Biofilm and delayed healing

Despite the best care some wounds struggle to heal.

Closer to zero biofilm **www.closertozero.com**

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IODOSORB◇

0.9% Cadexomer Iodine

Supporting healthcare professionals

60-70% of patients have recurrent ulcers and most suffer from the condition for 15 or more years[1]

The patient care cost of a non-healing* wound was a mean 135% more than that of a healed wound[2]

Biofilm is present in 78% of chronic wounds[3] and believed to play a significant role in non-healing

Wounds that contain biofilm may not be identified, resulting in ineffective treatment and delayed healing[4-6]

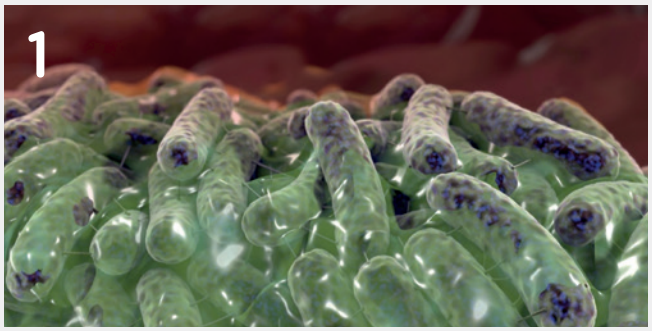
Most topical antimicrobials fail to disrupt biofilm[7-8]

*non-healing wound defined as non-progression after 12 weeks

Biofilm is thought to be present in up to 78% of all chronic wounds[3]

The biofilm barrier

Biofilm is a cluster of attached bacteria embedded in a matrix of proteins and sugars which offers protection from host defences and antimicrobials.[9]



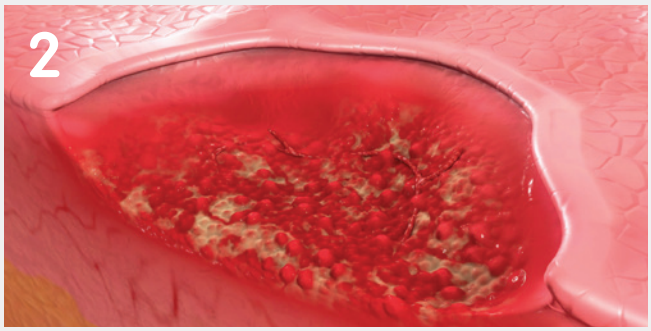
Biofilm formation

Biofilm form with the initial attachment of single planktonic bacteria, creating a coherent cluster of cells within a protective matrix.[10]

EPS matrix

This matrix, composed of protein, DNA and sugars, is known as Extracellular Polymeric Substance, or EPS.[9-11]

Biofilm is difficult to treat as it provides tolerance to antimicrobial treatments[7,12,13] and the host immune response.[14-16]



Delayed healing

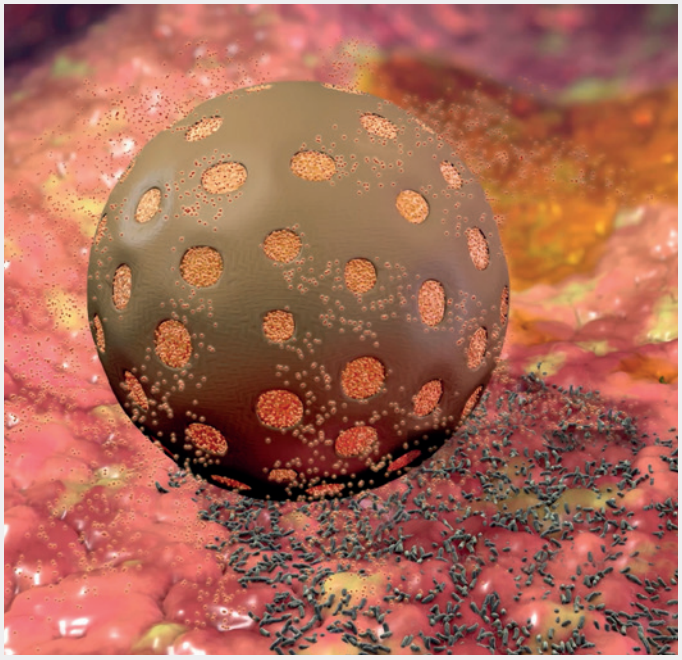
An impaired immune response leads to a vicious cycle of tissue damage and low level inflammation.[17-18]

To effectively disrupt biofilm and promote healing, an antimicrobial must penetrate the EPS and attack the bacteria within[10] with a sustained action that stops biofilm reformation.[7,12]

Biofilm is difficult to identify as it is invisible to the naked eye, non-uniformly distributed across the wound[19] and often present in deeper tissues.[20-21]

IODOSORB◇

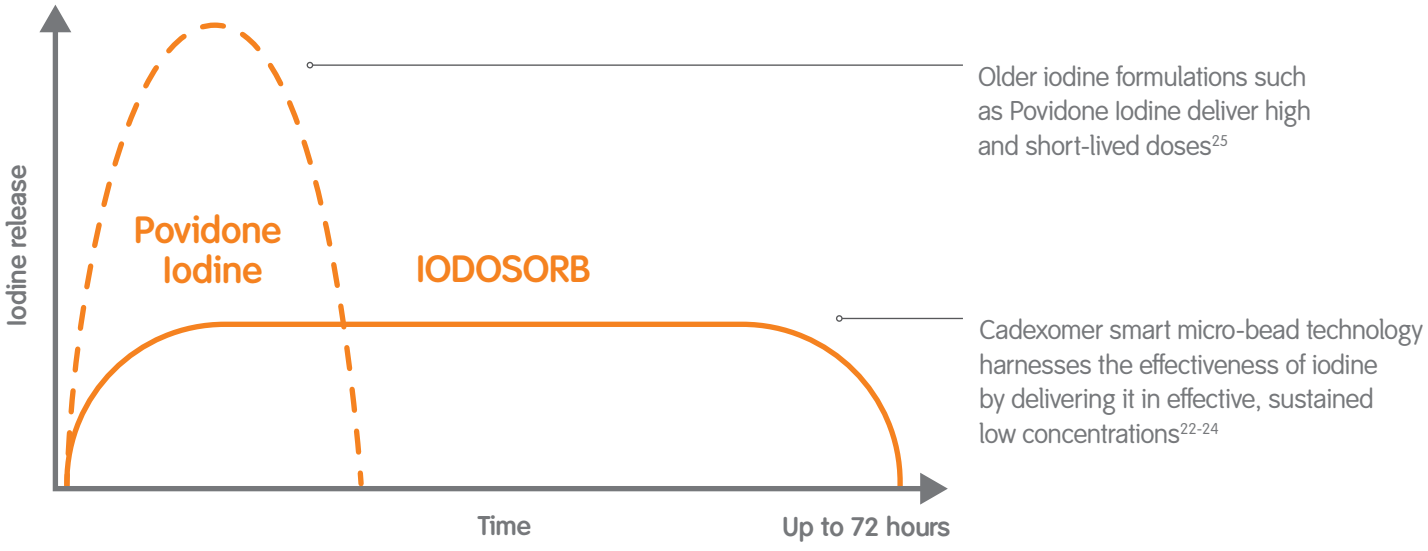
Cadexomer smart micro-bead technology



IODOSORB is a novel antimicrobial dressing made of cadexomer smart micro-beads: spherical starch structures loaded with 0.9% elemental iodine.

The iodine is physically bound to the bead and is only released when the bead comes into contact with wound fluid.[22-24]

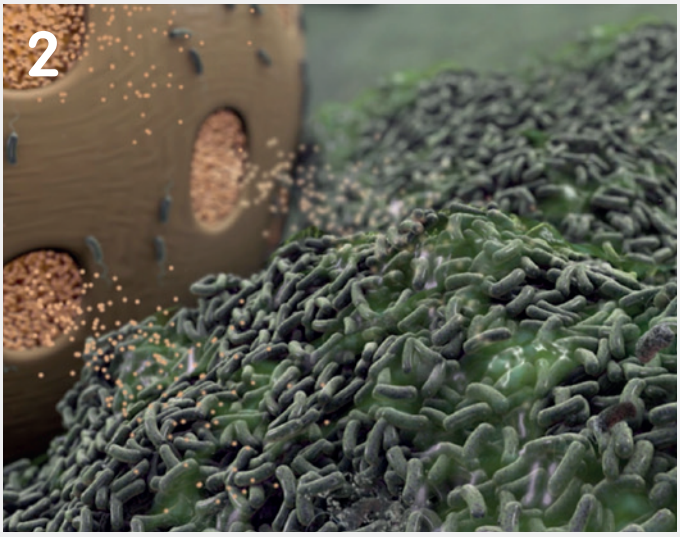
IODOSORB assists the healing and treatment of chronic wounds, reduces the bacterial count, facilitates desloughing, absorbs exudate and maintains a moist wound environment to promote healing.



For illustration purposes, not based on actual data.

Anti-biofilm mode of action
Dual action to disrupt biofilm[26,27]

It is suggested that the cadexomer micro-beads are able to dehydrate and directly destroy the biofilm structure.[26]



Once the cadexomer beads are able to breach the biofilm-specific matrix, the iodine can subsequently kill the exposed bacteria within the biofilm community.[26]

The unique dual action of IODOSORB is particularly effective in the disruption of biofilm:[26-28]

1. High absorptive property

- Dehydration of the biofilm matrix[26]
- Desloughing action[29-30]
- Promotes autolytic debridement[31]

2. Antimicrobial 0.9% Iodine

- Killing the exposed biofilm bacteria[26]
- Sustained gentle release of iodine[22,24]
- Broad spectrum antimicrobial efficacy[32-34]

Easy to use

Easy to apply and remove, a change in dressing colour signals when the dressing should be changed. IODOSORB can be used under compression or a secondary dressing of choice.

Choosing the most effective anti-biofilm dressing

Ten global experts* from both scientific and clinical disciplines compiled a consensus document, aimed at clarifying and improving the understanding, diagnosis and treatment of wound biofilm.

10 Experts 10 Recommendations 1 Consensus[35]

There is strong consensus that biofilm claims should be supported by relevant evidence with *in vivo* and *in vitro* tests against mature biofilm and across a variety of appropriate lab models.

Recommendations on selecting an effective anti-biofilm dressing included[35]

Screening anti-biofilm agents

In vitro biofilm methods with clinically relevant test conditions are useful to screen treatments for their anti-biofilm efficacy.

Topical antiseptics used to treat biofilm

Should have strong anti-biofilm effects in appropriate *in vitro* test models against mature biofilms.

Why silver is not effective against biofilm

Charged ions, such as silver or chlorides are more easily neutralised by the EPS matrix.[36]

Moreover the concentration of silver required to eradicate biofilm is estimated to be 10 to 100 times higher than that used to eradicate planktonic bacteria.[8] Such concentrations are currently unavailable in any silver dressing.

Effective silver dressings can prevent biofilm reformation

ACTICOAT® silver barrier dressings have been show to be effective at preventing biofilm re-formation. The silver ions released are extremely effective at killing planktonic bacteria and ACTICOAT should be considered as part of your biofilm management strategy.[37]

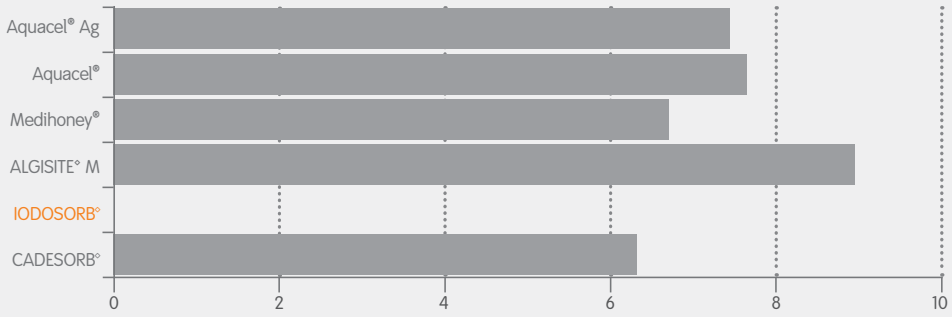
**Prof. Gregory Schultz, Dr. Randy Wolcott, Prof. Thomas Bjarnsholt, Dr. Matthew Malone, Prof. Masahiro Tachi, Terry Swanson, Prof. David Leaper, Prof. Paul Stoodley, Dr Garth James, Dr. Andrew McBain.*

Superior efficacy against biofilm proven across laboratory models[7, 38-40]

IODOSORB◇ has a long history of effectiveness against biofilm with superior results compared to other topical antimicrobials such as PHMB, silver and povidone iodine.[7]

In line with the biofilm experts' recommendations on selecting an effective anti-biofilm dressing, IODOSORB has been tested and shown to be **more effective than Prontosan® and Aquacel® Ag** across challenging and clinically relevant biofilm models.[38-40]

Bacterial load after 24hrs (Log CFU/ml)[41]



A single exposure of Cadexomer Iodine dressings showed complete biofilm knockdown after both 24 and 72 hours.[41]

Bacterial biofilm detected after 72hrs[41]

There was no significant reduction of PAO1 bioburden following exposure to 0.1% PHMB gel (Prontosan) - saturated cotton gauze for either 24 or 72 hours.[41]

Closer to zero
biofilm

IODOSORB° with cadexomer smart micro-bead technology is highly effective in the treatment of wounds with biofilm.[38-39]

IODOSORB dual action can breach the biofilm's protective matrix and kill the bacteria within.[26-28]

IODOSORB anti-biofilm efficacy has been verified by independent data.[39] Its efficacy, resulting in a faster rate of healing, is also supported by a positive Cochrane review.[42]

Ordering information

Product code	Size	Qty
IODOSORB Ointment		
66051240	10g	4 Tubes
66051230	20g*	2 Tubes
IODOSORB Sheet Dressing		
66051330	5g (6cm x 4cm)	5 Sheets
66051340	10g (8cm x 6cm)*	3 Sheets
66051360	17g (10cm x 8cm)*	2 Sheets
IODOSORB Powder		
66051070	3g*	7 Sachets

*Not available in New Zealand

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The decision to use Smith & Nephew products should be made by a healthcare professional, in line with applicable local protocols. Smith & Nephew products should always be used for the indications set out in the applicable instructions for use.

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