

Salmonella Reduction on Broiler Carcasses

SonoSteam treatment reduced up to 90% of Salmonella within 1.5 sec

Obtained results

SonoSteam treatment of broiler carcasses artificially contaminated with *Salmonella typhimurium* achieved reductions up to 1.0 log units within 1.5 sec., which corresponds to a 90% CFU/g.



About the experiment

Poultry carcasses, 2 days old from slaughtering date, were artificially contaminated with 3 different *Salmonella typhimurium* inoculations. SonoSteam treatment was carried out in a pilot scale study using the full size IA Poultry equipment. Chain speed was 8,000birds/hour (1.2 sec.). Paired sampling was performed by 5 gram skin from left and right side of

carcass breast corresponding to control and treated, respectively. Results showed that mean initial concentrations were 1.1, 1.5 and 1.9 log. After SonoSteam treatment, reductions of 0.3, 0.8 and 1.0 log units were achieved, respectively. This corresponds to reductions of 50-90% CFU/g (results are shown in table 1).

Table 1:

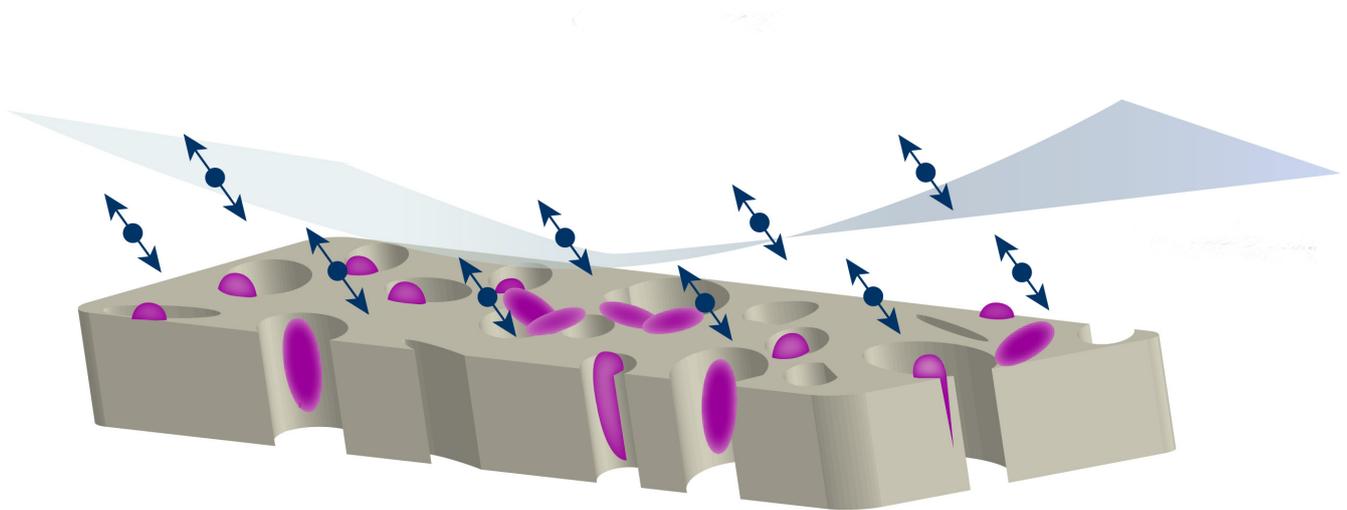
	Average level before treatment Log 10 [CFU/g]	Average level after treatment Log 10 [CFU/g]	Achieved reduction
1.1 cfu/g	1.1	0.8	0.3
1.5 cfu/g	1.5	0.7	0.8
1.9 cfu/g	1.9	0.9	1

Table1: Off-line SonoSteam treatment of broiler carcasses artificially contaminated with *Salmonella typhimurium*. Salmonella levels determined before and after SonoSteam treatment by chest skin samples.



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.

