



Standardized biofilms for assessing biofilm removal efficiency

Invention

This new invention consists of methods and devices for generating standardized mature biofilms of bacteria and yeast. Moreover, the invention can be combined with a detection method for assessing the efficiency of any cleaning method with regard to biofilm removal.

Background

Even though biofilm is a recognized problem in industry and acts as possible reservoir of pathogens, there is a lack of reliable standard procedures to evaluate the efficacy of methods for biofilm removal. Consequently, the quality of information generated makes a comparison of the results extremely difficult. Furthermore, the few existing cleaning efficacy tests have often been conducted either on young biofilm or on model systems which poorly mimic the conditions present in real environment.

Advantages

This invention, namely the production of a standardized mature biofilm of bacteria and yeast in combination with a detection method, enables the customer to evaluate procedures or products for biofilm control and monitoring in a precise and reproducible manner. By selecting appropriate test germs from the relevant environment the model biofilm can be tailored to the target application, which is a clear benefit compared to the existing tests based on clinical isolates.

Applications

Expensive strategies to control damages caused by biofilms are undertaken in many fields such as medicine, pharmacology, hygiene, cosmetics, food production, water treatment, water cooling, and paper industry. In order to evaluate and optimize the cost/benefit of these strategies, this new, application specific model biofilm together with a corresponding detection method might be interesting for a variety of companies.

A first example for the successful use of this technology: A test system consisting of model biofilms together with a semiquantitative detection method has been applied by EMPA Testmaterials AG. This system enables determining the efficacy of biofilm removal in household washing machines (www.empa-testmaterials.ch).



Biofilm reactor containing test coupons



Test strain for biofilm production

Ownership

Empa, Swiss Federal Laboratories for Materials Science and Technology, Überlandstrasse 129, CH-8600 Dübendorf, Switzerland; *patent pending*.

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Keywords

antifouling, antimicrobial, biocorrosion, biofilm, bioreactor, biofouling, cleaning, disinfection, fermentation, bacteria and yeast removal efficacy, washing.

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