



One of the great misconceptions in wound care is that a wound heals best when permitted to form a dry scab. By contrast, moisture has repeatedly been shown to significantly accelerate wound healing. Emergency physicians and other acute care providers are encouraged to incorporate occlusive (closing a wound and keeping it from air) moisture-retentive dressings into their regular practice to expedite healing, reduce pain and scarring, improve wound care convenience and patient compliance, and minimize wound contamination and infection.

<https://www.ncbi.nlm.nih.gov/pubmed/17400084>

The company has identified a gap in the market and is currently developing a Class 11 medical device for the application of the technology for chronic and acute wounds.

CryoSlices® Benefits for medical application of chronic wounds:

- keeps the wound bed moist and creates a therapeutic environment for wound healing
- transparent for easy observation of the wound without removing the dressing
- provides mechanical protection from further trauma
- thermally insulating
- comfortable and conformable
- free of particles and wound contaminants
- does not adhere to the wound allowing easy removal without trauma
- is non-toxic, non-allergenic and non-sensitising to both patient and medical staff
- is sterile
- is anti-microbial and antiviral
- is permeable to water vapour and oxygen and non-permeable to bacteria
- is easy to use & cost effective
- is soothing, cooling and comfortable for the patient to use
- Promotes an increase in healing, reduces inflammation and controls biofilm
- slows down bleeding and reduces pain
- requires only infrequent changes (48 hours)

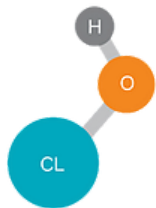
Our Globally unique CRYOGEL technology patch is:

Based on polymer science with its application in cryogel technology. Cryogels are polyvinyl alcohol (PVA) polymers that are thermoreversible. The molecular mass of the PVA increases through mechanical bonding, the extent of which is based on the number of freezing and thawing cycles. The mechanical bonding takes the form of physical cross-linkages. The resultant hydrated gel has a high tensile strength, high water content and a high light transmittance if produced correctly.

The formation of the polymer and the process for producing it with the necessary physical properties of this application is highly dependent on the additives incorporated in the gel. While a suitable technology was developed for the cosmetic industry, the technology had to be reviewed for the new application in the medical industry which required us to make adaptations to the manufacturing process to stabilize HOCL in the patch.

Why we chose HOCL as a key ingredient in our cryogel technology

- No chemicals! Totally safe and natural!
- Broad-Spectrum Antimicrobial (anti-viral and anti-bacterial)
- Rapidly Penetrates Biofilm
- Non-Cytotoxic
- Non-Irritating
- Promotes Wound Healing
- Significantly Reduces Wound Odour
- Anti-Inflammatory
- Pain reduction
- Clinically proven for efficacy in wound healing



Clinical Evidence of HOCL (FDA approved natural ingredient)

pH Neutral - Super-Oxidised Solution for first-line treatment of Acute & Chronic wounds including Burns

Works the same as the Human Immune System

When the body comes under attack from invading bacteria and viruses, the immune system immediately responds. The body sends increased numbers of a specific white blood cell called a Neutrophil straight to the invasion site.

Once activated, these cells produce large amounts of a mixed oxidant solution which is effective in eliminating invading microbes and pathogens.

The oxidant produced by the white blood cells Hypochlorous acid or (HOCl) is amongst the most potent natural disinfectants. It is non-toxic to humans, and is highly effective as an antimicrobial agent with rapid action. **HOCl is generated under specific electro-chemical conditions using a combination of water, salt (NaCl) and electricity.**

Contrasting Recommended Wound Treatments

Antimicrobial onset as quickly as 30 seconds and rapid penetration of biofilm, killing from within. 1,2 Microdacyn (HOCl/NaOCl) is recommended as the first choice for decontaminating all acute and chronic wounds in the 2018 'Consensus on Wound Antisepsis Review'.

Related Brand	Generic	Antimicrobial Onset Time [1]	Effect on Biofilm [2]	Improvement of Wound Healing [1]	Applicable to Cartilage/Joints [1]	Suitable for Peritoneal Lavage [1]
Microdacyn®	HOCl	30s - 5min	Penetrates biofilm rapidly, killing formations from within	Yes	Yes	Yes
Betadine®	PVP-I	30 min	Inhibits development of new biofilm. Eradicates young biofilm colonies. Significantly reduces mature biofilm colonies	Partial inhibition	Yes	Contraindicated
Hibiclens®	Chlorhexidine	3-10 hours	Not in IWII 2016 Guidelines	No Data	Toxic (>0.002%)	No Data
Octenilin®	OCT	3-10 hours	Prevents formation of new biofilm for at least 3 hours. Inhibits planktonic and bacterial biofilm growth for up to 72 hours	No inhibition	Contraindicated	Contraindicated
Prontosan®	PHMB	3-10 hours	Surfactant qualities disrupt biofilm attachments	Yes	Toxic (>0.005%)	Contraindicated

HOCl: Hypochlorous Acid/NaOCl | PVP-I: Povidone-Iodine | OCT: Octenidine Dihydrochloride | PHMB: Polyhexanide

1: Kramer et al 2018 Consensus on Wound Antisepsis 2018 Review
2: International Wound Infection Institute 2016 Clinical Practice Guidelines

[Download Evidence Summary](#)

The latest guidelines published by the international wound infection institute cite super-oxidised hypochlorous acid (Microdacyn) with the ability to "penetrate biofilm rapidly, killing formations from within"

INTERNATIONAL CONSENSUS UPDATE 2016		Table 6: Cleansing solutions and gels			
Solution	Type	Cytotoxicity	Effect on biofilm		
Distilled water	Hydrating	None	None	None	None
Hydrogen peroxide	Antiseptic	Unknown/variable	None	None	<ul style="list-style-type: none"> None, non-antibiotic solution¹⁰³ Not stable¹⁰³
Polychlorhexidine (PHMB)	Surfactant antiseptic	Low to none ¹⁰³	Surfactant qualities disrupt biofilm attachments ¹⁰³	None	<ul style="list-style-type: none"> Available in gel and irrigation preparations that can be used together on separately cleaned wound surface. Cleansing, allowing greater spread and breaking up of non-viable tissue¹⁰³ Does not promote bacterial resistance¹⁰³
Octenidine Dihydrochloride (OCT)	Surfactant antiseptic	<ul style="list-style-type: none"> In vivo tests show high toxicity Caution advised Surfactant qualities disrupt biofilm attachments 	Prevents formation of new biofilm for at least 3 hours ¹⁰³	None	<ul style="list-style-type: none"> Available in gel and irrigation preparations that can be used together on separately cleaned wound surface. Cleansing, allowing greater spread and breaking up of non-viable tissue¹⁰³ Does not promote bacterial resistance¹⁰³
Super-oxidised with hypochlorous acid (HOCL) and sodium hypochlorite (NaOCL)	Antiseptic	May vary depending on concentrations	None	<ul style="list-style-type: none"> Penetrates biofilm rapidly, killing formations from within¹⁰³ Does not promote resistant bacteria strains¹⁰³ 	<ul style="list-style-type: none"> None, non-antibiotic solution¹⁰³ Stable¹⁰³

INTERNATIONAL WOUND INFECTION INSTITUTE

WOUND INFECTION IN CLINICAL PRACTICE

Principles of best practice

2016