



FOOD-Lab International interview with ...

Jan Hendrik Ostgathe, managing partner of
KREYENBORG GmbH & Co. KG, Senden i. Westphalia

Mr. Ostgathe, thank you for the warm welcome here in Senden. What is your professional background?

After graduating, I first worked for a chemical company, EVONIK, for a few years. In 2007 I joined the Kreyenborg Group. Back then, Kreyenborg was the world market leader in the field of melt filtration, extrusion pumps and granulation technology in plastics machine construction. We founded this location in Senden in 2008 in order to be able to better set up one of our business areas, solutions in the field of bulk material handling. After the sale of two companies in 2013, I focused on expanding the activities of our family business in Senden. We saw great growth potential for our technical solutions in plastics recycling and in the food industry.

How has your company developed over the past few years?

In the past few years we have succeeded in developing new solutions both in the food sector and in the plastics recycling sector. We had and still have very satisfactory sales growth. In the corona year 2020, for example, we set another record on the order-intake side.

What made you get into the food sector?

Back in 2003 we had the infrared rotary drum, which was used in the plastics sector, but not yet in the food sector. After an external request as to whether the infrared light could also be used in the food sector, we started to carry out related investigations and tests. We were thrilled with the results! In the meantime, we have had over 10,000 analyses done of over 300 different foods, clustered according to individual product groups, and therefore have a very solid database.

Infrared light technology is an essential, patented invention that allows completely new, extremely efficient applications for the food

sector. The decontamination of plastic food packaging using infrared light has now received FDA and EFSA approval. It's basically going in that direction for the food sector. We focus on sterilizing, pasteurizing, roasting, drying, coating, and killing pests. All of this is easily possible with our infrared rotary drum!

The food industry has many applications for bulk goods. What sets you apart from the competition?

First of all, our machines are "Made in Germany" and are also developed and built by us. We're focused on infrared light technology as a highly innovative process, while our competitors rely on a different technology. Infrared light technology offers completely new ways of roasting or coating, drying, and protecting stored products. All of these applications can be covered with a single machine. No other method offers this. Most providers work with steam in the field of sterilization / pasteurization. However, the products are then subject to the intense influence of the associated heat effects.

I would like to show you a glass here with cornflowers that we treated with infrared light in the technical center in 2015. As you can see, the product retains its original color. If we had used steam, the product would have been gray and would have lost many important ingredients. So our process is very gentle. The same applies to sage, for another example: with steam you damage the product, so that the essential oils, which are vital, escape.

The fascinating thing about the process is its versatility. For example, we can simultaneously sterilize and roast. With our process, one of our customers in the organic food business can sterilize and roast sesame seeds, which are quite heavily contaminated. After treatment



using our technology, an independent laboratory confirmed that the product is safe.

Sesame seeds are often treated with ethylene oxide (ETO) because of the possible contamination in the countries of origin, which is considered carcinogenic and genotoxic and is therefore not approved in the EU.

Black pepper, for example, is often very heavily loaded with thermophilic spore-forming agents. Here, too, we have developed a solution for safe sterilization.

How does your process contribute to food safety?

Our patented continuous process ensures that the product in the rotary drum, with its welded-in helix, is constantly in motion and optimally mixed. This process means the product is treated uniformly, and dead spots are avoided. The rotary drum has several heating zones. In each heating zone, sensors continuously measure the product temperature which is then modified to the adjustable setpoint. The product to be treated is thus never overheated nor treated at too low temperature.

If you want to roast nuts with a conventional hot air roaster, this usually offers two roasting zones. In an instance of different product sizes or water contents, under- or over-treatment can occur. With our process, we can set the parameters very precisely and individually to get the desired result. The machine adjusts itself, thanks to its four self-regulating heating zones.

Does the product have to be homogenized before being fed in?

No, that isn't necessary.

The range of product applications seems to be very wide....

Yes, we have sold a large number of machines for pasteurizing and roasting nuts. We are also successful in the area of seeds. We have also sold equipment for the sterilization of spices and herbs. We can roast onions with a newly developed process. Roasting onions with hot air creates a slightly bitter aroma. With our process, the air is displaced and with it this annoying bitter taste. We can even spray on some additional oil and achieve an additional "taste kick". For example, we can pasteurize pumpkin seeds and add brine to them at the same time. But we

have also implemented projects and developed solutions for tea, cereals, mushrooms, malt, animal feed, insects and many other bulk goods.

So you can offer tailor-made treatment methods at the customer's request?

That is exactly our strength! We work very closely with the customer. In our trial center in Senden, we can carry out tests together with our customers online or in person in order to be able to offer them a customized solution afterwards. Nuts, herbs, seeds, spices, tea and many other products can be treated by us. In our trial center, for example, we can process up to 500 kg of nuts per hour.

Does the system have online sensors for the required parameter control?

We install various sensors, e.g. for temperature monitoring, the water content and of course the dwell-time control, to set the essential parameters. Everything is recorded via readable data loggers.

How do you secure validation?

We outsource testing to external independent contract laboratories. We have already had over 10,000 examinations carried out, clustered according to individual product groups.

Food fraud has become a central issue. This applies to many areas such as wine, asparagus, oils, etc. I think there is certainly strong interest in the area of spices, some of which are very expensive.

We know from customers that there is certainly ingenuity when it comes to fraud, for example to increase the weight, stretch the product, mix organic goods with conventional goods, etc.

With a partner laboratory, we sprayed a water-based isotope marker and tried it on nuts, herbs, and spinach. It works like a fingerprint, which was still detectable on the nuts even after they had been ground. For many customers this is of great importance when we're talking about food fraud.

Let's stay with the roasting for a moment: what results have you achieved?



Product example: pasteurization and roasting of pumpkin seeds with infrared light technology

We recently sold another plant for processing nuts. The users are enthusiastic about the results of the process. The pasteurization outcomes were sensational, even with highly contaminated goods. It shows that we are excellently positioned technologically.

What about the acrylamide values after roasting?

The acrylamide content is lower than that achieved by conventional methods. The topic of acrylamide is currently being hotly debated by many associations and companies.

What other trends do you see and how are you addressing them?

We see strong growth in the organic sector. Many of these companies are looking for new methods and have made the conscious decision to use our innovative technology. The gentle treatment, the easy cleaning of the system, and the multifunctionality are important arguments. On the other hand, the issue of CO₂ emissions plays a central role. Burning natural gas is no longer an option for many companies. Our machines, on the other hand, work with electricity that can be obtained from renewable energy sources. CO₂ neutrality can thus be achieved.

How did you position yourself in the current pandemic with all your contact restrictions, with regard to possible customer trials and commissioning of the machines sold?

We want to convince customers! It is therefore important that during this time they also have the opportunity to experience the processing of their products in our machines in our food trial center. In this time of Corona, this works, even digitally!

We can also remotely commission machines that have been sold, as we can connect to all processes online.

Thank you very much.

KREYENBORG 

ESTABLISHED: 1953

**TRADE FAIR PARTICIPATION
IN THE FOOD SECTOR**

2021:

- INC – The Nut & Dried Fruit Conference
- ASTA Meeting & Exhibits
- IFT
- FI Europe

2022:

- Biofach
- Anuga FoodTec
- Snackex
- Sial

www.kreyenborg.com

food@kreyenborg.com

+49 2597 93997 0

