

> INFORMATION SHEET

DEFINITION

Originally a special pastry that used yeasted dough for extra aeration, filled with butter, sugar, raw marzipan and peel. Now refers to almost any sweet breakfast pastry. Usually a light, flaky pastry containing custard, jam and/or fruit. It may have an icing glaze with fine chocolate decoration.

HISTORY

The origin of the Danish is ascribed by the Danish Confectioners, Bakers and Chocolate makers Association to a strike amongst the bakery workers in Danish bakeries in 1850. The strike forced bakery owners to hire foreign workers, including Austrian bakers. Unfamiliar with the Danish baking recipes, they baked pastries from their native recipes. Amongst these Austrian pastries were Plundergebäck, which became quite popular in Denmark. Later this recipe was changed by Danish bakers, increasing the amount of fat (by adding more egg) which resulted in what is today known as the Danish. In different countries they have different names: the Danish call them Wienerbrod (Vienna bread) and the Austrians call them Kopenhagener (Copenhagen, after the Danish capital). They were introduced to America by bakers from Denmark.

INGREDIENTS

INGREDIENT

FUNCTION & SPECIFICATIONS (*Based on flour content.)

Flour	Bread flour with protein content of 11.5–12%. If the protein content is too high the Danish will be tough to eat. Strong flour can be blended with 30% pastry flour to improve extensibility of dough during laminating.
Sugar	Added as sugar or high fructose corn syrup (HFCS). Affects the water absorption – high sugar dough absorbs less water but slows yeast activity. Yeast addition increases as sugar levels increase.
Roll-in fat	Butter or margarine is as much as 50% of flour weight. Fat contributes significantly to the flavour and colour. Butter is preferred but cost and limitations with processing temperature range mean margarine is frequently used.
Dough fat	Improves dough handling properties and the tenderness of the pastry crumb. Can be butter in butter dough, margarine or vegetable shortening in regular pastry dough. Amount ranges from 8% (lean dough) to 20% (very rich dough).
Yeast	Leavens the dough during proofing and develops flavour during fermentation. Amount added depends on sugar levels in dough and tolerance of specific yeast strain to high sugar dough.
Salt	Amount added depends on type of roll-in fat used. (1.5–2%)*
Water	Necessary to form a dough from the dry ingredients. Due to the amount of handling that dough for Danish pastries undergoes during processing the dough should not be softer than roll-in fat. Dough water absorption is usually in range of 51–59%*.
Dairy solids	Including milk solids, replacers and whey products which aid crust colour development and add a rich flavour. These ingredients need to be heat treated to denature those proteins which could react with gluten and weaken the structure. Typically added at 4–8%*.
Eggs	Added at 5–8%* in dry or liquid form to strengthen and prevent collapse during baking. The more fillings/toppings added to the pastry then the more eggs need to be added to dough.
Flavouring	Although the main flavour comes from fillings, topping and icings some bakers like to add vanilla and/or citrus flavour to the dough.
Dough conditioners	These are used to mellow the dough to improve handling skills and strengthen the dough so it can support fillings/toppings. Examples would be sodium stearoyl lactylate (SSL) for strengthening and sodium metabisulfite for relaxing the dough.
Crumb softeners	Monoglycerides of saturated fatty acids are efficient crumb softeners and also lubricate the gluten matrix to assist with the laminating and make-up stages.

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PROCESSING

PROCESS	DETAILS
Preparing dough	The dough ingredients are all combined and mixed in one stage. As gluten development occurs during the lamination stage, dough development during mixing is not important. The dough tends to be very soft and have low water absorption.
Laminating	<p>Danish dough is laminated with roll-in fat to produce a multitude of dough layers separated by films of fat. The roll-in fat is usually added without much delay after mixing, although the dough can be left for 20–30 minutes to rest for hydration. There are two methods that are outlined below:</p> <p>1. Traditional or English method. The fat is spread or spotted over 2/3 of the dough which has been sheeted into rectangle shape. The uncovered portion of the dough sheet is folded over half of the fat covered portion and the other half is then folded over the doubled up dough portion, resulting in three layers of dough with two layers of fat sandwiched between them. After 30 minutes rest in the retarder the layered dough is sheeted to a uniform thickness of 1.3–2cm. The dough piece is then given a 3-fold (half turn) by folding one-third of dough sheet over centre section and then the third section of dough piece is folded over doubled up section. After 30 minutes rest in retarder the sheeting and folding process is repeated to achieve a total of 54 layers which is sufficient for a dough containing 17–30% roll in fat. The number of folds vary based on amount of roll in fat and can be as much as 108 layers.</p> <p>2. Automated Equipment is now available which extrudes dough and roll-in fat simultaneously and laminates the dough to any desired number of fat layers in the dough. The processing is designed to occur while minimising stress on dough and results in continuous processing and make-up without delay. The dough is mixed at 15–18°C to retard yeast action. In-line retarding systems are available which enable dough processing under less than ideal conditions. This equipment is usually part of a totally automated production line for Danish production.</p>
Make-up	After retarding for several hours the dough is ready for makeup. The dough makeup is best at 13–16°C. It is important to reduce the thickness of the dough gradually using a sheeter to avoid rupturing layers. The flakiness of the Danish can be adversely affected if the dough is reduced too quickly. Once sheeted there are a number of ways in which the dough can be made up, including: crimping, oiling, curling, filling or twisting, dependent on desired end product. There are a large range of different shapes including pinwheels, envelopes and turnovers.
Fillings	These can be applied before or after proofing. Fillings need to be oven- and package-stable through proper adjustment of water activity. The filling should not break down into the icing or dough. A large amount of filling is used relative to the dough weight, ranging from 30–50% depending on end quality of the Danish.
Proofing	This is a crucial step as if proofed at too high a temperature the shortening bleeds out while over proofing can cause collapse of the product from the oven. Danish should be proofed at 29–32°C with a relative humidity of 65–70% for 55–60minutes. They should be proofed to 2–2.5x their original size.
Topping	Common to spray or brush pastries with mild egg wash to improve the appearance. Fruit toppings must contain sufficient sugar to avoid them boiling during baking.
Baking	Tend to be baked at lower temperatures than equivalent products made from sweet dough. Leaner dough is baked hotter than rich, high sugar dough. Danish sweet rolls may be baked at 200–210°C in a gas fired reel oven. However, baking temperatures and times are dependent on the oven used and the size of the baked product as well as quantity of filling .
Icing	Adds sweetness to the end product and compliments other flavours and tastes in the pastry. Icing is added when the Danish is still warm as this gives the icing a high gloss and enables it to penetrate into the flake before setting which adds to eating quality. Also aids the shelf life of the product.

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TROUBLE SHOOTING

PROBLEM	PROBABLE CAUSE	REMEDY
Butter breaks through dough	Butter too cold Dough too soft Harsh sheeting reduction	Condition butter to 14–16°C before use. Reduce water in dough so same consistency as butter at 14–16°C. Use gradual and even sheeting reduction
Butter oozes out from dough	Butter too warm Dough too warm Dough too tight	Condition butter to 14–16°C before use. Chill dough. Increase water in dough.
Butter melts during proof	Proofer too warm Insufficiently laminated	Reduce power temperature to 30–32°C. Laminate with minimum of three book folds.
Baked pastries are misshapen	Irregular laminating Butter too hard Oven too hot Rolled out too thinly or quickly	Use butter sheets. Condition butter to 14–16°C before use. Bake Danish at 200–210°C in a gas fired reel oven. Use gradual and even sheeting reduction.
Baked pastries show fatty patches inside	Insufficiently laminated Excess roll-in butter	Laminate with minimum of three book folds. Reduce roll-in butter (max 75% flour weight).
Pastry sticks to sheeting rollers	Insufficient dusting Room too warm	Use more flour for dusting during sheeting. Work in cooler room or at cooler time of day
Pastry topples during baking	Too few folds Dough pieces too thick	Increase number of folds. Roll slightly thinner.
Tough end product	Too little layering butter Too little dough butter Baking temperature too low	Increase butter (max. 75% flour weight). Increase dough butter. Bake Danish at 200–210°C in a gas fired reel oven

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