

Meat food box disinfection

SonoSteam treatment achieves 100% bacteria reductions within 1 second

Obtained results

SonoSteam treatment achieved 100% decontamination on commercial food boxes in 1 second. The treatment did not cause any visible changes on the food box. Moreover, food residues were eradicated from the surface during the treatment.



About the experiment

A pre-contaminated food box was received from a Danish meat production plant. The food box was heavily contaminated with meat residues. The bottom of the box was cut into smaller parts in order to have replicates for the SonoSteam® treatment. Three parts were analyzed without the treatment (controls) while three other parts

were SonoSteam treated for 1 second. All parts were analyzed for Total Viable Counts (TVC). The results are presented in table 1. SonoSteam treatment achieved total TVC reductions. Heat and pressure from the treatment was also able to release and remove most of the residues from the surface, resulting in a more clean appearance. The parts from the food box were not damaged from the treatment.

Table 1:

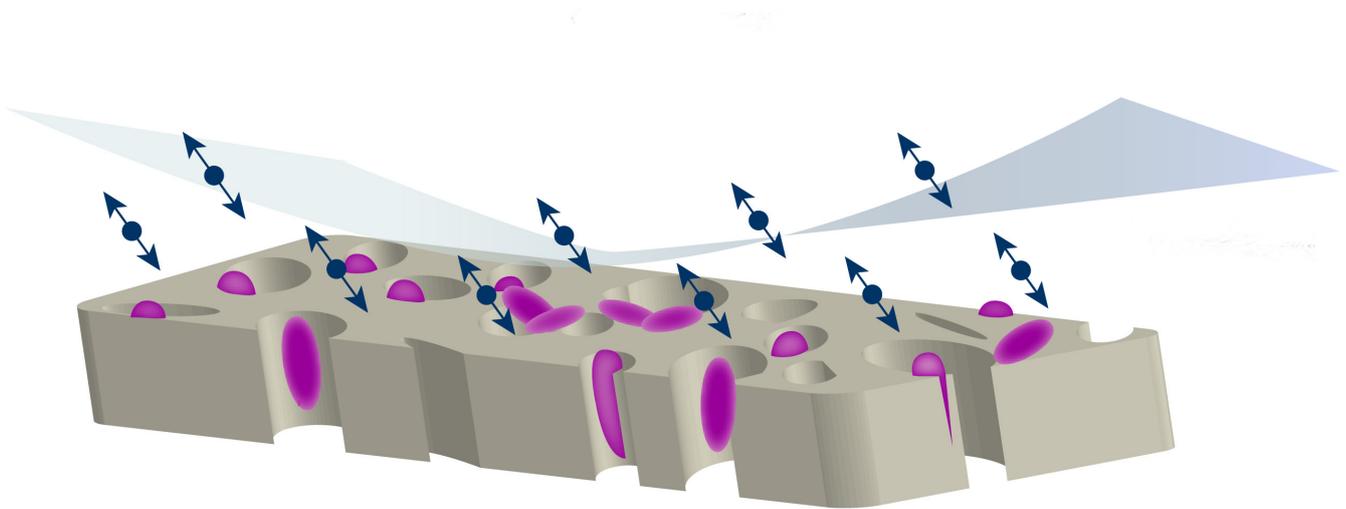
| N=3 | Average level before treatment Log10 CFU/20cm ² | Average level after treatment Log10 CFU/20cm ² | Reduction % |
|-----|---|--|-------------|
| TVC | 4.71 ¹ | 0 | 100 |

¹SonoSteam treatment of natural contaminated food box; 4.71 log CFU/20cm² is equal to 51286 bacteria per 20 cm² box area.



SonoSteam disinfection treatment

The technology combines a quick burst of steam delivered at an ultrasonic frequency. It has proved to be a highly effective chemical-free microbial intervention.



What makes the steam-ultrasound combination so effective?

SonoSteam is a chemical free decontamination process designed for food and non-food surfaces. SonoSteam technology applies the combination of steam and ultrasound to achieve rapid and enhanced treatment within seconds.

SonoSteam processes use the “catalyzing” effect of ultrasound that is able of disrupting the laminar sublayer and allow steam to reach the surface in super fast rates. This means that microbes that are present on the surface are exposed to high concentration of intensified heat in the form of dry steam. Microbes inside the microstructures and pores are also affected, making this treatment much more effective than steam processes alone.

Thanks to the “catalyzing” effect of the ultrasound, such processes can occur within just a second. At such fast rates, microbes are killed before heat can penetrate and thermally damage the organic material.

