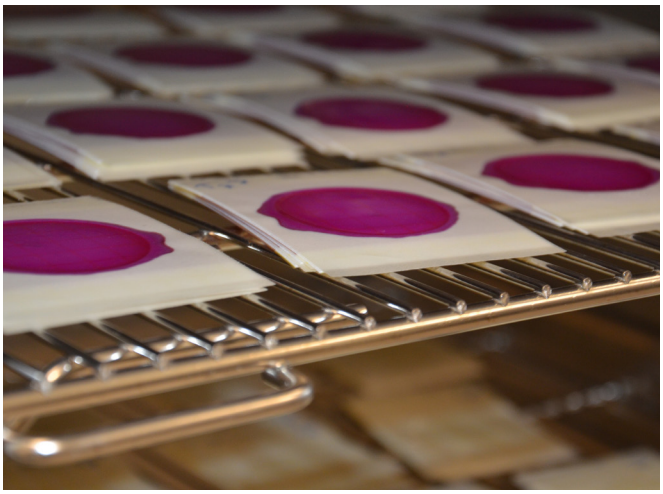
Enterobacteriaceae reduction on broiler carcasses

SonoSteam treatment reduced 97% of Enterobacteriaceae within 1.3 seconds

Obtained results

SonoSteam treatment on fresh broiler carcasses during production line (online) achieved an overall Enterobacteriaceae reduction of 1.57 log units or 97% within 1.3 second of treatment.



About the experiment

SonoSteam treatment and reduction of naturally occurring Enterobacteriaceae was investigated on fresh chicken carcasses. The treatment was carried out online at a Danish slaughterhouse facility, with chain speed of 8,400 birds/hour (1.3 sec). Swabbing, before and after the treatment, was performed on the breast skin of the same carcass (paired sampling). The results showed that the initial level of Enterobacteriaceae on fresh chicken carcasses was 3.91 log units and after SonoSteam treatment, mean reduction of 1.57 log units was achieved (results are shown in table 1). This corresponds to a 97% CFU/g reduction.

Table I:

	Average level before treatment Log 10 [CFU/12cm^2 (=1g væv)]	Average level before treatment Log 10 [CFU/12cm^2 (=1g væv)]	Achieved reduction
Enterobacteriaceae	3.91	2.34	1.57

Table 1: Online SonoSteam® treatment of naturally occurring Enterobacteriaceae, on fresh broiler carcasses. Enterobacteriaceae levels were analyzed before and after the SonoSteam treatment by swabbing the surface of chest skin (N=10, Mean=3.91 log CFU/12cm2 equals to 8128 CFU/12cm2).

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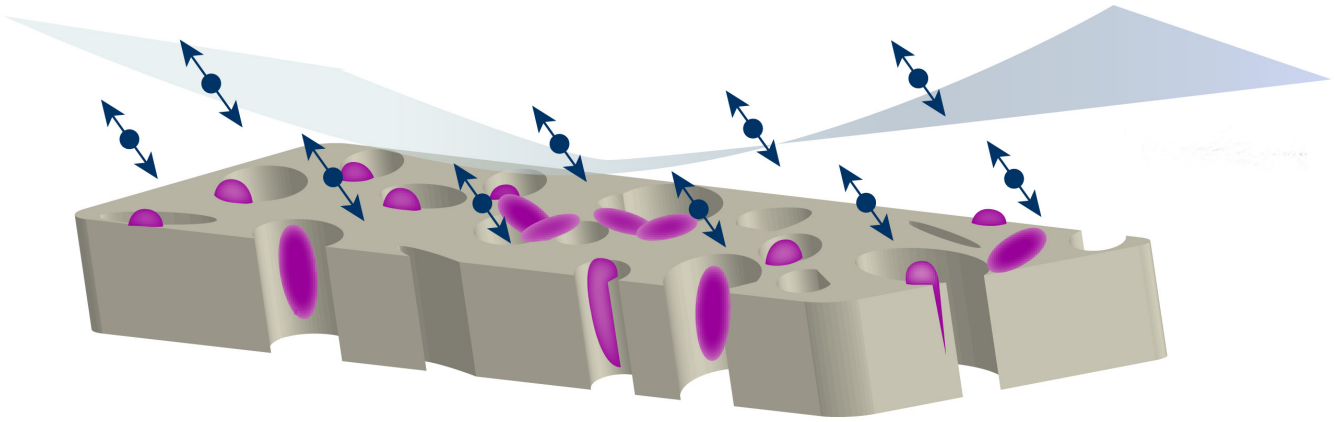
SonoSteam disinfection treatment

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.

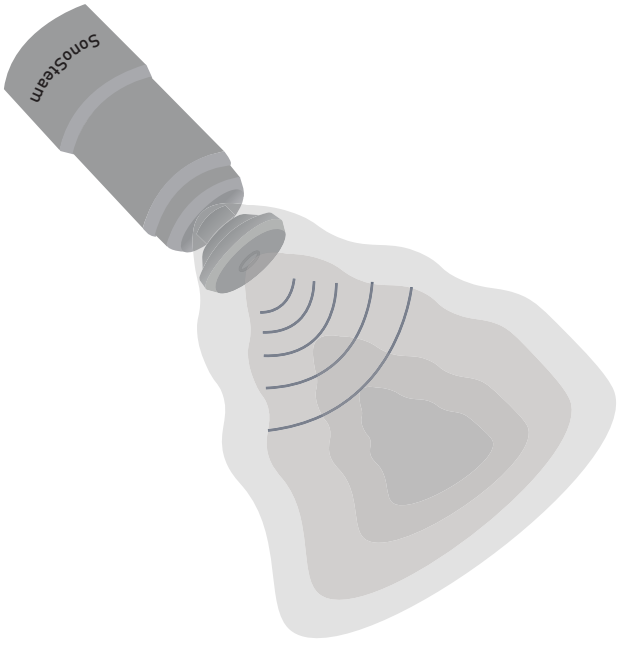


What makes the steam-ultrasound combination so effective?

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.



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