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Process hygiene  
Effective air  
and surface  
de-germination

Presented by

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Transport fans ensure a targeted laminar air flow in the production hall.

# Getting a handle on hygiene

DMK relies on powerful de-germination technology

The company DMK Deutsches Milch Kontor GmbH in Zeven is by far the largest dairy in the German market. It arose from the merger of Nordmilch and Humana four years ago. Every year, over six billion kilograms of milk are processed into high quality products at 28 locations in ten regions. An important prerequisite for their microbiological safety is the highest possible standard of hygiene in the production facilities. A special air and surface de-germination system makes an effective contribution to this effort.

Ludger Brüning is responsible for investment projects in the field of technical planning at DMK in Erfurt and Coesfeld. The 54-year-old master dairy technician has a lot to do at the moment as he is involved in the plant restructuring program, which was launched by the Group in 2012. This includes, for example, the relocation of the production lines for cream cheese, cottage cheese, mascarpone cheese, rice pudding and desserts from the Everswinkel and Georgsmarienhütte plants to Erfurt. They are also investing in new technology there. Brüning: "Our ultra-filtration plant with a capacity of six tons per hour may just be unique in the dairy industry for this size of plant." The Coesfeld plant produces fermented milk products and dessert specialties. This site is not affected by the current plant restructuring program.

The term "hygiene" has a special significance for DMK, since it is IFS-certified with a degree of compliance of more than 97 percent. "On the one hand, we want to offer the consumer the highest level of food safety, on the other hand, we also want to protect ourselves from recalls and negative headlines," says Brüning. One effective way to support hygienic production is the use of Air Solution's air and surface de-germination system, which has been used for many years in various DMK filling and sealing lines as well as in ventilation systems at several locations. This is why cups and lids, for example, cannot be contaminated with microorganisms in the packaging process during product dispensing and container sealing through direct contact with the surrounding air. Previously used sterile air systems could not manage this to the required degree of reliability. "There were a few mould problems in the past," says Brüning. "While we have always had a high standard of hygiene, we still wanted to get a handle on this problem. And we succeeded by installing the natural de-germination technology from Air Solution. The filling of our sensitive dessert products such as pudding with cream has become safer."

The Air Solution system has been retrofitted in older machines that do not have the current standards of hygiene. "However, the Air Solution de-germination technology is also used in new systems to achieve improved product safety and to minimize the residual microbial risk," adds Ralf Ohlmann, CEO of Air Solution. "Because many quality-oriented companies want to do more than just meet the standard."



Ludger Brüning (l.) and Ralf Ohlmann often talk about possibilities to improve hygiene in the DMK plants.

Installing the de-germination system in an existing machine doesn't take much. "We only had to accept a few hours of downtime for this," says Brüning. "That was very easy on our operations." Overall, a retrofit will take about two days - from preparation and cabling via installation and commissioning to the training of personnel - which barely curtails the regular production process over this period.

An enclosure of the filling area, which is already available in most machines for safety reasons, is advantageous for effective de-germination. Brüning: "This allows us to systematically deploy the de-germination agent close to the product, without much of it being lost. It increases efficiency and reduces costs."

harmless L.O.G. agent instead of hydrogen peroxide in the ambient air around the filling machine. Another great advantage of the agent is that this is not a hazardous substance, as certified by a safety data sheet. This facilitates both storage and use. "Even in case of accidental contact with the skin, you don't have to fear injury," Ohlmann reassures. "Classical chemical accidents, as they frequently occur when cleaning agents and disinfectants are handled carelessly, cannot happen with our product."

Compared to completely aseptic facilities that are marked by clean room technology, filling and sealing machines equipped with the Air Solution de-germination system have the advantage

or ultra-clean segment instead of preliminary sterilization with hydrogen peroxide or laminar-flow solutions. But its use in ventilation systems as well as mobile units also provides immediate hygiene improvements in operations.

Despite efficient air and surface de-germination in a filling and sealing machine, it is recommended to operate the machine in an indoor climate that is as hygienic as possible. This is why the ventilation system at DMK Coesfeld has been completely refurbished. The service, ranging from an analysis of the environment and the preparation of functional specifications and tender documents to helping with the commissioning, was provided by Just-in-Air, an affiliate of the Air-Solution



Air Solution de-germination device in filler carousel.



The fogging unit is installed under the packaging machine.

According to Brüning, the measure was not taken for extending the shelf life, but for ensuring hygiene. The aim was to prevent cases of microbial contamination at the product surface which had occurred in the past. This prevention has now been achieved. "The microbiological failure rate could be significantly reduced through the use of the air and surface de-germination system," said Brüning. "And this in a natural way, since our L.O.G. conditioning agent, which is exempt from declaration requirements, consists of agents that are also an inherent part of milk," Ohlmann adds.

The agents have no negative impact on the product or on personnel. Ohlmann: "All necessary appraisals, certificates and permits have been obtained, including a toxicological safety certificate for humans." Brüning still hasn't heard of any complaints from personnel. On the contrary, he finds it much better to have the

of saving space and costs. Clean-room conditions can be created on normal filler carousels that ensure perfectly hygienic packaging of the food products. Brüning also confirms the high efficiency of the Air Solution system: "So far we haven't had any failure."

"The costs of the air and surface de-germination system with respect to acquisition, installation, maintenance and consumption are far below those incurred for sterile filter units," says Brüning. "And the microbiological effect is greater. We can easily retrofit even older plants, which otherwise would have to be replaced for hygiene reasons, and continue to work with them for years." The system is mainly used for fresh products that can remain fresh for up to 30 days if refrigerated, such as yogurt, cottage cheese or desserts. Ohlmann emphasizes that his technology may offer the same advantages when used with new filling machines in the semi-aseptic

Group. Brüning: "The microbial count in the hall's air was relatively high, and we had a heat problem in production with temperatures at times reaching 30 degrees Celsius in summer. After we installed the system, the situation improved considerably. Now we have a very good indoor climate. In the warm season the temperatures are always five to six degrees Celsius below the outside temperature. We no longer have a problem reaching the goals we set ourselves regarding the microbial count in the air." Internal loads, such as dust generated at the carton erectors, are directly discharged and exhausted. The air in the hall flows from the clean area to the contaminated area, i.e. from the production and filling machines to the cartoners and palletizers. Transport fans ensure this targeted air flow. St.

www.dmk.de  
www.airsolution-group.com

As a specialist for milled wheat products, the Hedwigsburger Okermühle supplies well-known companies in the food industry. The Air Solution de-germination process is used in the pneumatic flour feeding line where it ensures stable hygiene conditions. According to Manfred Lucé, increased customer requirements were de-



At the Hedwigsburger Okermühle, the de-germination process is used in the pneumatic flour feeding line.

cisive in taking the action. "We were able to significantly reduce the microbial load, especially in terms of enterobacteriaceae and mould", the QA manager said. The moisture contained in the applied aerosol agent poses no problem. Lucé: "The share of the moisture is so small that it doesn't increase the final moisture content of the milled products." [www.okermuehle.de](http://www.okermuehle.de)

The company Omira Oberland Milchverwertung Ravensburg uses the Air Solution system to de-germinate packaging materials. The cups and lids are treated before the filling and sealing process. Plant manager Alois Keller says: "The technology used for this is very compact and is the natural choice when retrofitting an existing filling line to meet increased hygiene requirements. This measure allows us to significantly reduce packaging-related product contamination and maintain the high level quality of our yogurt products." Because of the positive experience with the solution, there are currently plans to rework and retrofit a bucket filling line accordingly in

order to optimize air and surface hygiene. [www.omira.info](http://www.omira.info)

For those who love Thuringian sausage culture, the Fleischerei Holzapfel is an interesting address in Oldisleben. There you will encounter both traditional craftsmanship and modern technology in their operations. The latter is also used for hygiene applications, for example in the ripening rooms for raw sausage. "Despite our proven hygiene management, we were no longer able to handle an undesirably high microbial load in the air last year," said Managing Director Bernd Lange. After analysing the climatic conditions of the room, we came up with a concept for preventive mould control. Today, mobile Pick Up fogging units ensure the maintenance of hygiene standards. "These units were purchased from Air Solution, and they systematically distribute the natural de-germination agent L.O.G. in the ripening room without changing the raw sausage," said Lange. "This has significantly increased the safety of our products. And earlier purification measures, such as mould removal, are no longer necessary." He sees another advantage of the mobile hygiene technology in the possibility of using the de-germination systems in other operational areas, such as storage rooms, if necessary. [www.fleischerei-holzapfel.de](http://www.fleischerei-holzapfel.de)

Last year, Just in Air examined the central production plant of Naabtaler Milchwerke in Schwarzenfeld for environmental hygiene risks, carried out the air management planning and provided active support in its implementation. All areas, from raw milk



Preventive mould control ensures hygienic conditions in ripening rooms for raw sausage.

tanks to the bottling plants, were comprehensively examined and analysed. Problems showed up, among other things, in the cup feeding line, because this is where cardboard dust encountered moist air. Martin Miller, who is responsible for quality and process management at Naabtaler, describes the countermeasures that were taken: "By erecting partitions, we succeeded in preventing moisture from entering the cup feeding line to begin with, and we currently have a stable hygiene environment there." In addition, Air Solution transport fans, which carry internal loads such as moisture, heat and dust straight to the exhausting system, are also used in produc-

tion. Miller said: "As a result, our indoor climate has improved tremendously. Where once the air was stagnant, we now have generated an air flow at a defined speed that meets the requirements." The air flow concept proposed by Just in Air was implemented consistently at Naabtaler. "And the results show a very good effect on the environmental hygiene conditions in our operations," said Miller. "However, since we are constantly growing, we want to improve even more and will soon focus on measures in the area of case erectors, for example in the form of conducting the permanent incidental packaging dust." [www.privatmolkerei-bechtel.de](http://www.privatmolkerei-bechtel.de)

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