

Chicken crate disinfection

SonoSteam treatment achieves 100% Campylobacter reduction with two seconds

Obtained results

SonoSteam achieved 100% Campylobacter reduction on a chicken crate with only 2 seconds of treatment. The treatment did not cause any visible changes to the crate.



About the experiment

A pre-contaminated and pre-washed crate was received from a slaughterhouse. The crate (shown below) was contaminated with fecal residues. Bottom of the box was cut into smaller parts (20x10 cm) in order to have replicates for SonoSteam treatment. 14 parts were analyzed without the treatment (controls) while 14 other parts were SonoSteam treated for two seconds. All parts were analyzed for Campylobacter, using the stomacher method (shaken and macerated by hand) to suspend microbes from the

sample in a diluent. Campylobacter was analyzed, using CCDA agar plates. The results are presented in table 1. SonoSteam treatment achieved total Campylobacter reductions (levels below detection limit) from an initial level of 4.77 log. The 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 crate were not damaged from the treatment.

Table 1:

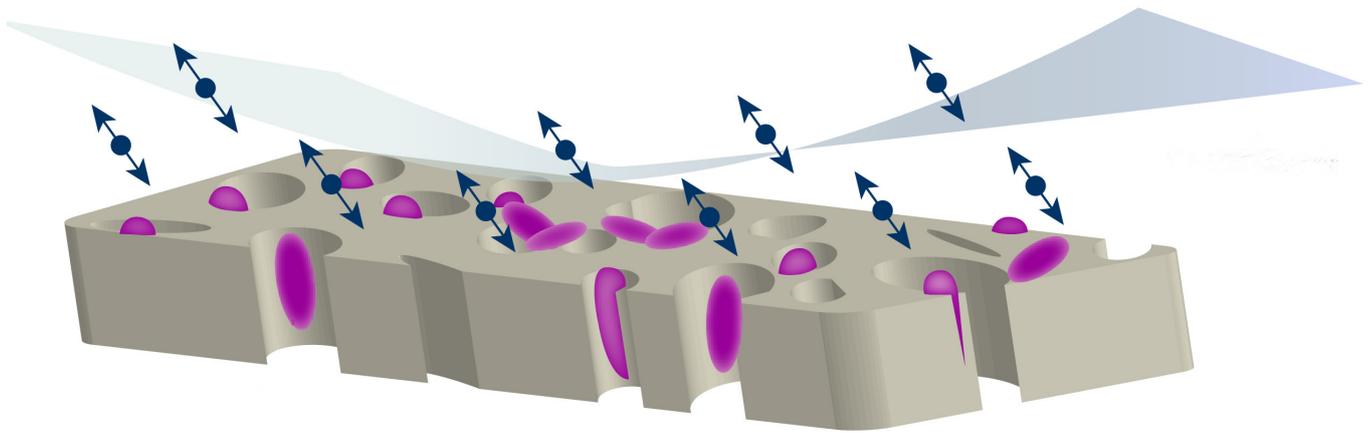
N=14	Average level before treatment Log 10 CFU/200cm ²	Average level after treatment Log 10 CFU/200cm ²	Reduction %
Campylobacter	4.77 ¹	<1	100

¹SonoSteam treatment of naturally contaminated chicken crate; initial level was 4.77 log CFU on average (58884 bacteria cells.)



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.

