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# Aviko Rain am Lech, Germany

Food industry



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# Aviko

## Rain am Lech, Germany



Since its foundation around 50 years ago, Aviko has developed into one of the four largest companies in the world that specialises in potato processing. With a market share of 50 per cent, Aviko is the world leader in frozen French fries. So it should not come as a surprise to learn that the most modern French fries factory in Europe is located at Aviko's central plant in Rain am Lech, Germany. The plant processes around 40 tons of potatoes per hour, seven days a week. In other areas, too, Aviko Germany is committed to being a role model for the sector.

In summer 2008, the company decided to install an ultra-modern air purification system in all its production and warehouse facilities. The new system significantly reduced the volume of microparticles to which the

employees were exposed and improved the working environment in a way that has set new standards for the entire industry. Four years ago, a desire to improve the working environment led Aviko Germany to start looking for a new air purification system.

The company found itself in a situation where production volumes were increasing constantly – as were the associated volumes of air-borne dust in the production facilities. For this reason, the company management decided to seek out the best air purification solutions on the market. It was against this background that an analysis of the working environment was carried out at the company's production facilities in 2008 in collaboration with representatives of the employees' union organisations.

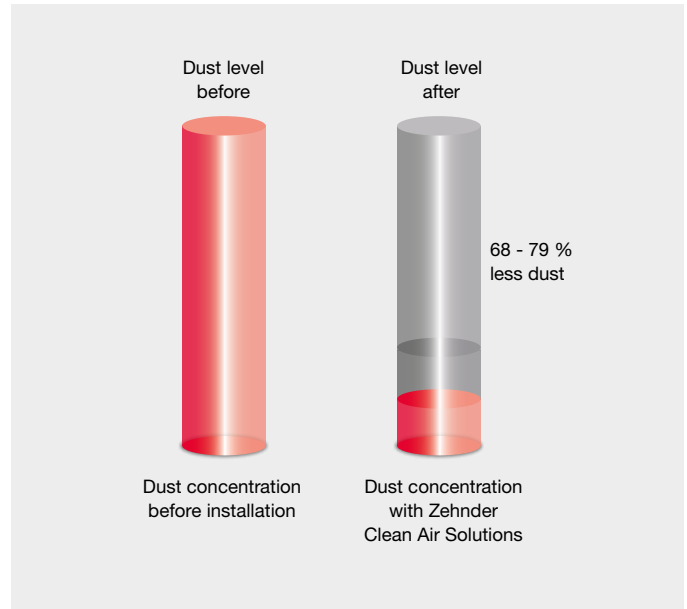
“We discovered that the problem was most serious around the cardboard machines in the packaging department, where a lot of fine dust was collected in the filters”, explains Karl Römer, Technical Manager at Aviko.

“So we decided to examine the situation in more depth and measure dust generation in the packaging warehouse. On account of the relatively high values we recorded, we decided to install a system for industrial ‘dust removal’. The first model we tried was a fan that was connected directly to the packaging machine and sucked up the dust through a filter. The dust particles were finally shaken loose on a mechanical track and then collected in sacks.”

“As the ‘dust remover’ was mounted on the very top of the machine, it was not a

## FACTS

<b>Company:</b>	Aviko
<b>Installed products:</b>	14 x E3000 + 5 x E12000
<b>Dust reduction after installation:</b>	68 - 79 %
<b>Dust source:</b>	Processing and grinding of potatoes, packaging of products
<b>Benefits:</b>	Improved working environment, less cleaning, satisfied staff and company
<b>Installed since:</b>	2008 - 2011



satisfactorily hygienic solution in the long run”, explains Karl Römer, so Aviko continued its search for the perfect air purifier, and finally found its way to Zehnder Clean Air Solutions.

### Pilot project

As a pilot project, the Zehnder air purification system was installed in what is known as the ‘flake hall’, where the working environment was most demanding.

“As the name suggests, this is where we make potato flakes. We then refine some of these flakes to make potato flour, which is used as an ingredient in potato balls, for example,” explains Karl Römer. “The grinding process generates a lot of dust, and as the potato flour is hot from the production process and cannot be covered without affecting the product quality, it is transported on open conveyors – which generates even more dust.”

This was thus the perfect place to test the performance of air purification units from Zehnder in summer 2008. The measurements of dust content that Zehnder carried out prior to the installation revealed peak values of 43,900  $\mu\text{g}/\text{m}^3$  where the pallets were transported into the flake warehouse, and a mean

value of fully 943  $\mu\text{g}/\text{m}^3$  during the six-day measuring period. By way of comparison, the international guiding value for a full-day average is 50  $\mu\text{g}/\text{m}^3$  – outdoors. Following the installation of Zehnder’s air purification filter, individual peak values of up to 2,500  $\mu\text{g}/\text{m}^3$  were measured, although the statistical mean value was just 138  $\mu\text{g}/\text{m}^3$ . This corresponds to a 94 per cent reduction in the peak value, and an 85 per cent cut in the mean value.

### Convincing measurement results

In January 2009, in the wake of these convincing measurement results, Aviko decided to take the next step and tackle the area with the biggest dust problem: the packaging warehouse. Here, too, the company achieved fantastic results in dust reduction. The peak values were cut by 79 per cent, and the mean value fell by 68 per cent during the seven-day measurement period.

The statistical value totalled around 24  $\mu\text{g}/\text{m}^3$ , which is actually lower than the international guiding value for outdoor air. After the success of the pilot installations in the most heavily affected areas, Aviko decided that the entire plant – i.e. including the packaging department, unloading hall and packaging hall – was to be progressively fitted with Zehnder air purifiers.

Summer 2011 saw the installation of the last of a total of 19 air purification systems in five different halls. The purifiers operate with a capacity of 2,600–9,000  $\text{m}^3/\text{h}$ , but despite their impressive capacity, they are very compact at just 1,380 mm wide and 1,380 mm high.

### Energy efficient

At the heart of the Zehnder filter technology is a microfilter that functions according to the innovative Flimmer® principle. In contrast to standard filters, the dust is not removed through collection in a fibre mesh, but through adhesion to extremely fine polypropylene fibres measuring 200 nm. These fibres are statically charged by the air flowing over them, and it is this that allows them to bind even the smallest particles in the micro and nano-ranges. The installation of the air purifiers was a simple operation, and took just two hours per unit.

The purifiers were simply suspended from the 10-metre-high ceiling using a skylift. In the flake hall, the units are hung a little lower (around 6 m) to remove the dust generated from the grinding process even more efficiently.

In addition, the Clean Air Solutions air purification system runs automatically, which

was yet another important element in Aviko's decision to choose Zehnder technology. The preceding measurements provided the values for appropriate system settings in the different halls, and indicated the output with which the installation should be operated at different times of the day.

"This ensures that we receive the best possible air purification at all times, while simultaneously protecting the environment by not using more energy than necessary", explains Albert Winterhalder, Head of Operations at Aviko.

### **Improved working environment and less cleaning**

Over and above the desired effect on the employees' health, the new air purification system provided another excellent benefit: it made it much easier to clean the halls. Previously, cleaning using compressed air hoses forced large volumes of dust up into the air. This dust later landed on the sensitive sensors of the photocells and disrupted the electronic controls.

"This meant that we had to blast the photocells clean with compressed air or clean

them manually once more. Naturally, this resulted in a lot of extra work and could even cause damage to the sensitive electric switches", recalls Karl Römer. "But now it is enough to replace the dust filters by the photocells once every six months."

Yet another benefit of the Zehnder air purifiers was revealed in the cold store delivery department. Here, the roller doors by the loading bays are often left open and this previously led to problems with dust in the summer. When the lorries were to unload, they reversed up to the loading bays, whirling dust into the delivery warehouse from the outside. This dust naturally settled on the packaged goods. Today, the Zehnder air purifiers capture this dust directly from the air so the packaged goods stay clean.

Three and a half years on from the installation of the first air purification system, Aviko's experience with the system has been very positive.

"Thus far, the air purifiers have worked perfectly. Everyone notices how clean it is in the halls every day, and the employees are already talking about a 'pleasant atmosphere' at work. What more could an employer want?" concludes a clearly satisfied Albert Winterhalder, Head of Aviko Germany.