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## Abstract

**Aims**  
To evaluate a novel non-adherent antimicrobial silver hydro-alginate wound dressing developed for use on moderately to highly exuding chronic wounds and compare to a range of commercially available products.

**Methods**  
1) Absorbency was determined following BP 1993, Addendum (1995) Alginate Dressings.  
2) Wet tensile strength was determined by applying a continuously increasing force until breakage of the dressing occurs.  
3) Silver availability was determined by measuring the silver content of simulated wound fluid in which the dressing material had been grafted for 24hour periods for a total of 7 days.  
4) Microbiological activity was demonstrated using zone of inhibition and Log<sub>10</sub> reduction assays against common chronic wound pathogens.

**Results**  
Additionally, a new test method was developed to simulate adhesion of the dressing to the surface of a wound. A fibrin clot is placed between two pieces of dressing and the grams force (gf) required to separate the dressing from a clot indicates the potential for dressing adherence *in vivo*.

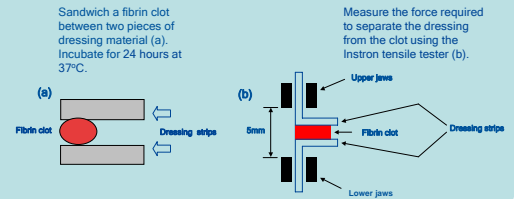
**Conclusion**  
The non-adherent antimicrobial dressing was found to have the greatest wet tensile strength whilst maintaining equivalent absorbency. The product demonstrated antimicrobial activity. The force required to separate the non-adherent antimicrobial dressing from the fibrin clot was significantly lower ( $p < 0.05$ ) when compared to commercially available products.

**Conclusion**  
The novel non-adherent antimicrobial wound dressing has been shown to be efficacious against common wound pathogens. It was comparable to commercially available wound dressings in terms of absorbency, has demonstrated superior strength when wet, and has the additional benefit of low adhesion.

## Methods

- **Absorbency**, absorbent capacity, BP 1993, Addendum (1995) For Alginate Dressings.
- **Silver release**, silver levels measured by elution of the silver from the dressings into simulated wound fluid. Fluid was changed every 24 hours and removed fluid analysed on Atomic Absorption (AA) Spectrometer.
- **Wet Tensile Strength**, force required to break dressings using Instron tensile tester.
- **Antimicrobial activity**;
- **Zone of inhibition test**, dressing applied to bacterial lawn. Zone of inhibition measured.
- **Log<sub>10</sub> reduction test**, dressings in a quantified suspension of bacteria. Ability to reduce number.

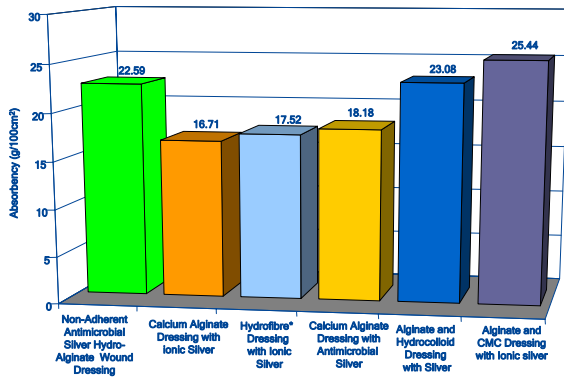
## *In vitro* adherence model



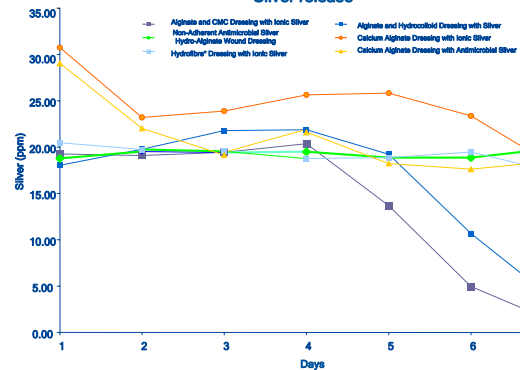
## Physical Performance Attribute Comparison Objectives

- Measure the potential adherence of wound dressings *In vitro*
- Verify the suitability of a Non-Adherent Antimicrobial Silver Alginate wound dressing for use on moderately to highly exuding chronic wounds

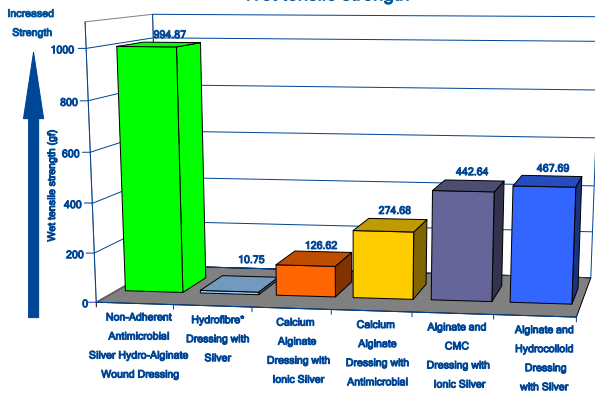
### Absorbency



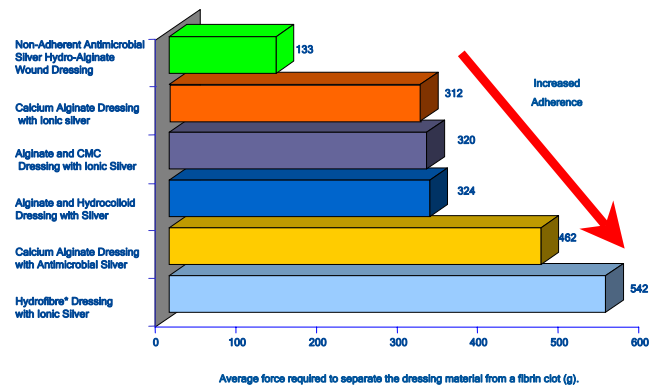
### Silver release



### Wet tensile strength

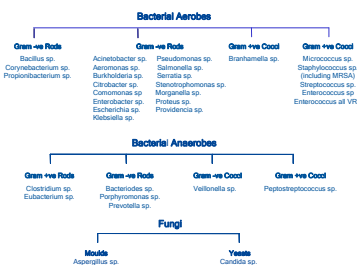
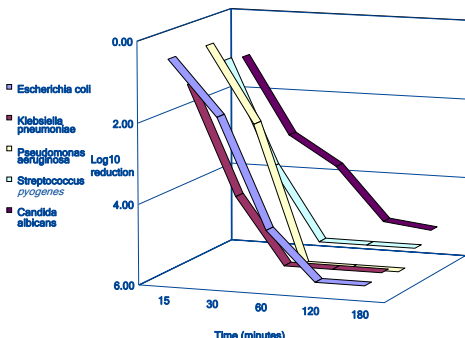


### *In vitro* Adherence



## Efficacy of a Non-Adherent Antimicrobial Silver Hydro-Alginate Wound Dressing

### Broad spectrum antimicrobial activity Zones of inhibition present against micro-organisms listed



## Conclusion

*In-Vitro*, the non-adherent antimicrobial silver hydro-alginate wound dressing has demonstrated the following;

- ✓ **ABSORBENCY** comparable to commercially available wound dressings,
- ✓ **SUPERIOR STRENGTH** when wet,
- ✓ **LOWEST ADHERENCE** to a biological matrix,
- ✓ **EFFICACIOUS** against common wound pathogens.

Therefore, this novel non-adherent antimicrobial silver hydro-alginate wound dressing has the physical characteristics that make it a suitable choice for the management of moderate to highly exuding chronic wounds.