

A new approach to test the cleaning performance of probiotic cleaners

Britta Brands¹, Dirk Bockmühl^{1,2}

¹ Dr. Brill + Prof. Bockmühl GmbH Institute for Applied Hygiene, Wiesenstraße 35, 47533 Kleve, Germany

² Rhine-Waal University of Applied Sciences, Faculty of Life Sciences, Marie-Curie-Straße 1, 47533 Kleve, Germany

Background

There is a rising number of microbial-based cleaners for domestic use available in the market, that use living cells to increase the cleaning performance and provide a long-lasting effect. The standard test for the cleaning performance of all-purpose cleaners (APC) published by the German Cosmetic, Toiletry, Perfumery and Detergent Association (IKW), based on a fat-dust soil that is burnt onto the test tile at 100 °C for 24 h, work for conventional cleaners, but may fail to show the efficacy of cleaners containing microbials, since it neither respects the fact that microbial-based cleaners might need longer times to work, nor does it allow for evaluation of preconditioning or effects on re-soiling.

Consequently, we modified IKW-method for the cleaning performance of APCs including the soil used so that it no longer needs to be burnt onto the tile, making preconditioning and re-soiling of tiles possible. The results of this approach and the comparison of different commercially available cleaners are shown in comparison to laboratory-made cleaners of known composition with and without microorganisms.

Test methods and results

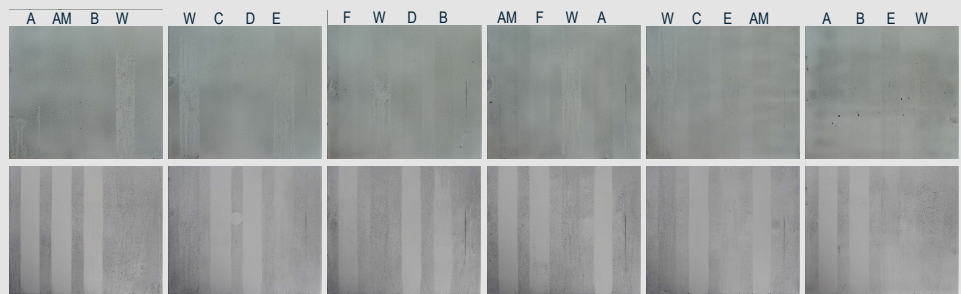
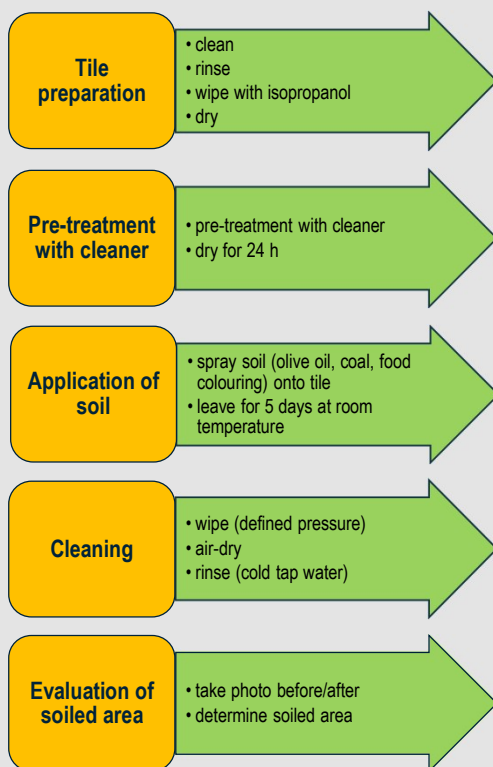


Fig. 1: pre-treated tiles before (top) and after (bottom) rinsing with cold tap water. Letters indicate the cleaners and the water control (W).

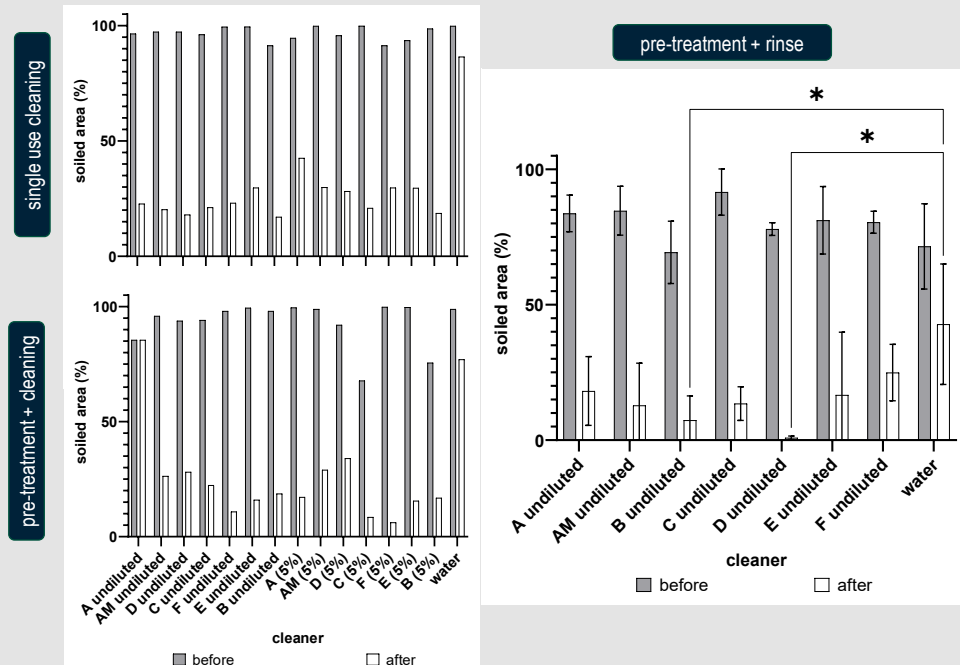


Fig. 2: change in the white area on tiles cleaned with different cleaners in a single use setup (top left), after pre-treatment (bottom left) and rinsed only after pre-treatment (right)

Conclusions and outlook

- The method can be used for single-use cleaning and setups with pre-treatment
- Diluted (use concentration) as well as concentrated cleaners can be tested
- Repeated applications and long-time efficacy can be tested
- More tests with simplified cleaner formulations with and without probiotics are currently performed