



Zorflex[®]

Accelerated Wound Healing[™]

Zorflex[®] - The Fast Healing Wound Contact Dressing



Indication

- Infected graft donor & recipient sites
- Fungating carcinomas
- Fungal skin infections
- Diabetic foot ulcers
- Venous leg ulcers
- Surgical wounds
- Trauma wounds
- Pressure sores

Natural physical action- Does not contain silver

Antimicrobial, conductive and anti-odour

Zorflex[®] wound contact dressings, accelerate the wound healing process^{1,2,3} across a diverse range of wound types.

Activated carbon cloth (ACC) has been used for many years as an anti-odour component in wound dressings.

The key innovation behind Zorflex[®] activated carbon cloth is the recent discovery that, when in direct contact with the wound bed, it helps significantly accelerate wound healing - attracting the microbes from the wound bed to the activated carbon cloth, trapping and killing them.⁴

This makes Zorflex[®] a highly adsorbent dressing and effectively allows Zorflex[®] to 'clean' the wound bed of micro-organisms and create favourable conditions for healing, helping to significantly accelerate wound healing.

Zorflex[®] is effective against biofilm

An independent in vitro study in 2015 tested the use of Zorflex[®] on single species biofilms². *P. aeruginosa* and *S. aureus* biofilms were grown on test coupons in a CDC reactor. Zorflex[®] achieved 1.38 and 1.09 log reduction for *P. aeruginosa* and *S. aureus* biofilms respectively in 24 hours.

²Perfectus Biomed, 2015

1. Antimicrobial

Van der Waals force draw, trap and kill microbes

2. Conductive

Restores the body's natural TEPA[^] to aid healing

3. Odour Management

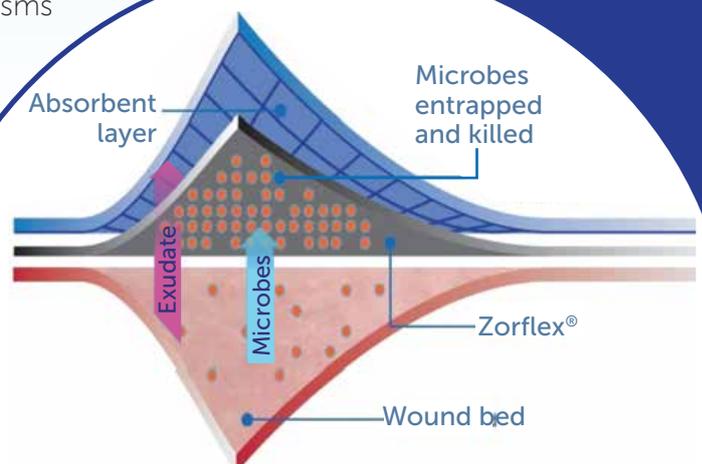
Adsorbs and controls wound odour

4. Protease Modulation

5. Exudate Management

6. Affective against Biofilm

[^]Transepithelial potential



What are MMPs?

Matrix metalloproteinases (MMPs) are proteases that preferentially breakdown proteins comprising the extracellular matrix (ECM) of tissues.

Role of MMPs in normal wound healing

Role of MMPs	Main phase of healing
<ul style="list-style-type: none">• Removal of damaged ECM and bacteria	Inflammation
<ul style="list-style-type: none">• Degradation of capillary basement membrane for angiogenesis• Migration of epidermal cells	Proliferation
<ul style="list-style-type: none">• Contraction of scar ECM• Remodelling of scar ECM	Remodelling

Why need to modulate MMPs?

MMPs are necessary for wound healing, but if they are present in a wound bed at too high a level, for too long a time, and in the wrong places, they begin to degrade proteins that are not their normal substrates. This can result in the destruction of proteins that are essential for healing, such as growth factors, receptors and ECM proteins and ultimately impedes or arrests wound healing. Managing protease levels is essential for healing.

Zorflex® is proven to effectively sequesters & retains MMPs

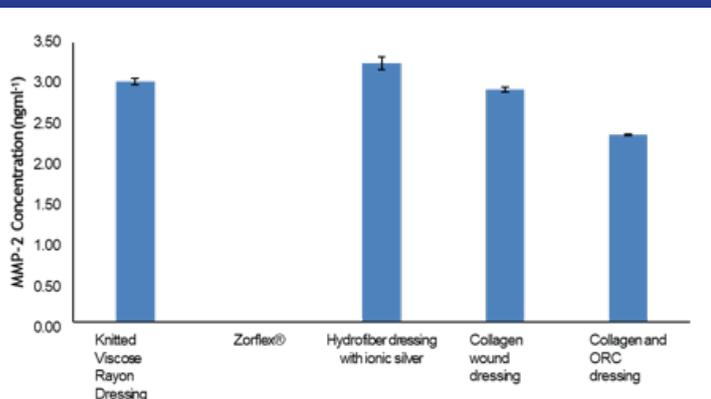


Figure 1. Quantity of MMP-2 recovered from test wells following 24-hours incubation with Zorflex® and three competitor wound dressings. Knitted Viscose Rayon Dressing was used as a negative control.

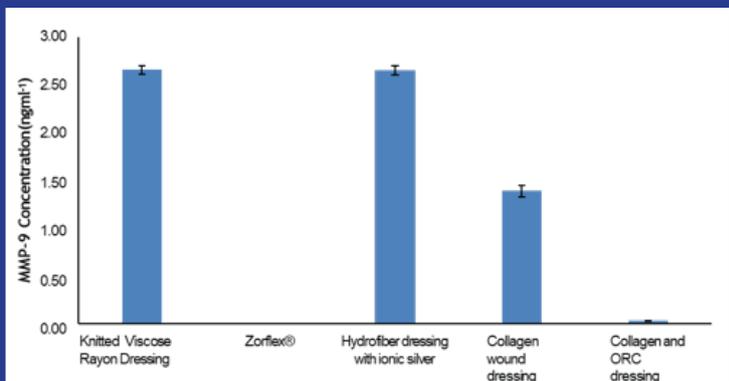
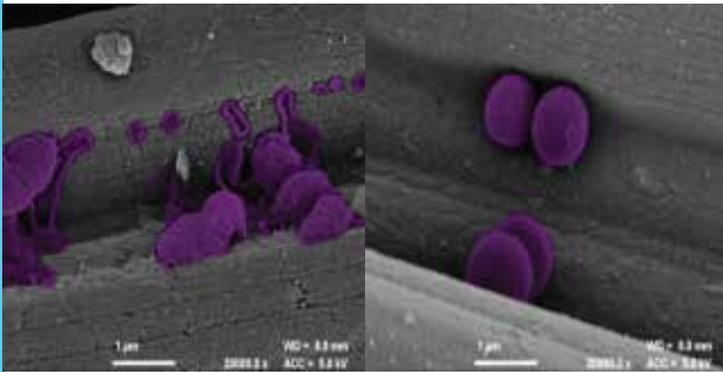


Figure 2. Quantity of MMP-9 recovered from test wells following 24-hours incubation with Zorflex® and three competitor wound dressings. Knitted Viscose Rayon Dressing was used as a negative control.

Bacteria Capture - Staphylococcus aureus

24 Hours - 20,000x

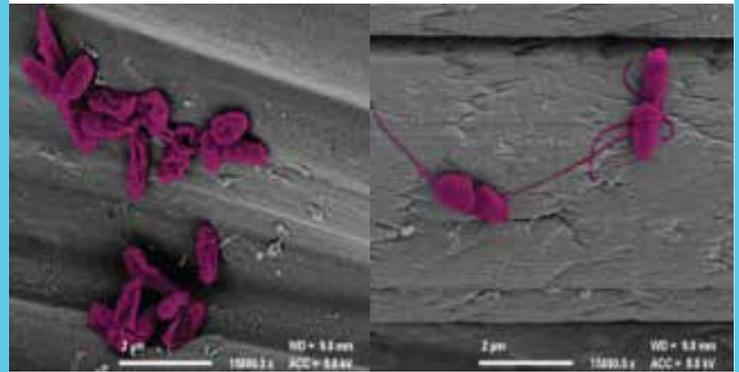


Zorflex® (24 hours)

Rayon (24 hours)

Bacteria Capture - Pseudomonas aeruginosa

72 Hours - 15,000x



Zorflex® (72 hours)

Rayon (72 hours)

Conductivity aids in wound healing

In literature following positive effects of electrical stimulation on chronic wound healing can be found¹

- Improved blood circulation
- Accelerated epithelisation and healing
- Higher percentage of healed wounds in comparison to conservative treatment
- Activation of healing when conventional treatment failed
- Prevention of tissue necrosis and antibacterial effect
- Increased wound contraction
- Higher scar elasticity
- Increased response of fibroblasts
- Decrease of neuropathy pain
- Decreased peripheral neuropathy

¹Cukjati & Savrin, Electric Current Wound Healing

How to use Zorflex®?

Step 1



Clean the wound with Dermacyn® WoundCare Solution (soaking for about 10 minutes is highly recommended)/ sterile water, debride the wound if needed.

Step 2



Cover the wound with appropriate size of Zorflex® (including about 1 cm of periwound area); for wound with macerated skin, Zorflex® can be applied on affected skin area too. If the wound is dry, apply Dermacyn® WoundCare Hydrogel on wound before covering with Zorflex®.

Step 3



Use appropriate secondary dressing to cover the area, depending on exudate level or dressing availability.



Accelerated Wound Healing™

Case studies

Infected Diabetic Foot Ulcer

BASELINE



1 MONTH



Diabetic foot ulcer since December 2017, unable to heal the wound with other dressings, wound was associated with heavy exudate and pseudomonas growth was positive. Tried Zorflex® for a month, there is significant wound size reduction, good exudate control and culture results show that the wound is free from pseudomonas.

DFU

25/9/18 (BASELINE)



25/10/18 (1 MONTH)



Right diabetic foot ulcer (6.5 x 5.5cm) with presence of slough and moderate exudates. Dressing with Zorflex® (changed once per week). After 1 month, the wound is clean and there is marked improvement on wound healing.

DFU with poor glucose control

BASELINE
(SIZE: 14X9 CM)



DAY 3 (TISSUE: GRANULATION TISSUE 90% & SLOUGH 10%)



DAY 25
(SIZE: 10X 7 CM)



45 years old, Indian lady with right DFU, poor glucose control (16-18 mmol/L), Baseline tissue: Granulation tissue 60% & Slough 40%. Frequency of dressing: Once in every 3 days in the first week, followed by once in every 5-6 days in the following weeks. After Day 25, patient did not turn back after wound has shown improvement due to lack of education on wound care.

Venous ulcer

BASELINE



DAY 16



60 years old Malay male with Bilateral Venous Ulcers for 6 years, also with underlying diabetes mellitus and hypertension.

Follow up under SOPD Hospital Melaka and Pain Clinic, on T.Tramadol 1/1 OD, T.PCM 1g OD

Wound was associated with macerated periwound skin, tried Zorflex®, changed twice per week. Improvement on periwound skin can be noticed, and there was reduction on pain and exudate level.

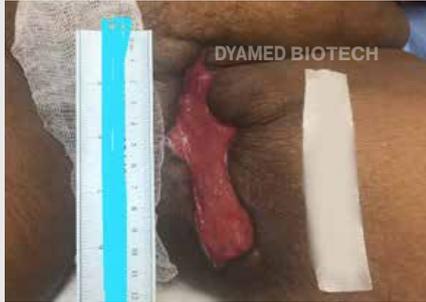
Case studies

Post I&D of cyst

BASELINE



DAY 40



Malay lady with underlying diabetes mellitus, wound at baseline with measurement of 18 x 7cm, heavy exudate associated with foul smelling odour. After 40 days, wound shows significant improvement, and the doctor was very satisfied with the results.

Venous ulcer

BASELINE



10TH WEEK



52 years old male with no known comorbidities presented with venous ulcer for 10 years, treated with Zorflex® and graduated compression bandage. Within 10 weeks wound is almost healed.

Venous ulcer

BASELINE



ABOUT 2 MONTHS



50 years old male with venous ulcer for 2 years, painful (pain score 5-6), foul smelling with wound size at baseline at 7 x 6cm, treated with Zorflex® and graduated compression bandage. After 2 months, wound shows marked improvement.

Carbuncle post saucerization

BASELINE



DAY 21



Post removal of infected cyst

BASELINE



DAY 7



Zorflex® used to accelerate healing and promote cost efficiencies

The direct application of Zorflex® on chronic wound (>3 weeks) has shown median **51-day** wound closure times, compared to **84-day** (12 weeks) that wound care specialists would expect to see with conventional dressings. Zorflex® was also proven to be as cost effective as hydrocolloids, and cheaper than white gauze and negative pressure wound therapy.¹

Zorflex® used to prevent amputation

Using Zorflex® and total contact casting which were changed weekly, planned amputation on a 48 year old male was avoided as the wound had achieved good progression of healing. Zorflex® contributed to improved healing through inactivation of bacteria present as well as reducing associated wound odour.²

Zorflex used to reduce infections in chronic leg ulcers

A case series of non-healing chronic venous ulcers were treated with Zorflex® for 1 month, as most of the wounds failed to respond to antimicrobial dressings containing silver, iodine or polyhexamethylene biguanide (PHMB) previously, and were heavily exuding and painful. In all cases, the signs of infection reduced significantly within 4 weeks, resulting in good patient outcomes.³

Advantages of Zorflex®

- Natural triple action: Antimicrobial, conductive and anti-odour
- Protease modulation
- Reduces odour, pain and exudate
- Easy to use and pain free
- No residual carbon fibres left behind
- Can be cut to shape and folded
- Safe, risk free antimicrobial action- no reported adverse reaction
- Non-cytotoxic
- Direct dressing for chronic non-healing wounds, including post-operative, infected and prophylactic
- No special procedures or techniques required to apply Zorflex® wound contact dressings



Availability

Zorflex® wound contact dressings are available in the following sizes:

- 5cm x 5cm (2" x 2")
- 10cm x 10cm (4" x 4")
- 15cm x 25cm (6" x 10")
- 20cm x 10cm (8" x 4")



Clinical evidence

A growing body of clinical evidence supports the efficacy of Zorflex® in helping accelerate wound healing times and improve patient wellbeing and outcomes. Recent studies include:

¹ Results of Directly Applied Activated Carbon Cloth in Chronic Wounds: a Preliminary Study. Scheer HS, Kaiser M, Zingg U, JOWC 2017, 26(8)

² Use of a Unique Carbon-based Textile Dressing Zorflex to Promote Healing and Prevent Amputation. Miller MS, Markey L, Yoder R. WOW 2017 poster

³ Reducing Infection in Chronic Leg Ulcers with an Activated Carbon Cloth Dressing. Murphy N. BJN 2016, Vol 25, No 12

A Retrospective Study to Evaluate the Effect of an Activated Carbon Dressing on Chronic Wounds. Young S., Gray S., Hampton S., EWMA 2016 poster

Activated Carbon Cloth Directly Applied on Chronic Wounds. Scheer H., Kaiser M., Zingg U., EWMA 2016 abstract/ oral presentation

In-Vitro Modulation of MMP-1, MMP-2, MMP-9 and Elastase by a Range of Wound Dressings. Carney, J., Thomas H., and Westgate, S. J., SAWC 2017 poster

Contact us

To find out more about Zorflex® or to discuss your requirements, please contact us and we will be happy to help.

Singapore Office

DYAMED BIOTECH PTE LTD

10 Ubi Crescent, #02-41, Ubi Techpark,
Lobby C, Singapore 408564

Tel: +65 6848 1028 | Fax: +65 6848 2027

Malaysia Office

DYAMED BIOTECH SDN BHD

A4-11, Block A, Plaza Dwtasik, Bandar Sri Permaisuri,
Off Jalan Permaisuri (1), 56000 Cheras,

Kuala Lumpur, Malaysia

Tel: +603 9173 0128 | Fax: +603 9173 5128



Leading distributor of medical
& diagnostic devices in
Singapore & Malaysia

www.dyamed.com