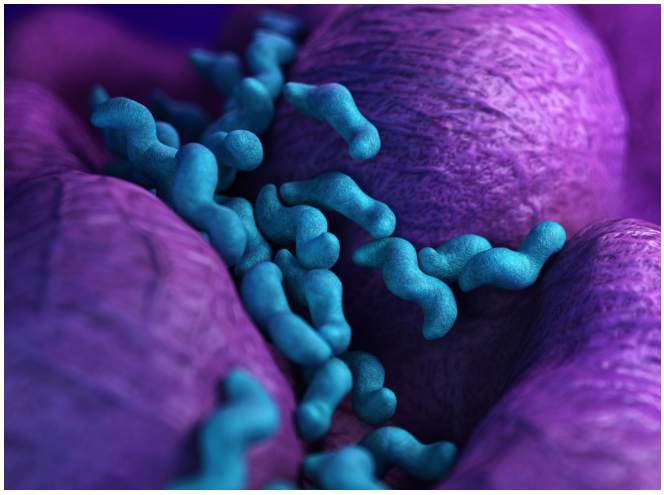
Campylobacter reduction on fresh broiler carcasses

SonoSteam treatment reduce Campylobacter level more than 90% within 1.4 sec.

Conclusion

SonoSteam treatment of high scalded broiler carcasses, with chain speeds of 8,500-10,000birds/h, achieved an overall Campylobacter reduction at 1.0 log or 90% in real figures. For broilers with initial concentration higher than 2.5 log cfu/g, a significant higher reduction was achieved: 1.37 log units or 96% in real figures. Results strongly indicate an increased reduction with increased initial concentration. The overall reduction on log scale is 40-50% of the initial level.

Implementing the SonoSteam technology in poultry slaughterhouses seems to be a promising way to reduce the number of Campylobacter on fresh meat and cases of Campylobacteriosis.



About the experiment

Naturally Campylobacter contaminated fresh slaughtered broilers were SonoSteam treated in-line at a Danish slaughterhouse facility. The treatment was carried out at 8,500 - 10,000 birds/hour (1.2 - 1.4 sec.). Paired sampling was performed by 5 gram skin from left and right side of carcass breast corresponding to control and treated, respectively. Accredited Campylobacter analysis was performed by Eurofins (Holstebro, Denmark). SonoSteam treatment of less than 1.4 seconds achieves 90% in real figures, compared to initial average levels of all broilers. Campylobacter is infectious with initial levels above 2.5-3.0log thus when considering all broilers with initial concentration higher than 2.5 log cfu/g, a significant higher reduction was achieved: 1.37 log units or 96% in real figures (results are shown in table 1). No organoleptic changes were observed for the broilers.

Table I:

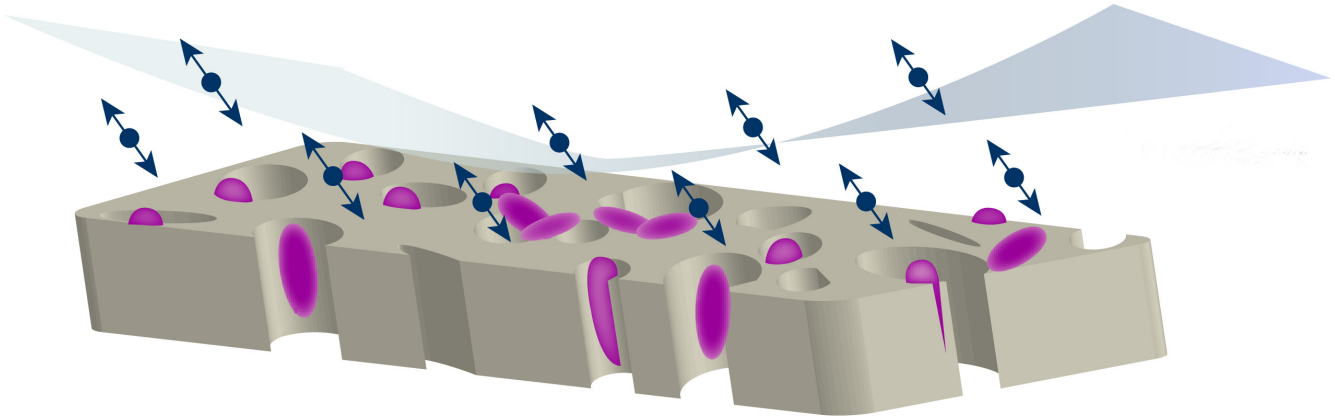
TVC	Average level before treatment Log 10 CFU/g	Average level after treatment Log 10 CFU/g	Achieved reduction
Campylobacter	2.80[1]	1.43	1.37

[1]Online SonoSteam treatment of broilers breast skin with initial Campylobacter levels higher than 2.5 log cfu/g (N=16, Mean=2.80 log CFU/g equals to 631 cfu/g).

SonoSteam – a division of FORCE Technology
Midtager 6 · DK-2605 Brøndby · Tel +45 43 26 70 00 · Fax +45 43 26 70 11 · sonosteam@sonosteam.com · www.sonosteam.com

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.

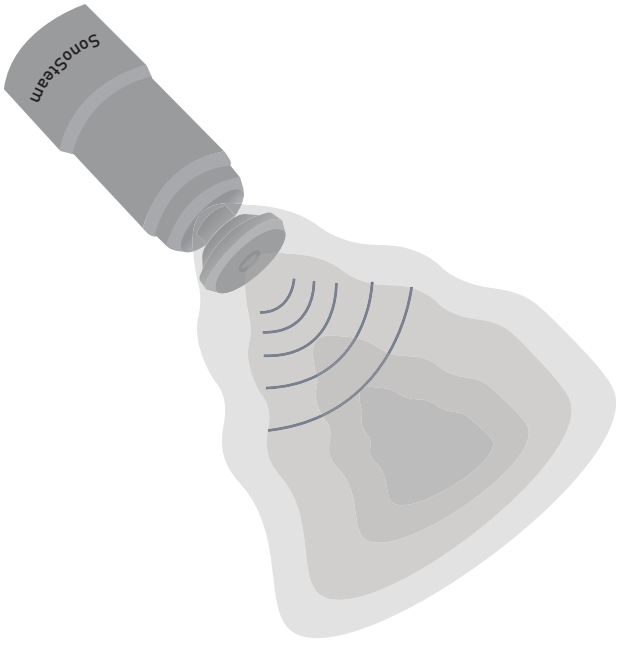


What makes the steam-ultrasound combination so effective?

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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Park Allé 345 · DK-2605 Brøndby · Tel +45 43 26 70 00 · Fax +45 43 26 70 11 · sonosteam@sonosteam.com · www.sonosteam.com