WASHING MACHINE BIOFILMS – TRANSFER OF BACTERIA TO THE LAUNDRY

Study on Microbial Transfer of Washing machine biofilm germs to the laundry items

Introduction
In a recent study, the transfer of biofilm microorganisms from washing machine to the laundry load at low temperature (30°C) was investigated. For the study, standardized biofilms containing a mixture of the bacteria E. coli, Staphylococcus aureus and Pseudomonas aeruginosa were inserted into a washing machine. The transfer rates of those washing machine biofilm germs to the laundry load (cotton or polyester) were assessed.

Results
58 % to 99.8 % of the washing machine biofilm bacteria were removed from the washing machine surfaces during the washing processes at 30 °C. The biofilm removal was highest with a bleach containing detergent (IEC-A*). Less than 1 % of those disattached biofilm bacteria were transferred from washing liquor to the laundered fabrics.

Conclusions
The highest bacterial transfer from washing machine to laundry occurred in washing cycles without detergent, followed by the laundry cycles run with a liquid detergent. No transfer of biofilm bacteria occurred in the washing cycle with IEC-A* containing TAED / Perborate bleach.

More biofilm bacteria attach to Polyester than to Cotton during the laundering process. The transfer rates were highly dependent on the specific microbes showing an interaction of the bacterial cell wall with the fabric (texture and surface energy).