CRACKERS
INFORMATION SHEET

BAKING INDUSTRY RESEARCH TRUST

DEFINITION

'Cracker' is a generic term used throughout the world and refers to products with very low sugar and fat content. The term cracker can be used when the baked product has a cereal base, e.g. wheat, oat or barley, of at least 60% and a low moisture content of 1–5%, which is the distinguishing factor. Crackers usually have a higher fat content than other baked products and a longer shelf.

Crackers are used as a base for savoury toppings, most commonly cheese and tomato, but they may also have enough flavour from tasty coatings to be eaten alone.

The holes in crackers are called "docking" holes. The holes are placed in the dough to stop overly large air pockets from forming in the cracker while baking.

HISTORY

Early crackers were a matter of convenience for people on the run, for example Jews fleeing Egyptian slavery. Too rushed to allow their dough to rise, they baked matzoh instead. Early crackers were hand-made, hard-baked products made from flour and a little moisture. Their low moisture content was a desirable feature as there was no medium for mould growth, and low fat content meant there was no concern about rancidity. These two factors mean that crackers have a long shelf life making them a very versatile and desirable product. At the turn of the 20th century, Adolphus Green laid the foundations for the modernisation of cracker production, abandoning the old cracker barrel for fresh whole crackers in triple wrapped packages. It is thought that the sound of a cracker being eaten probably led to its name.

INGREDIENTS & PROCESSING

Crackers are made from hard dough, like semisweet, unsweetened and savoury biscuits. Hard dough has a stiffer but similar consistency to that of bread dough. The gluten network is well developed during mixing, making for an elastic and extensible dough. The fat and sugar contents are low relative to the flour content, so it is a lean dough.

The process of sheeting – also called cutting machine dough – is used to make crackers. The dough is passed through a series of rollers to obtain the desired thickness. The biscuit or cracker shapes are then cut out of the sheets using a die which may be plastic or metal. The dough needs to be strong and elastic so that the biscuits hold their shape when the scrap is removed from around the cut biscuits.

TYPES OF CRACKERS

Foods containing moisture content of 50% or more may instantaneously boil or cook when exposed to microwaves as microwaves work best with a moisture content under 25%.

Due to internal pressure microwave heating may cause delicate products to puff.

Results in lack of crust in microwave-baked bread. Crust is required for flavour and texture, to prevent collapse of the freshly baked bread loaf, and prevent premature microbial spoilage. This problem could be solved by combination cooking, where microwave baking is followed by conventional oven crust formation, although this adds another complicated step to processing.

Toughening of protein foods, including bread, following microwave processing. Loaf skin tends to be rubbery, tough and difficult to tear, while the crumb can be firm and difficult to chew. These problems may be solved by reformulating the product to suit microwave cooking.

1. Fermented – For example: soda crackers, saltines and cream crackers.

- Soda crackers have been popular in the US for over 150 years. They are typically about 4 mm thick and 50 x 50 mm square and contain 8–10% shortening (based on flour). A variation on soda crackers are saltines that are a smaller, dainty type of soda cracker with increased shortening. Traditional processing includes a long fermentation using a sponge starter. Then 1% sodium bicarbonate is added to the dough, which increases the alkalinity and gives soda crackers its name. Once the dough is mature it is sheeted to about 4 mm and then laminated 6–8 times. The cracker is cut by making lines of perforations across the dough sheet, although it is baked as a whole sheet, to minimise waste dough. A feature of soda crackers is the nine hole docking pattern on each cracker set out in a 3 x 3 grid pattern. After baking, the sheet of crackers is split along the perforation lines to make a block of four crackers for packaging. The final product texture is flaky but crisp. The spring between docking holes on top of the crackers should be even and bottom surfaces should be flat with numerous small blisters. Soda crackers are dry and bland so they are not usually eaten alone, but are eaten with soup.
- Cream crackers fill the niche of soda crackers in UK. These crackers have a slightly higher fat content than soda crackers (12–18%) but despite what their name suggests they contain no cream. The rectangular shaped cracker is usually 65 x 75 mm, they are slightly thicker than soda crackers and are produced as individual units. Cream crackers are traditionally made using long sponge and dough fermentation, but modern methods include single stage mixing and a 4–16 hour fermentation process. The product is sheeted and laminated as described above. In addition to this processing, laminating dust – containing flour, shortening and salt – is applied in between layers of dough. This causes laminations to lift apart during baking, giving an extra flaky structure. Cream crackers have an uneven surface finish with blisters on the bottom and top surfaces. The final moisture content of 3–4% is high for crackers and with a higher fat content as well, cream crackers are relatively soft, will not crumble and should 'melt-in-the-mouth'. Without chemical leavening, cream crackers are bland, with a slight nutty flavour so savoury toppings including butter are common.

2. Chemically leavened – For example: snack cracker.

These products are newer than fermented crackers and have two distinguishing characteristics: that they are sprayed with hot oil as they leave the oven and that a topping is added to the cracker for flavour. They usually contain some sugar (4–10%) to aid flavour and texture. As snack crackers do not have a long fermentation to mature the dough, proteolytic enzymes or sulphites are used to relax dough so that the crackers are not deformed during sheeting and cutting. There are a wide range of shapes and sizes for the snack crackers but usually they are round and have two docking holes to allow an even lift during baking.

Toppings are generally applied before baking and these can include flavourings, e.g. herb, cheese or chicken, or small seeds, such as poppy and sesame. The finished product has a dense texture but is soft to bite, while the hot oil spray improves mouth feel and gives an attractive appearance to the finished product. Occasionally, snack crackers may be produced from fermented dough and these are the only snack crackers produced by lamination.

CHEESE CRACKERS

When making cheese crackers the most important decision is the type of cheese to be used. Essentially it is a matter of taste, especially the taste of the cheese after being baked. Some cheeses show a surprising lack of flavour even after baking. Well matured cheeses are most appropriate, while mild cheeses won't improve with baking. Cheese can be incorporated directly into the dough; the best time to add the cheese should be determined through trial and error as it may vary dependent on processing methods or equipment. In fermented cheese crackers there are no aerating chemicals, although soda may be added to bring pH – and with it, flavour – to an acceptable level. Cheese has an acid flavour and cheese crackers in general have a pH of about 6.0. The pH of the cracker is important as it impacts the shelf life, flavour and baked colour.

REFERENCES

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