

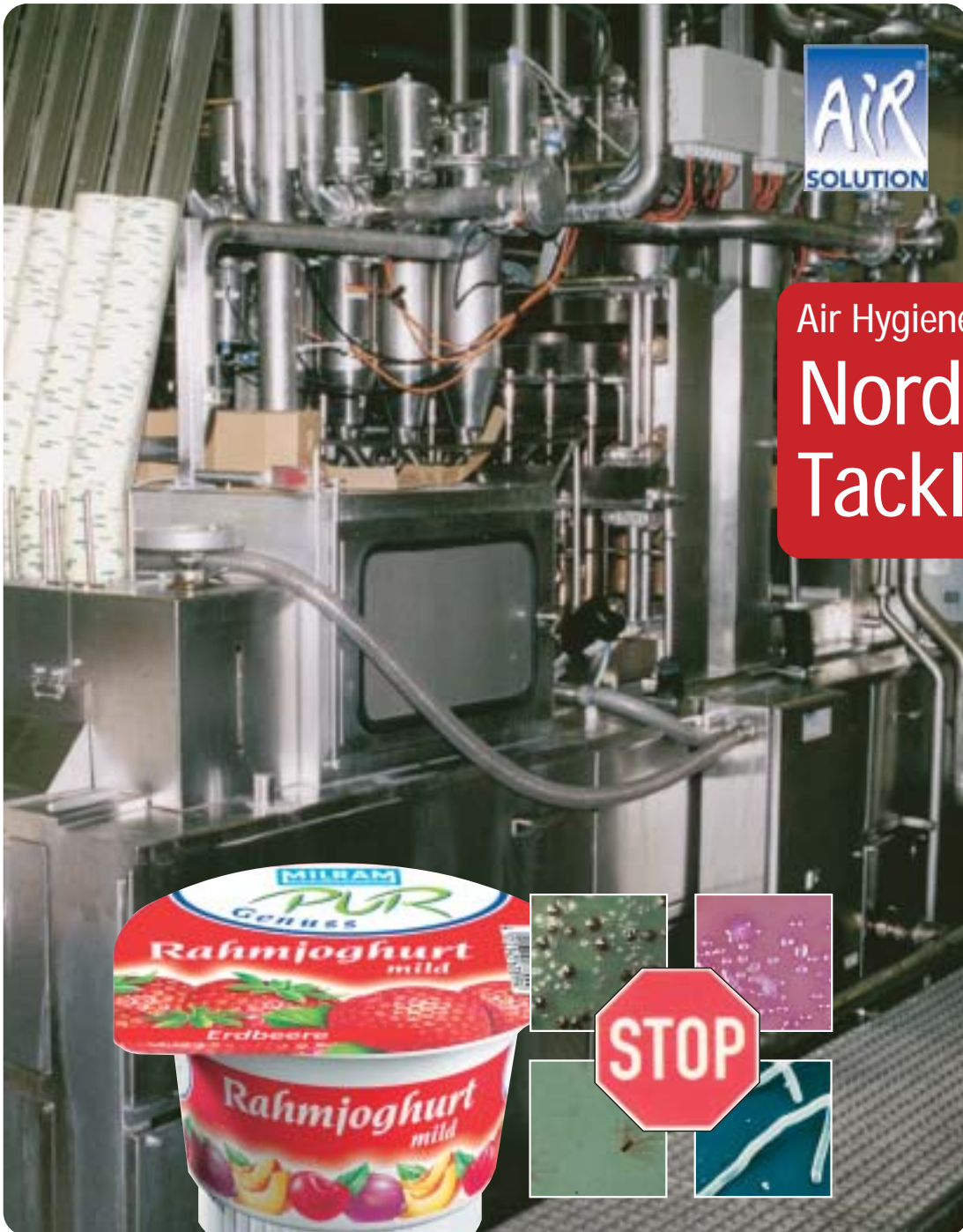
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Air Hygiene:

Nordmilch
Tackles Germs

With best regards from:

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Improved Hygiene Status

Nordmilch increases shelf life of yogurt by degermination measures

In Seckenhausen, Germany, Nordmilch Group operates its third largest plant in which different yogurts are being produced besides fresh milk, buttermilk, cream, butter, sterile milk and concentrated milk powders. Use of effective air degermination technology has now given the company a competitive edge in the yogurt segment.



With air degermination measures almost aseptic conditions can be achieved at this 13-year-old filling and closing unit for yogurt products.

AIR SOLUTION is a rather new company located in Bremen, Germany, and specialized in air and surface degermination. Basis of the degermination process is the cold fogging of a special agent into the air or directly into processing and packaging machines. German dairy company Nordmilch applies this process in their yogurt making and achieves extremely positive results. Reason enough for LT to take a closer look into this issue at site. Participating in the discussion were Dr. Karl-Heinz Hahne, Regional Quality Assurance and Customer Service Manager, Nordmilch Group; Ute Warneke-Fedde, Quality Assurance Manager in the Seckenhausen plant; Konrad Vossmann, Assistant Plant Manager, and Ralf Ohlmann, General Manager, AIR SOLUTION GmbH.

LT: Why do you use air degermination methods in your company after all?

Vossmann: We aim at improving the quality and prolonging the shelf life of one of our yogurt products.

LT: Which areas need to be degermed?

Ohlmann: In the yogurt filling section there are two installations. One is in the ventilation unit where the degermination agent is added to the air. The result is a reduction in air-borne microorganisms, which however is not quite sufficient for our requirements. Therefore, an additional machine degermination station is located in the filling and packaging area. This way we achieve a prolonged shelf life.

LT: For how many days can you increase the stability of a yogurt with these methods?

Warneke-Fedde: We did have a minimum shelf life of 34 days, which is now increased to 45 days.

LT: This is tremendous!

Warneke-Fedde: In the medium term, we expect to go even beyond that. We are currently testing and observing the products very closely.

LT: Wouldn't it be sufficient to reduce the number of germs present in the air inside the filler?

Hahne: Due to the recontamina-



20 L cans are used for refilling the 100 L storage container needed for machine degermination.

tion risk of the yogurt products via room air, this would be too risky.

LT: Which microorganisms do you mainly have in sight?

Warneke-Fedde: Mainly mould, but we are also interested in controlling the entire hygiene status.

LT: Are you checking the presence of mould frequently?

Warneke-Fedde: Sure. We have an average mould contamination of 13 organisms in each cubic meter of air. This is a really good value.

Hahne: Compared to the previous production process, this means a reduction by 90 per cent.

Warneke-Fedde: However, it should be taken into consideration that we always have a slight overpressure in the filling area so that no contaminated air can come in from outside and destroy our marvelous results.

Ohlmann: I would like to add that it is pretty common in the dairy industry not to work under sophisticated clean room conditions. Sometimes the doors will stay open or external air is introduced accidentally. Therefore, the degermination of the air in this section is of utmost importance. Furthermore, the microorganisms introduced by packaging material or employees into this area have to be eliminated as well.

LT: How much does the degermination process cost?

Ohlmann: Operating costs are currently below 40 EUR for each shift. However, room size, air exchange rate and product throughput have to be taken into consideration. We have a fairly large area with about 6,500 m³ converted space and 20,000 m³/h exchange rate. In this area, we operate four filling lines with a total performance of 65.000 units per hour. We are still in the optimization phase and expect to lower the



Konrad Vossmann



At Nordmilch, the number of air-borne microorganisms is checked frequently.

operating costs even more.

Warneke-Fedde: Long-term goal is the introduction of lower air volumes and consequently a reduction of degermination agent. However, first we need to operate the current installations for a longer time and then evaluate the experience gained.

Hahne: More important than costs is that we have won a new customer because of this technology. Otherwise, we would not have been able to produce a product according to his specifications. We are talking about a market advantage here. We also tested other degermination methods but did not achieve the required results with them.

Vossmann: The success of our new degermination unit can be clearly seen from the number of complaints. They are approaching zero. In terms of costs one has to consider that we are producing a fairly high-priced product, which justifies the expenditure from the calculation point of view.

Hahne: For products with lower hygienic requirements, the degermination would not be economical.

LT: How long did the implementation of the concept take?

Ohlmann: Our first contact to Nordmilch was in 2001. Since then we have run several test projects. In the middle of 2002, the current solution was developed and implemented within two weeks. This is not normal. In general it will take four to six weeks.

LT: What were the problems encountered during installation and startup?

Vossmann: We had to stop the filling line for one day. During

this time, additional test runs took place after installation and startup. The integration of the degermination unit into the ventilation equipment did not hinder the production at all.

LT: Which maintenance work will be required?

Vossmann: We have a maintenance contract to ensure that the degermination units are being checked regularly. This is mainly a functioning test, quasi as prevention measure.

LT: How susceptible are the units to techni-

cal defects?

Ohlmann: We are talking about ultrasound fogging with high-frequency technology. The piezo-element, the oscillator itself, is operating with a speed of 1.65 million times per second. Here, mechanical stress is placed mainly at the gaskets. According to the manufacturer, the lifetime is 10,000 hours. Furthermore, our units are equipped with double modules ensuring that in case of failure of one oscillator, the other one keeps up the fogging.

LT: Which operating steps are required for proper operation?

Ohlmann: Mainly just to refill the degermination agent. The 1,000 L storage container for air degermination and the 100 L storage container for machine degermination are placed in a way that the actual filling level can be checked anytime. Furthermore, there is an empty alarm. As soon as the filling level drops below a certain mark, a lamp

goes on. At the latest now, the containers have to be refilled. Except for that, the degermination units are fully automatic.

LT: How will the degermination affect the employees' health?

Warneke-Fedde: We have always used H₂O₂ in yogurt production and constantly taken measurements on maximum allowable concentration. With the agent, the load has been reduced because we need less H₂O₂. We will continue to decrease the quantity in future even more. However, we do this slowly to avoid possibly encountering other problems. The product must not



Dr. Karl-Heinz Hahne

Overview: Nordmilch



Company name: Nordmilch eG
 Headquarter: Bremen, Germany
 Number of employees: 4,000 in the entire group (3,600 of them in Nordmilch eG)
 Annual sales: 4.680 billion DEM in 2001 (about 2.392 billion EUR)
 Milk processed: 4.4 billion kg annually
 Plants: Beesten, Bremen (administration), Edewecht, Göttingen, Hohenwestedt, Holdorf, Isernhagen, Magdeburg, Neubörger, Nordhorn (storage), Otterndorf, Schleswig, Seckenhausen, Strückhausen, Waren, Zeven
 Product range: Milk, buttermilk, yogurt, kefir, milk powders, cream products, crème fraîche, butter, ice cream, cheese, quark, frozen products, special feedstuff
 Brands: Botterbloom, Bremerland, Hansano, Milram, Bunte Berte, Oldenburger, Burlander, Milchland, Normi
 Distribution: whole sale and retail, catering trade
 Distribution area: worldwide

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- Quick
- Safe

Quality



Costs



• Consultancy • Design • Construction • Service

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Ralf Ohlmann offers hygiene solutions for rooms, ranging from small floor-mounted appliances to complex installations in ventilation plants.

be affected as well. Our employees do not experience this agent as unpleasant.

Ohlmann: Of course, we had the agent tested for human compatibility at renowned institutes. Several expert reports certify the harmlessness of the applied concentrations.
LT: What concentrations does Nordmilch use?

Ohlmann: For the ventilation, we are now below 0.05 g in 1,000 L air.

Warneke-Fedde: On the weekend when we are not producing, we decrease the concentration to a basic protection level in order to reduce consumption of degermination agent.

LT: Can you imagine using this degermination method in other parts of your company as well?

Hahne: It does not make sense everywhere. The conditions of rooms and machines have to be taken into consideration. This project is still in its pilot phase. We are testing a further reduction of the agent. After that we will decide on further use in other plants. Most possibly this might be for the filling of quark.

LT: Which labelling is required when using a degermination agent?

Further applications

From meat production to cheese making

German meat company Schlütter's Echte! Nürnberger Rostbratwürste GmbH & Co. KG in Nuremberg operates an air and surface degermination unit located underneath the ceiling. Goal is the continuous reduction of germ counts in the entire packaging area



Fogging unit underneath the ceiling at Schlütter.

Ohlmann: Basic substances are food ingredients, which make up less than 5 per cent of the agent. Our process includes the degermination of air and surfaces with minor quantities in the ppm range. The contact between product and active substance is neglectably on the molecular level. Thus with proper application, the method does not require any declaration.

Hahne: The agent is coming into contact with the product only during filling into the cup. The amounts possibly migrating into the yogurt are analytically not detectable.

Warneke-Fedde: To be on the absolutely safe side, we have conducted tests with extremely high quantities of the agent and then had the products analyzed in a special laboratory. No residues could be determined.

LT: Thank you all very much for the discussion.

www.nordmilch.de; www.air-solution.com

and the surrounding rooms. Plant manager Herbert Seitz is convinced: "Since this installation about five month ago, we improved our microbiological status significantly. Our Original Nürnberg Rostbratwürste, offered as cold products, are now microbiologically much safer. The degermination unit was delivered ready for installation and operation started almost immediately." HOWE Wurstwaren KG in Nuremberg also makes the famous Rostbratwürstchen. Specific technical air management measures in the packaging area showed improvement here, too. Florian Hoeneß, General Manager, explains: "Two years ago, we got a completely new ventilation equipment and were able to improve the minimum shelf

life of our products. This is a great benefit for our customers and the final consumers because we are now operating under precisely defined humidity and temperature conditions. Another reason is the high efficiency of the degermination agent introduced via our ventilation unit."

Recently, Domino Anlagenbau GmbH, Bremen, offered integrated belt degermination units for their conveying and transport equipment. Existing plants can be retrofitted with low effort. General Manager Ingo Pongers explains the benefits: "The degermination technology of AIR SOLUTION offers us the chance to build combined production hygiene lines. They achieve a constant reduction of surface contamination and thus less microbial load for



Ingo Pongers

the product. Time-consuming intermediate disinfection steps are no longer required." For one year now, JERMI Käsewerk GmbH, Laupheim, is also using a mobile air and surface degermination station in their process cheese packaging area. On one hand are the low investment and operating costs, on the other hand a higher product safety. Volker Schmid, Quality Assurance Manager means: "We are now achieving a significantly longer shelf life. The microbial load of the air could be lowered by about 40 per cent. We are currently planning the installation of a degermination unit for the entire ventilation technique." According to Ralf Ohlmann of AIR SOLUTION, the degermination method is suitable for all fields of food production.