SUPERHEATED STEAM TECHNOLOGY (SHS TECHNOLOGY)

WHAT IS THIS USED FOR?
Inactivation of microbes on surfaces in dry food production facilities (e.g.; dairy powder manufacturing).

APPLICATION
A nozzle of industrial scale SHS system can be applied to sweep across food contact surfaces during sanitation and requires a very short exposure time.

REGULATORY IMPLICATIONS
This technology is a dry sanitization technology that inactivates microbes, but it does not replace cleaning to remove any food and allergenic residues in the dry food processing environment. This technology has potential to be an efficient dry sanitization technology in dry food manufacturing environment (e.g. dairy powder). Use of this technology is not expected to be under any regulatory restriction.

HOW DOES IT WORK?
SHS works by heating normal, saturated steam at increasingly high temperatures (125 to 300 °C) while maintaining the same pressure. SHS can effectively penetrate cavities, crevices and follicles that may provide protection for microbial targets in manufacturing environment. The technology relies on the high temperature of SHS by rapid sanitization/inactivation of microbes on food contact surfaces without formation of condensation due to the high heat introduced with SHS. The time/temperature combinations applied are at 161 ± 1 °C for 150 s.

ASSESSMENT OF EFFECTIVENESS
4.5 and 5.0 log reductions of B. cereus spores in non-fat dry milk and whole milk powder on aluminum foil coupons were achieved, respectively, after 150 s SHS treatment at 161 ± 1 °C.

Want more information on this or other novel technologies? Contact Aljosa Trmcic (at543@cornell.edu) in the Milk Quality Improvement Program or visit our website at https://foodsafety.foodscience.cornell.edu/mqip/.

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