

NEW NON-SILVER ANTIMICROBIAL DRESSING SHOWS STRONG PERFORMANCE AFTER 28 DAYS

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INTRODUCTION

The antimicrobial formulations within wound dressings have improved significantly in recent times and wear-times beyond 7-days are now a possibility. However, in a moist wound healing environment can the absorbency and mechanical properties of the dressing be maintained for these extended periods? A new, non-silver, CMC dressing has demonstrated antimicrobial activity for periods up to 28-days. In the current study the physical properties of the dressing have been investigated for extended wear times.

METHOD

Absorbency and mechanical properties have been tested on a new antimicrobial dressing and a selection of direct competitors' dressings.

Absorbency was assessed using a sodium chloride/calcium chloride solution (Solution A) and a Simulated Wound Fluid (SWF) according to the European Standard EN13726-1 March 2002. Each test has been performed on 5x5 cm square piece of the dressing. Solution A and SWF have been incubated in 37°C and samples after submerging in the solution have been incubated in the same temperature for the length of the testing (30 minutes or 28 days).

Tensile strength of the fabrics was tested on the wet fabrics based on a method from the British Pharmacopoeia 1993. Similarly to absorbency testing the experiments have been carried out with sodium chloride/calcium chloride solution (Solution A) and Simulated Wound Fluid (SWF). Samples were stored in closed containers in 37°C for the duration of the test.

RESULTS

Results suggest that all of the tested dressings have been designed as highly absorbent materials, but the new, non-silver antimicrobial dressing has the highest ability to absorb liquids after 30 minutes and 28 days in comparison to all tested dressings (Fig 1 and 2).

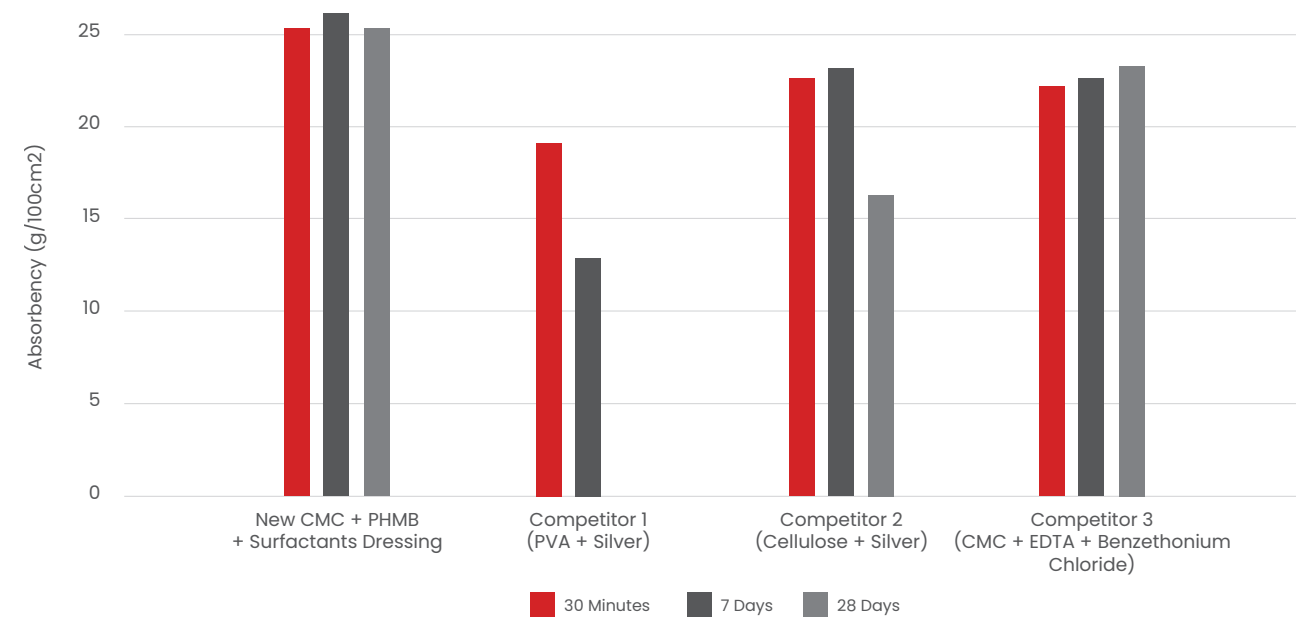


Figure 1: Absorbency of the dressing after 30 minutes, 7 days and 28 days in Solution A. *Competitor 1 has not been tested after 28 days as samples disintegrated and were not suitable for use or testing.

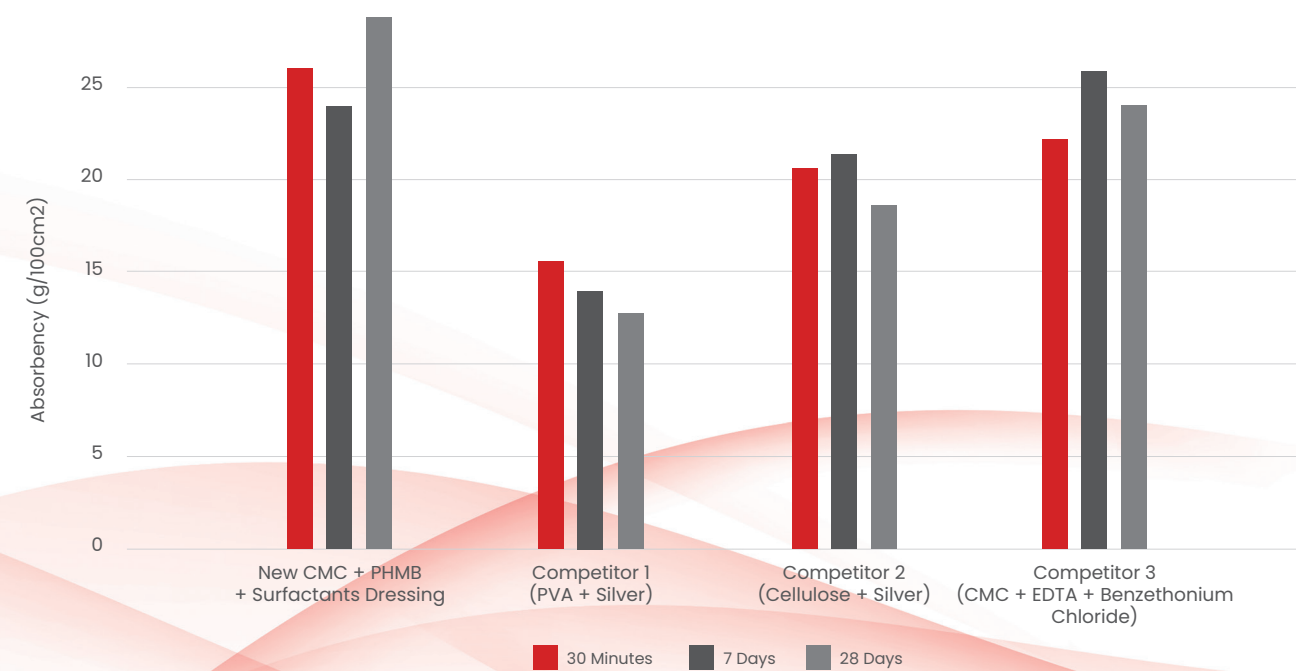


Figure 2: Absorbency of the dressing after 30 minutes, 7 days and 28 days in Simulated Wound Fluid. Additionally, it has been proven that retention under compression does not decrease over the extended period of time (Fig 3 and 4).

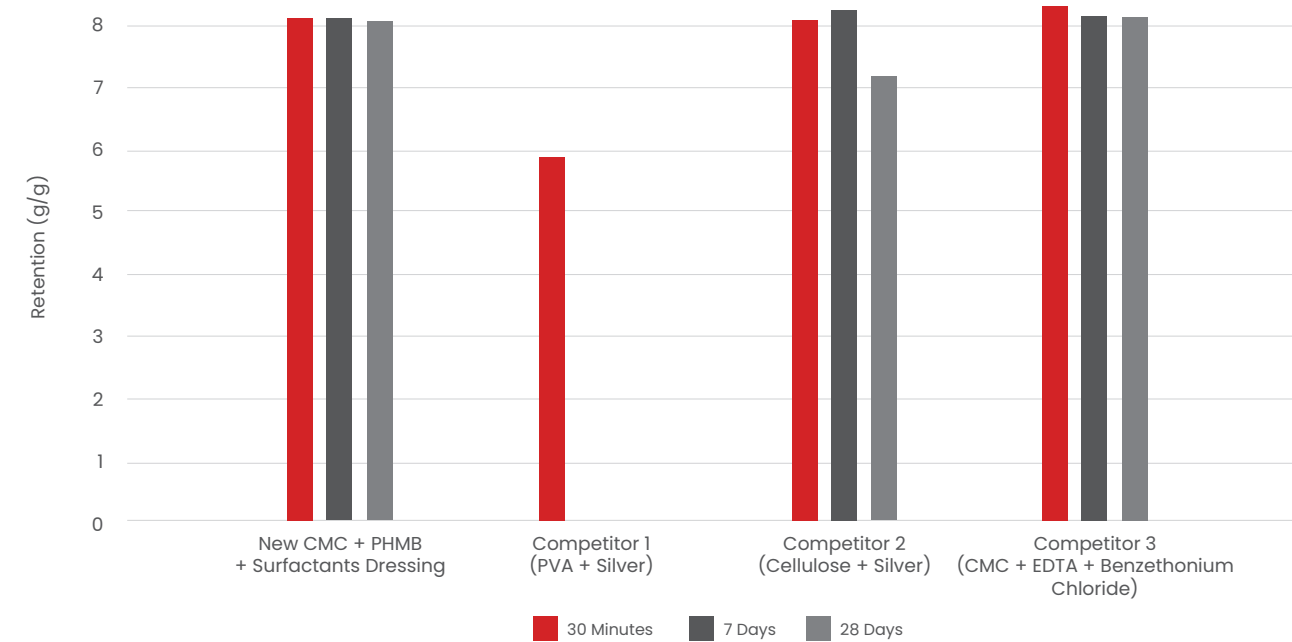


Figure 3: Retention under compression of the dressing after 30 minutes, 7 days and 28 days in Solution A. *Competitor 1 has not been tested after 7 or 28 days as samples disintegrated and were not suitable for use or testing.

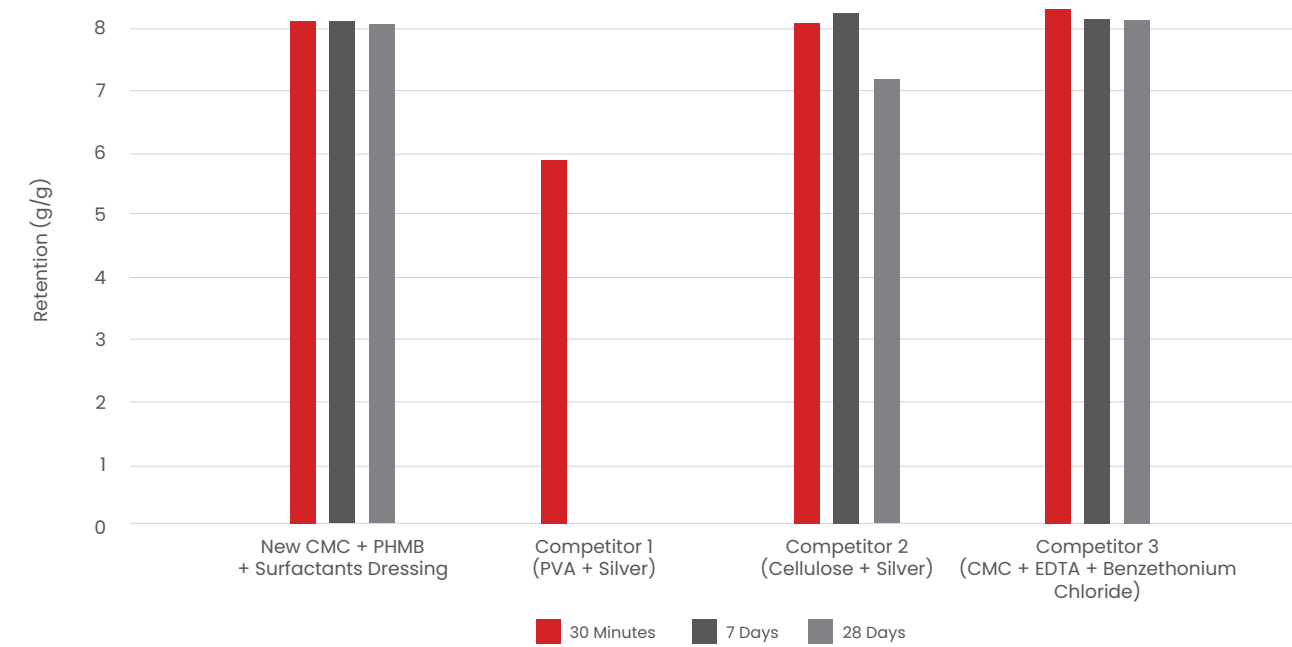


Figure 4: Retention under compression of the dressing after 30 minutes, 7 days and 28 days in Simulated Wound Fluid. From a mechanical perspective, new antimicrobial dressing has a significantly higher tensile strength (Cross Direction) than selected commercial materials. This does not change after 28 days. (Fig 5 and 6).

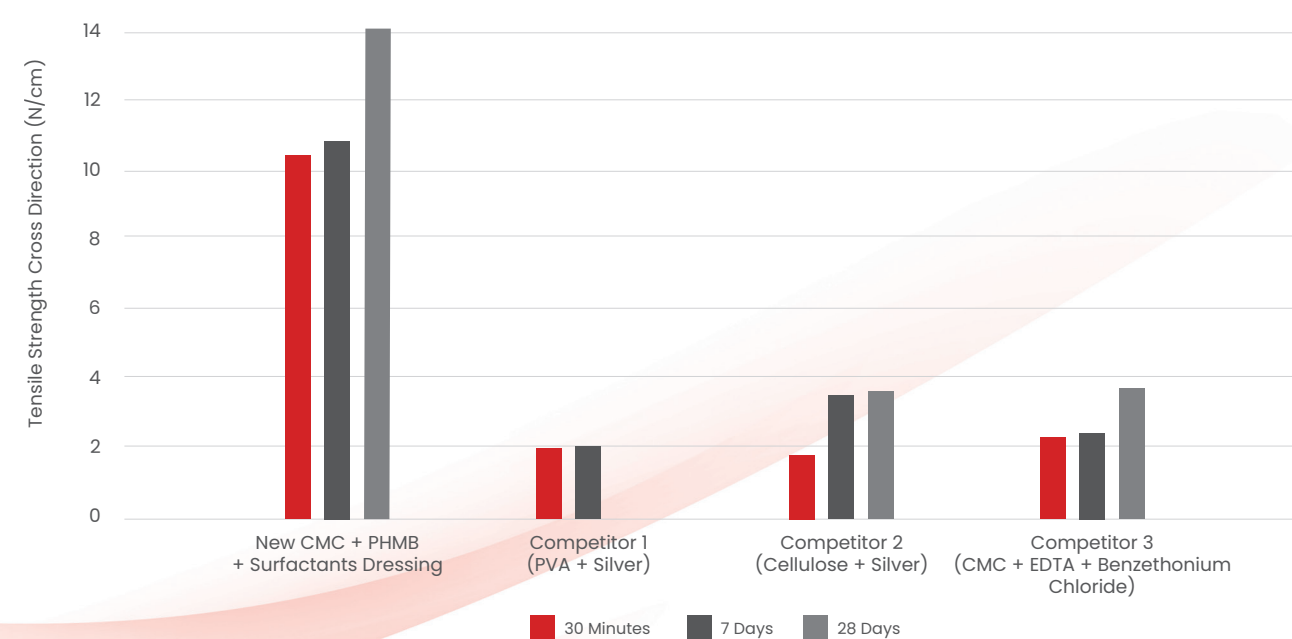


Figure 5: Tensile strength (Cross direction) of the dressing after 30 minutes, 7 days and 28 days in Solution A. *Competitor 1 has not been tested after 28 days as samples disintegrated and were not suitable for use or testing.

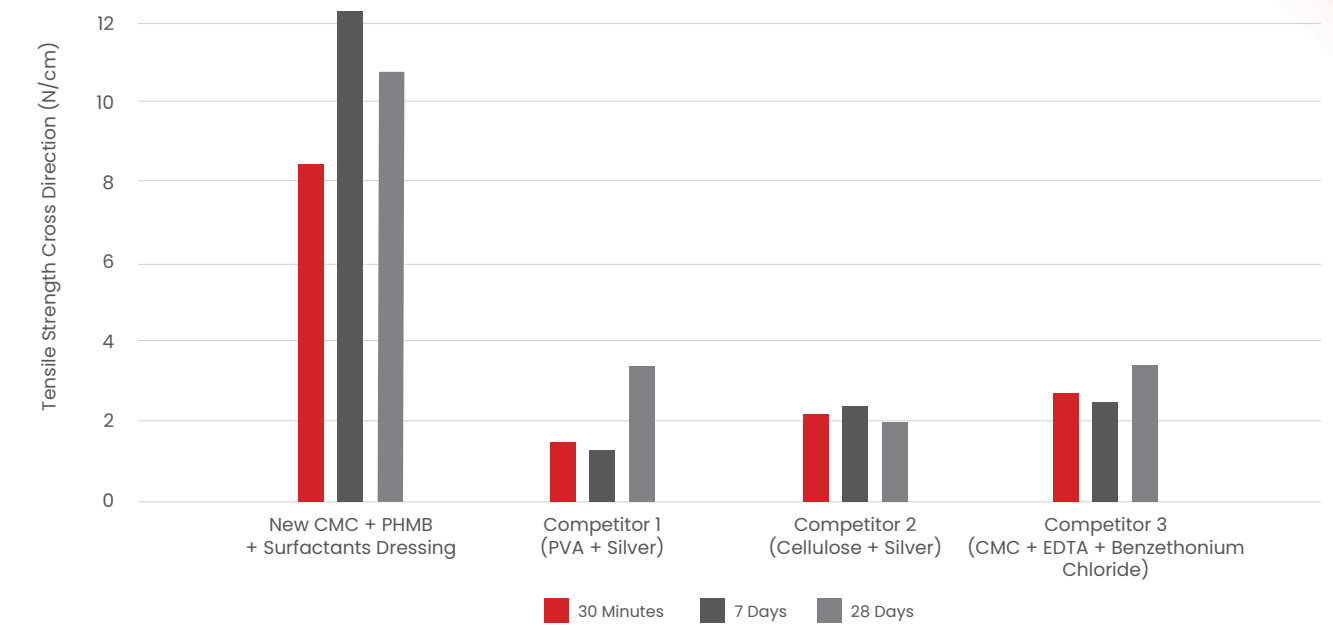


Figure 6: Tensile strength (Cross direction) of the dressing after 30 minutes, 7 days and 28 days in Simulated Wound Fluid. Additionally, it has been shown that tensile strength in Machine Direction does not deteriorate with time (Fig 7 and 8).

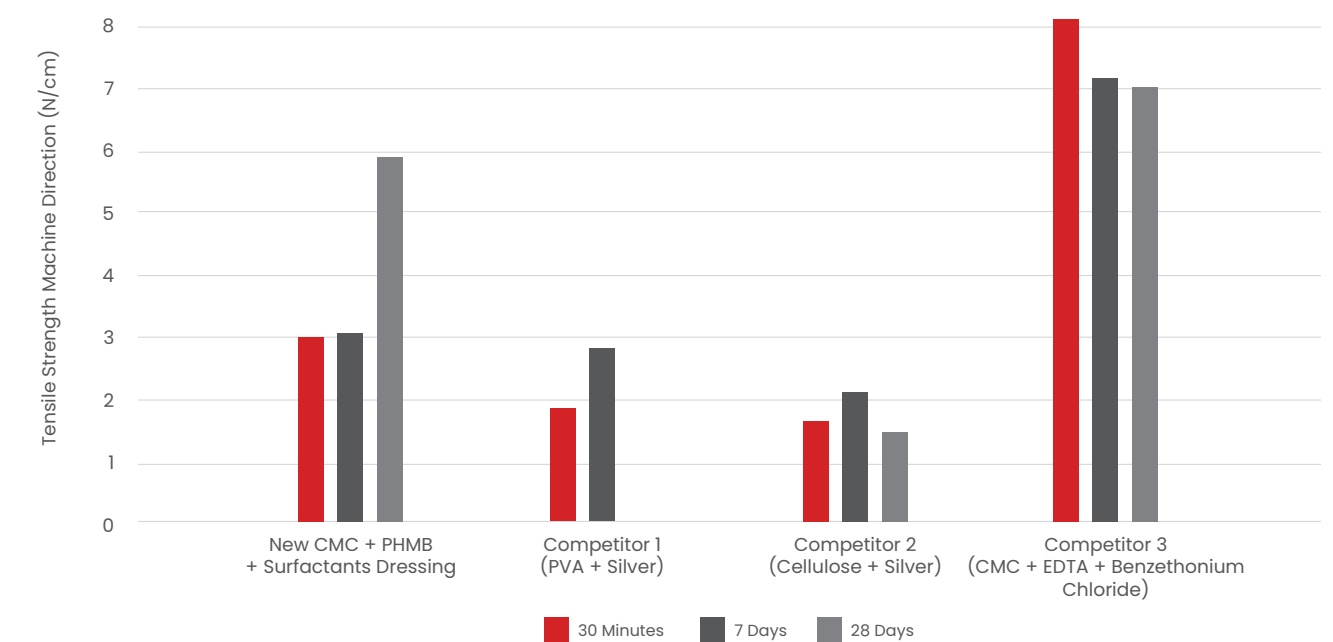


Figure 7: Tensile strength (Machine direction) of the dressing after 30 minutes, 7 days and 28 days in Solution A. *Competitor 1 has not been tested after 28 days as samples disintegrated and were not suitable for use or testing.

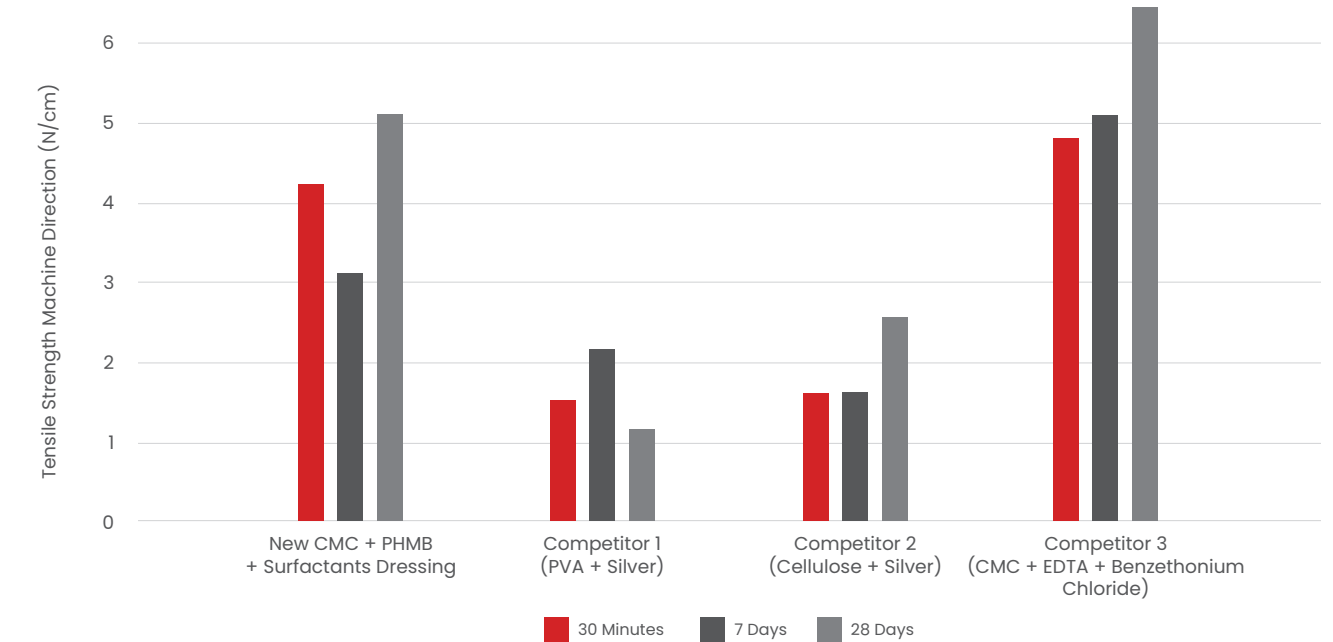


Figure 8: Tensile strength (Machine direction) of the dressing after 30 minutes, 7 days and 28 days in Simulated Wound Fluid.

CONCLUSIONS

To read Performed testing shows that the new antimicrobial dressing can absorb over 10 times more than it weighs, so it is ideal for the management of heavy or moderately exuding wounds. Moreover, this dressing offers an improvement over the mechanical properties of competitors products. Finally, it has been proven that its mechanical properties do not deteriorate after 7 nor 28 days.