

In Vitro Performance of a Novel Active Fluid Management™ Antimicrobial Dressing*

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Introduction

- Successful treatment of chronic wounds often requires management of wound exudate and bioburden.
- There are many different types of silver dressings available today that reduce bioburden in the dressing, thereby reducing the risk of infection.
- However, most commercial silver-treated dressings are deficient in managing fluid.
- Some do not absorb exudate.
- Others readily absorb exudate but do not partition the absorbed exudate away from the wound and periwound, especially under pressure. Without frequent dressing changes or caregiver intervention, this can lead to maceration.
- An innovative silver-containing dressing has been developed which is comfortable, can be cut to shape, and pumps exudate away from the wound and keeps it partitioned away from the wound:dressing interface.
- The unique fluid handling properties address the issue of maceration, while the silver treatment effectively reduces bioburden in the dressing.

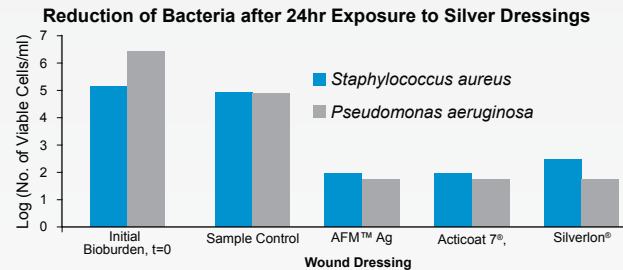


Results

Ionic Silver: Reduction of Bioburden

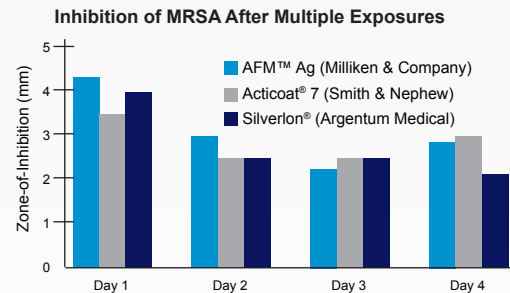
Quantitative Reduction of Bioburden:

The reduction of viable bacteria in the dressing was determined after exposure under simulated use conditions (bacteria suspended in simulated wound fluid with serum albumin).



Repeat-Exposure Zone-of-Inhibition (ZOI):

Sustained inhibition of bacterial growth underneath and surrounding the dressing was determined through repeated (daily) exposures to 10⁶ cells. A greater value for ZOI indicates greater antimicrobial efficacy.



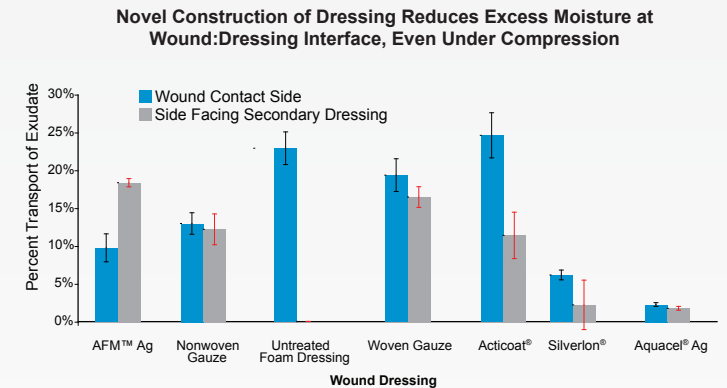
Active Fluid Management™

AFM™ Ag exhibits antimicrobial efficacy that is equivalent to other silver dressings, even dressings that contain higher levels of silver.

The results from fluid management testing demonstrate how different dressings transfer wound fluid when compression is applied to the dressings. Simulated wound fluid was introduced into the wound contact side of the dressings. After compression, the transfer of fluid back to the wound vs. transfer to a secondary dressing was measured. AFM™ Ag is the only dressing that transferred more fluid away from the wound to the secondary dressing than was transferred back towards the wound. The unique mechanism of fluid transfer with AFM™ Ag reduces the risk of fluid strikeback and wound maceration, even under compression.

Differential Transport of a Simulated Wound Fluid Under Pressure:

Dressings were exposed to a simulated wound fluid (NaCl, CaCl) and placed under pressure (~340 mm Hg) to simulate typical compression conditions. After ca. 2 minutes, the transport of fluid from each side of the dressing to an absorbent layer (filter paper) was determined.



Conclusions

- To address the issues of fluid and bioburden management, AFM™ Ag dressings have been developed.
- The unique construction results in uni-directional pumping of wound exudate. Once fluid is transported to the side away from the wound, minimal fluid moves back towards the wound, even when the dressing is compressed. Results of *in vitro* and *in vivo* studies indicate the AFM™ Ag dressings effectively transport wound fluid away from the wound bed, reducing the risk of maceration.
- The silver ion technology (SelectSilver®) provides sustained release of silver at equilibrium levels to reduce the risk of bioburden proliferation in the dressing.