

Especially cake!

THE FIRST CAKE TEC CONGRESS AT THE CENTRAL COLLEGE OF THE GERMAN CONFECTIONERY INDUSTRY (ZDS), SOLINGEN, GERMANY, DID JUSTICE TO THE STRONG EXPANSION IN THE CAKE MARKET



++ figure 1



++ figure 2

++ figures 1+2

At Air Solution, both the de-germination of a transport belt and of a cooling tower with bread is possible

+ Around 40 participants focused on the topic of cakes at the CakeTec Congress on 6th and 7th November 2012. From the 23 presentations baking+biscuit is presenting some of the speeches which are not only interesting for the cake market. You can find further topics in our supplement sweet baking on pages 16–17.

Pan coatings in practice

Jörg Wagner from the Kaak Group in Terborg, Netherlands, has devoted himself to the coating process and its technical possibilities, with Kaak's Bakeware subsidiary specializing in the production of metal sheeted bakeware, some of which is customized. According to Wagner, the first question that comes up when thinking about a new baking tray is choosing the right material for the tray. In addition to the baking trays made of stainless steel, those made of alusteel and black steel sheet are popular products for bakeries that produce cakes, because of the preferred deep-drawn feature.

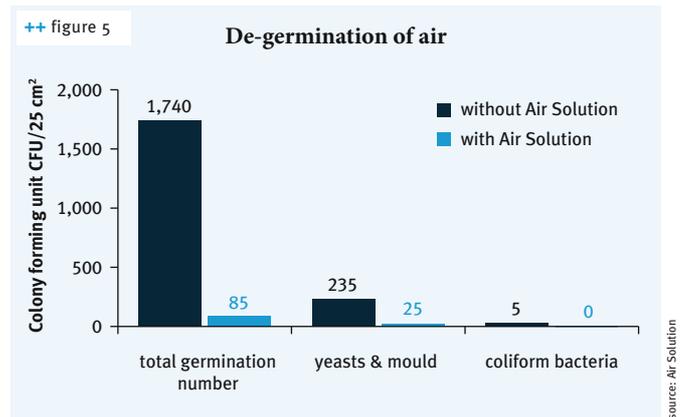
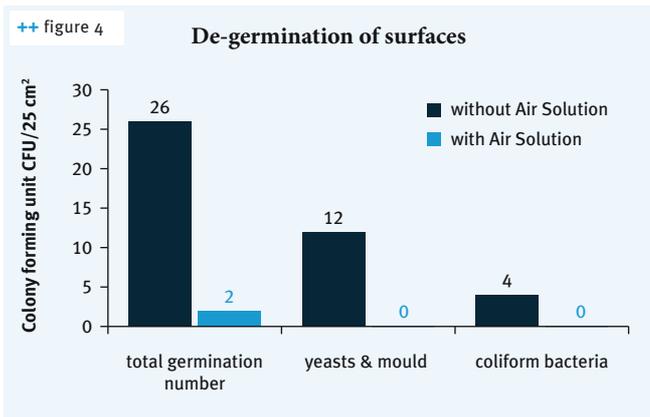


++ figure 3

++ figure 3

The nebulizer module from Air Solution germinates via fogging

The second question then refers to the type of coating. The speaker explained that sheeted baking trays and baking tins are easier to clean than uncoated products. Generally speaking all bakeware can be coated, whether with Teflon, silicone or glaze silicon. Wagner said the cake industry mostly uses glaze silicon coatings, while the baking industry uses Teflon coating. With Teflon, there are three major types of coatings: FEP (fluorinated ethylene propylene), PFA (perfluoroalkoxy) and PTFE (polytetrafluoroethylene). All are based on polyfluoro combinations and are quite resistant to chemicals, whereas silicone can be removed chemically and therefore it is much easier to be coated several times. Alternatively, Teflon must be burned in a pyrolysis oven to be recoated. In the case of Teflon, there are three possible types of coatings: powder coating, liquid coating and a combination of both. In all cases an initial primer is important before the mould is coated with Teflon, as the primer serves as the first sealing of the bakeware. The cake industry mainly processes and bakes dough or other substances with a high level of sugar, egg white or fat. Wagner said these are exactly the kinds of raw materials that make various demands on the producers of bakeware coatings. Furthermore, the baking technology must be taken into consideration, for example, the baking temperature and time are quite important, since the antistick requirements of the coating must be fulfilled over a long period of time. Finally, a decision must be made if online washing for the moulds is requested, because with a Teflon coating there is the risk of moisture penetrating down to the black steel and then causing rust. Wagner summarized his talk by saying that all in all there is not just one coating for everything. He presented the Kaak GlaceSilione Type NGS coating, which is suitable for sponge cakes, pound cakes, tortelettes or yeast dough. According to Wagner, it has excellent release qualities in combination with greasy products (100 % vegetable oils), has a long lifetime



++ figures 4+5

Anonymized test results of an active de-germination from Air Solution

and a high number of baking rounds, good wet cleaning qualities during online washing programs and a high production certainty because of the soft way of recoating (treatment in an acid bath). Last but not least he talked about the future aspects for coatings. One major request will be for environmentally friendly production. Therefore the Kaak Group is searching for new materials for coatings in the near future, which could be an application for ceramic treatments.

Algalin flour – new texture with improved nutritional aspects

Innovative microalgae-based technology has been long since a field of work of Solazyme, a subsidiary of Solazyme Roquette Nutritionals, LLC, South San Francisco, California, USA. The company's latest product is a whole algalin flour named Almagine HL. According to Henri Gilliard, Baking Global's Market Manager, whole microalgae is a new "whole food source" similar to whole grains, milk and eggs, and in this way not novel in Europe. It is a dry yellow powder that looks like flour and consists mainly of lipids (45–55%), soluble and insoluble fiber (18–22%) and other carbohydrates (12–17%, including simple sugar). Its oil component has a similar profile to olive oil: it has low saturated fat, high monounsaturated fat and is free from trans fats and cholesterol. Current baking tests have already shown that in a brioche with 7.3% Almagine and 1% skimmed milk powder, there is a significant reduction in calories (23%) and fat (67%), as well as an improved freshness and softness of the brioche. In exchange, butter and eggs can be replaced completely. Gilliard explained that kneading, dough fermentation, shaping and baking were identical to the control, and the dough rheology didn't change. As the amount of water changed (and therefore the aw value), the trials have now been carried out with a lower fat substitute.

Additionally, further studies were made with low levels of 1–3% of Almagine HL. According to Solazyme Roquette Nutritionals, here again the baking process remained unchanged, while the finished cake had similar volumes, water activity, moisture content and an improved texture. At the moment, declaration tests are running in three countries, as the company wants to know whether consumers accept the declaration "algalin flour".

Controlling and optimizing hygienic climate conditions in the production of sweets

The AIR SOLUTION Group is a German company from Bremen that offers air determination management solutions with hygiene-climatic operating field optimization. In his lecture, CEO Ralf Ohlmann explained that inadequate air conditions often result in worse production quality and production losses. This is why the company offers its nebulizer modules and the active disinfectant L.O.G. as a way of reducing the number of germs in the air. Beforehand there should be an analysis of the process environment in which the hygiene status is recorded on the basis of the airborne germs and total germ count. Data such as the ambient temperature and relative humidity, i.e. the microclimate status, together with the air flow and its direction, speed and intensity also play a part. The actual disinfecting process operates by releasing the L.O.G. active substance into the air in the form of a micro-fine mist. Here, in the form of an aerosol with a particle size of approx. 0.1 µm, it acts directly "in suspension" against yeasts, moulds, bacteria and viruses. According to Ohlmann, after 48 hours the total germ count in the room air in the packing room for example drops from more than 1,700 to 85, and similarly large reductions can be found after 2 h in the surface disinfection of the transfer belt of a slicing line (see figures 4 + 5). According to the company, the benefits of the aerosol disinfection are the simple retrofitting to plants of any kind, its use during production, and the fact that the active substance is neither corrosive, allergenic nor toxic. +++

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