frica Spice CEO Zev Krengel was hobbling on crutches after a knee op when I visited his City Deep factory recently. But he soon had me chasing after him as we headed towards the newest addition to his business: a state-of-the-art, Swiss-made steam sterilization plant that is revolutionising the purity of spices – naturally.

Krengel's excitement was palpable as he and new product development manager Emil Caddie took me on the "grand tour" of the brand-new, purposebuilt facility.

Africa Spice has grown from humble beginnings (it was started by Krengel's grandfather) into a leading player in the SA spice sector, with blue-chips like Nando's and Famous Brands as key clients.

Last year, says Krengel, he decided

to up his food safety game and look for alternatives to irradiation because client/ consumer

demand for

Bugs vs The Clean, Mean Steam

Africa Spice declares war on pathogens with Swiss precision

natural/clean solutions was increasing.

After much research, he opted for the BioSteam system from Swiss company Imtech-Steri, which has been specialising in steam sterilization since the 1980s. It's core business is the pharmaceutical sector, but in recent years has expanded to include the food sector as well.

In effect, the implementation of the BioSteam system has enabled Africa Spice to produce "pharmaceutical grade" herbs and spices using a 100% natural solution. It means spices treated this way are validated/export-grade to even the toughest food-safety markets.

Imtech installed the system last November and Africa Spice has been building up its skills in managing the process. Krengel says they are already receiving approaches from other companies to use the technology and he expects the third-party business opportunity to increase as companies come to recognise the value of such

"clean label" technology.

Imtech, with typical Swiss fastidiousness, did not simply build and then install the system in Jo'burg; it also monitors it continuously through a fibreoptic link back to its Swiss headquarters.

The software generates detailed reporting on all phases of the sterilization process and has been programmed with specific parameters for various spices to ensure optimum results (typically, a spice will need to be treated at around 80-90 degrees C for three-five minutes).

And the results, says Krengel, have been impressive. "We've run microbials on the treated spices and have seen dramatic drops in bug count," he says, pointing to a recent test on African bird's eye chilli: the spice arrived with a total plate count of 750 000 and came out of the BioSteam chamber at below 4 000. To achieve the same result with irradiation would have required intensive exposure of the spice to ionising

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Imtech

Steri

Precision control of the sterilisation process

radiation, says Krengel.

The saturated steam has no negative impact on taste or colour; in fact, says Krengel, it actually improves the colour of some spices.

Africa Spice is currently deploying the BioSteam system to sterilise paprika, cavenne, chilli and black pepper. Others will follow

Mathieu Oser, CEO of Imtech-

By Bruce Cohen

VISITOR

Steri, had this to say about the project: "I was impressed by the motivation and commitment of Africa Spice's management team. It was the first time we had installed a plant in a southern African country and we never know what to really expect when starting such a project with new countries. The Africa Spice people were really friendly but also really professional and target-oriented, and we were able to achieve a state-ofart installation much easier than what we sometimes achieve in other countries, including North American or European projects."

Supplier info:

Africa Spices wwwafricaspice.co.za Tel: +27 11 623 1322 Email: admin@africaspice.co.za

IMTECH-Steri www.imtech-steri.ch Tel.: +41 61 406 91 11 Email: info@imtech-steri.ch

Sterilisation/pasteurisation in a vacuum chamber with perfectly dry saturated steam is probably the healthiest and most reliable method of ensuring food safety. It does not require the use of chemicals or radioactive substances. It also does does not wet the product, which eliminates the need for drying that can cause significant loss of colour, essential oils and aroma, thus badly altering the organoleptic characteristics of foods like spices and herbs.

The Imtech BioSteam System was developed in Switzerland over 20 years ago. It's validated to produce effective results, especially in spices, herbs, nuts and drled fruits. Batches can be processed in around 30 minutes.

The saturated steam - from water heated to boiling point and then vaporized with additional heat so it is completely dry - is rapidly introduced into an air-free chamber (under vacuum) and expands to fill the empty space. This process ensures optimal penetration and heat transfer onto the product being sterilized. Pathogens are destroyed by the sudden and dramatic rise in temperature – a sort of shock treatment that prevents them from adjusting to the heat - followed by rapid cooling.

There are some limitations to steam sterilization, such as viscosity/ moisture content of the target product, which means products like onion and garlic powders don't do as well. Also, products need to be sterilized separately, so no blends can move through the system.



THE POWER OF SATURATED STEAM



Back-view of the sterilisation chamber ... not your ordinary steam-cleaner!