richer' flavour.
3. An improver which is suitable for the manufacture of bread or rolls may be used.
4. The water level will vary according to the recipe and water absorption capacity of the flour and the doughnut processing method.

General processing

- Mix for 2 min on slow speed on a spiral-type mixer and then for about 4 min on second speed.
- The final dough temperature should be around 26-28°C (78-82°F).
- Divide the bulk dough and mould round. If finger shapes are required then first mould round, rest the pieces for 5-10 min and finally mould to a finger shape.
- Final proof should be between 20 and 40 minutes in length and carried out at 35-38°C (95-100°F) and around 50% humidity.
- Frying times will be short, typically not more than 4-5 minutes.
- The fried and cooled product may be injected with jam, jellies or other fillings or they may be split and filled.