

Thermo Scientific Finnpiquette F1 antimicrobial feature

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What is an antimicrobial treatment?

The handle and the dispensing button of the new Thermo Scientific Finnpiquette® F1 are made of antimicrobial polymer. Microbes, such as bacteria, fungi and algae, are found everywhere around us, and they are also present in the human skin. Normally they are not harmful, but in some cases they may cause deterioration of the material they grow on. Pipettes are handheld devices and even when the user observes strict cleanliness, microbes from his/her hands may contaminate the pipette. Antimicrobial treatment of the pipette handle parts protects the device from microbial growth on its surface thus preventing deterioration of the polymer parts. The treatment also offers an additional protection against cross-contamination, i.e. bacteria from the pipette that would contaminate the sample.

How does it work?

The active ingredient of the antimicrobial material is silver in the form of silver ions. In a humid environment the ions are slowly released from the inorganic matrix via an ion-exchange mechanism. The release is slow, but fast enough to maintain an effective concentration on the surface of the material. Silver ions are taken up by microbial cells and interrupt critical functions, such as DNA replication, resulting in the death of the microbes. The antimicrobial effect of the material used is long-term and silver inhibits the growth of a broad spectrum of microorganisms.

Testing the efficacy of the antimicrobial treatment

The antimicrobial effect of the material was evaluated according to ASTM standard E2180. The standard describes a test method to evaluate (quantitatively) the antimicrobial effectiveness of agents incorporated or bound into or onto mainly flat hydrophobic or polymeric surfaces. The test organisms used were *Escherichia coli*, *Staphylococcus aureus*, *Candida albicans* and conidiospores of *Aspergillus niger*.

Contamination of the antimicrobial polymer pieces was carried out by pipetting 0.2 ml of the cell or conidiospore suspension on test pieces that were stored in a horizontal position throughout the experiments.

After complete drying of the suspensions, the amount of colony forming units (cfu, a measure for viable cells) was determined after 4 h and after 24 h.

After 4 h, a reduction of cfu was seen for all four test organisms. After 24 h, the reduction was improved for each microorganism, except in those cases where 100% reduction was already achieved at the 4 h mark, see Figure 1. These results show that the antimicrobial material results in a significant reduction of microorganisms, demonstrating the efficacy of the antimicrobial polymer.

Please note: The antimicrobial treatment does not remove dirt and does not protect users or others against bacteria, viruses or other disease organisms. Regular, application-related cleaning procedures should be used to decontaminate this product.



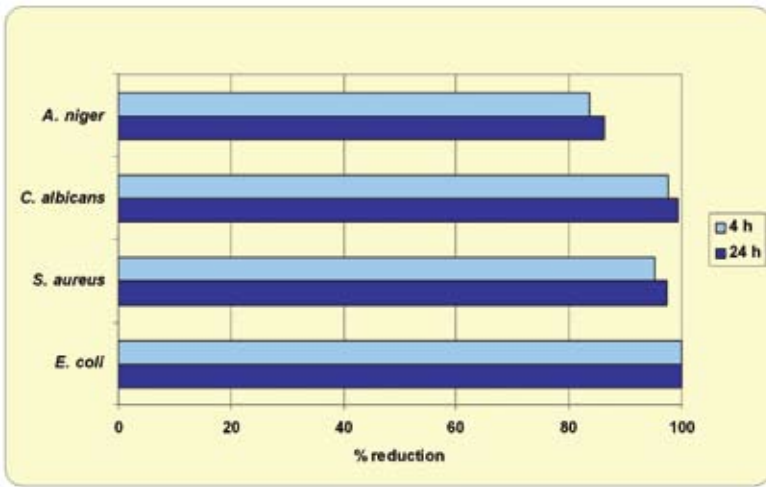
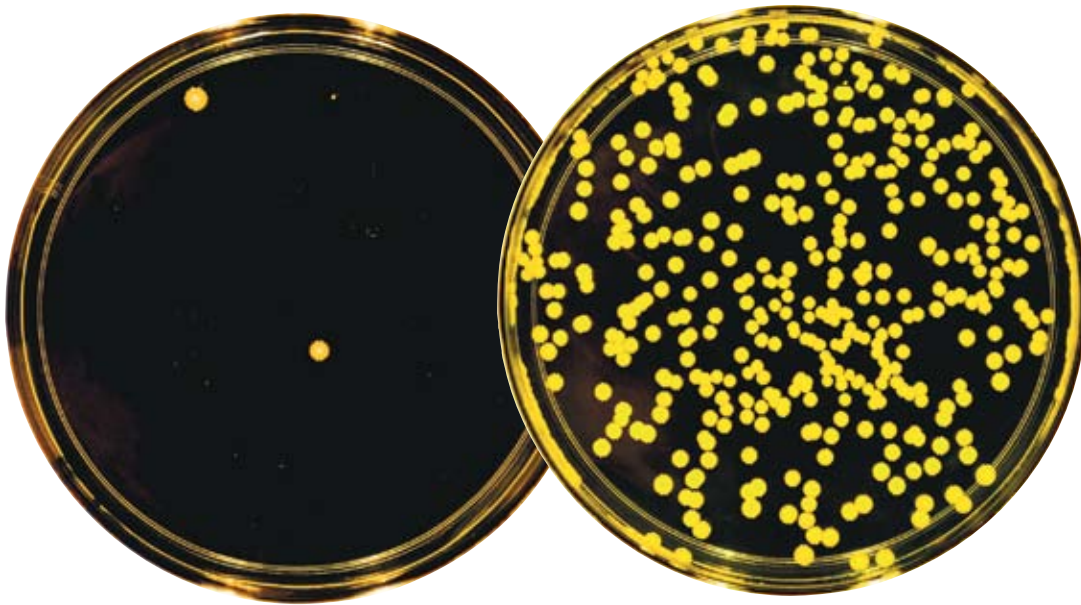


Figure 1. Reduction of model microorganisms on an antimicrobial polymer. The colony forming units were determined at 4 and 24 hours after inoculation.



Disclaimer: The data in this technical note is subject to change without prior notice.

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