

# Bioactive Microfibre Gelling (BMG™) technology – *in vitro* testing of this new innovative dressing with inherent bioactive and antimicrobial properties.

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## INTRODUCTION

Chitosan, a deacetylated form of chitin (second most abundant natural polymer found worldwide), has inherent antimicrobial and biological properties.

The commercially available presentation of BMG technology (MaxioCel®) is a modified form of chitosan and is a soft, conformable microfibre dressing, which is highly absorbent and has excellent gelling capability.

This study reports the *in vitro* findings of a range of accredited tests:

- |            |  |                              |
|------------|--|------------------------------|
| gelling    | • tensile strength                       | • MMP sequestration activity |
| shrinkage  | • antimicrobial and antibiofilm activity | • fibroblast proliferation   |
| absorption |  |                              |

## RESULTS

### 1 SUPERIOR GELLING ACTIVITY

to other commonly available fibre dressings and controls,( 1) and locked the simulated wound fluid in place whilst the dressing remained intact.

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### 2 X MORE ABSORPTION

The volume of fluid absorbed in a 10x10cm dressing was 80-85ml; twice the volume of a leading competitor.( 2)

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### 3 X STRONGER

Shrinkage of the dressing was minimal and wet tensile strength was >3 Newtons; 3 times stronger than competitor dressing.(3)

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### SEQUESTRATION OF MMPs

The BMG dressing significantly reduced the levels of MMP's compared to the control dressing.( 4)

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### EXCELLENT ANTIMICROBIAL ACTIVITY

was demonstrated with a >4 log reduction of bacterial numbers of major wound pathogens including drug-resistant strains within 24hrs.

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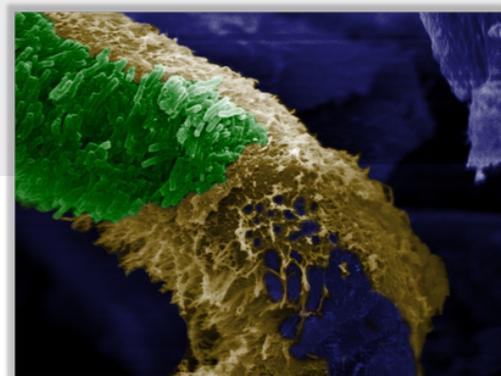
### ANTI BIOFILM ACTION

In biofilm tests, the BMG dressing showed absorption of the biofilm onto the fibres of the dressing using scanning electron microscopy.

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### FIBROBLAST PROLIFERATION

was at a similar rate to the positive control in the wound healing assay, demonstrating no inhibition.



Electron microscopic image of attachment of biofilm onto BMG fibres of MaxioCel dressing.

## CONCLUSION

The *in vitro* tests demonstrated that BMG technology had excellent **bioactive, antimicrobial, and anti-biofilm properties**. The inherent properties of chitosan and the innovative manufacturing of the BMG technology have shown the dressing to be an excellent adjunct to the dressing formulary. The absorption and gelling abilities were superior to leading competitors in the *in vitro* testing and biological and antimicrobial tests indicate the dressing would help in the wound healing process.