

Proven Evidence Based & Patented Technology

Physical Operating Principle

4. Evidence based

- More than 30 clinical papers
 - Some HOCl “wannabe companies” even use Sonoma’s studies on their website to support their “copycat products” (in fact the best acknowledgement of Microdacyn’s superiority!)

Doc#	Author	Title	Source	Year	Subject Focus	
ART 01	Allie, D	USA	Super-Oxidized Dermacyn in Lower-Extremity Wounds	Wounds (WJ)	2006	DFU
	Dalla Paola	IT	Super-Oxidized Solution (SOS) Therapy for Infected Diabetic Foot Ulcers	Wounds (WJ)	2006	DFU
	Gutierrez	USA	The Science behind stable, Super-Oxidized water, Exploring the various applications of SOV	Wounds (WJ)	2006	DFU, LU, PU, Burns
	Miranda	Mx	Reducing Bacterial Infectious Complications from Burn Wounds	Wounds (WJ)	2006	Burns
ART 02	Bongiovanni	USA	Superoxidized Water Improves Wound Care Outcomes in Diabetic Patients	DMCT	2006	DFU, burns, other
ART 03	Bongiovanni	USA	Nonsurgical Management of Chronic Wounds in Patients with Diabetes	JVU	2006	DFU, LU, PU, Burns
ART 04	Dalla Paola	IT	Super-Oxidized Solution (SOS) Therapy for Infected Diabetic Foot Ulcers	WJ, AAWC	2006	DFU
ART 05	Dalla Paola	IT	Treatment of Diabetic Foot Ulcer: An Overview Strategies for Clinical Approach	CDR	2006	DFU
ART 06	Goretti, Piagessi	IT	Clinical Outcomes of Wide Postsurgical lesions in the Infected Diabetic Foot Managed with 2 different local treatment regimes compared using Quasi-Experimental Study Design: A preliminary report. A Cytotoxic analysis of antiseptic medication on skin substitutes and autograft	LEW	2007	DFU
ART 07	Le Duc	NL	Microcyn: a novel super-oxidized water with neutral pH and disinfectant activity	BJOD	2007	Toxicity
ART 08	Landa-Solis	Mx	Efficacy and Safety of Neutral pH superoxidized solution in severe diabetic foot infections	JHJ	2005	Efficacy
ART 09	Martinez-de Jesus	Mx	Super-oxidized solution inhibits IgE-antigen-induced degranulation and cytokine release in mast cells	WJ	2007	DFU
ART 10	Medina, Gonzalez	Mx	Treating infected Diabetic Wounds with Superoxidized water as anti-septic agent: a preliminary experience	JCPSP	2007	Diabetic Wounds
ART 11	Hadi	India	Effects of pH-neutral, super-oxidized solution on human dermal fibroblasts in vitro	WJ	2007	Fibroblast

5. Customer Satisfaction

- Almost two decades of Customer Satisfaction
- Presence in more than 40 countries
- Millions of patients treated
- No side effects

6. Negative Pressure Wound Therapy

- The first hypochlorous acid solution that was recommended by KCI



V.A.C. Ultra™ Therapy System is compatible with a variety of topical solutions for use with a variety of open wounds.



Topical Wound Solutions
The following topical solutions are compatible with V.A.C. VeraFlo™ Therapy.*

Generic Solution Class	Trade Name	Considerations for Use with V.A.C. VeraFlo™ Therapy
Hypochlorite based solutions (e.g. Hypochlorous acid, Sodium hypochlorite)	Dakin's Solution (quarter strength), Microdacyn®	<ul style="list-style-type: none"> Dakin's Solution should not be used in concentrations greater than 0.125% (quarter strength). Consider using the fewest irrigation cycles and minimizing hold times to the lowest level that is clinically relevant.
Silver nitrate (5%)	Various	Silver nitrate is light sensitive. Protect V.A.C. VeraLink™ Instillation Tubing from light during use of silver nitrate.
Sulfur-based solutions (sulfonamides)	Mafenide acetate, Sulfamylon®	Refer to manufacturer's labeling for solution-specific considerations. No device-related considerations for use with V.A.C. VeraFlo™ Therapy.

*Based on KCI in-house testing of disposables mechanical properties, biocompatibility, and solution interaction. Listing of specific solutions is not an endorsement of or indication of a solution's clinical efficacy. If wound healing goals are not being achieved, consider an alternate instillation frequency, solution concentration, or solution type deemed appropriate by a physician.

While the endogenous substance Hypochlorous Acid (HOCl) increases microorganisms' cell wall permeability by denaturing its proteins and fatty acids, it does not kill microorganisms!

What destroys the microorganisms is induced by a purely natural and physical process called Osmolysis.

Osmolysis is the tendency of water to flow from a hypotonic solution (low concentration of salt) to a hypertonic solution (high concentration of salt) across a semipermeable membrane. When single cell organisms get in contact with a hypotonic solution, the water molecules will move into the cell causing swelling. The combination of excessive swelling and the increased cell wall permeability will burst -and instantly kill- the microorganism.

Osmolysis is induced by a difference between the intracellular- and extracellular concentration of salt; called Osmolality.

The lower the Osmolality, the stronger the Osmotic pressure, the stronger the effect on microorganisms and the stronger the Physiological Antimicrobial effect.

As per the below overview; the Osmolality of Microdacyn60® is almost 2,5x lower than Granudacyn/Veriforte Med

Microdacyn60® vs Granudacyn / Veriforte Med		
Ingredient	Microdacyn60®	Granudacyn / Veriforte Med
Hypochlorous Acid	0,004%* - 0,006%**	0,005%
Sodium Hypochlorite	0,004%* - 0,006%**	0,005%
Osmolality (mOsmol/kg)	13,0	30,7
Average pH	7,0	7,2

solution* / hydrogel**



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Microdacyn₆₀® Wound Care

Antimicrobial Wound-Irrigation Solution –
The Greatest Efficacy.
Maximum Tolerance.

For Treatment of Chronic and Acute Wounds
as well as First- and Second-Degree Burns



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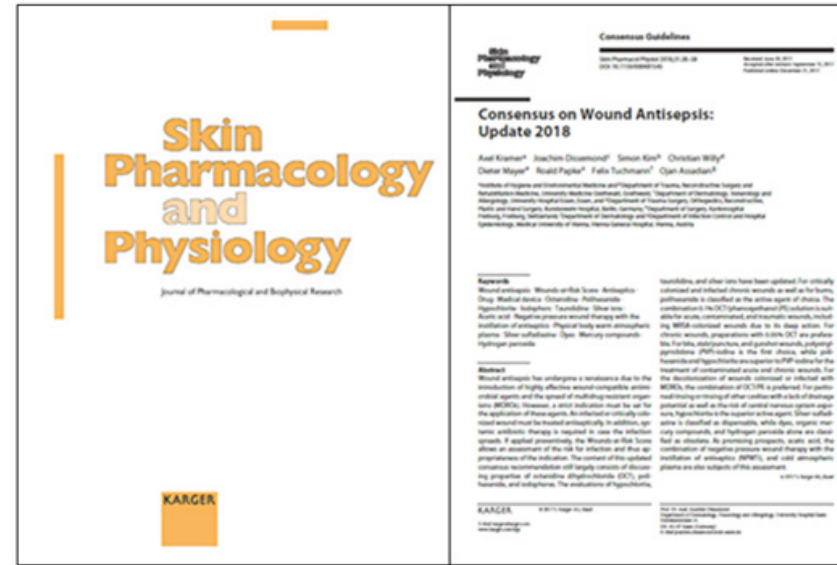
In 2004 “Sonoma Pharmaceuticals” USA (formerly known as “Oculus Innovative Sciences”) was the first company that introduced a revolutionary stable patented HOCl (*hypochlorous acid*) formulation in a bottle



Today “Microdacyn60® Wound Care” with Microcyn® technology occupies a prominent position within the range of Wound Care products

“Microdacyn60® Wound Care”
Evidence based Stable, Safe & Effective
patented HOCl Technology

The Consensus on Wound Antisepsis update 2018’ conducted by a team of respected KOLs acknowledges and recommends the use of **Microdacyn60®** in wound irrigation! (‘The currently used concentration amounts are 0.004% each for NaOCl and HOCl’)



‘Consensus on Wound Antisepsis update 2018’ conclusions;

- ✔ Highly effective against different types of (multi-resistant) bacteria
- ✔ Eradication of multiple categories of spores, aspergilli, fungi and even coated viruses
- ✔ PHMB is (slightly) less effective against biofilm
- ✔ Superiority to PVP-I, OCT and PHMB
- ✔ Non-irritating, non-cytotoxic and non-carcinogenic
- ✔ The only recommended solution for peritoneal lavage

The first choice treatment in the following indications:

- ✔ Decontamination of acute & chronic wounds
- ✔ Central Nervous System tissue exposure under surgeries
- ✔ Wounds with lack of drainage (cavities)

Microdacyn60® uniquely positions against its competitors and strengthens the usage and recommendation to be used in multiple disciplines of surgery

1. Safety

INDEPENT lab tests proof Safety- & Competability compliance on;

- ✔ Bench testing
- ✔ Biocompatibility testing
- ✔ Preclinical animal testing
- ✔ Clinical testing

BIOCOMPATIBILITY STUDIES			
Category	Sub-Category	Standard/method	Result
Toxicity	Genotoxicity	ISO 10993-3:2003	Pass
	Cytotoxicity	ISO 10993-5:1999	Pass
	Acute oral toxicity	ISO 10993-11:1996	Pass
	Acute dermal toxicity	ISO 10993-11:1996	Pass
	Acute inhalation toxicity	ISO 10993-11:1996	Pass
Sensitization	Dermal sensitization	ISO 10993-10:2002	Pass
Irritation	Skin irritation	ISO 10993-10:2002	Pass
	Ocular irritation	ISO 10993-10:2002	Pass

2. Efficacy

INDEPENT lab tests proof Microdacyn60® is;

- ✔ Bactericidal
- ✔ Fungicidal
- ✔ Sporicidal
- ✔ Virucidal

Microorganism	Study Type	Performance
Human Herpes 8 (HHV-8)	In-vitro	>99.9% reduction within 30 seconds
Human Immunodeficiency Virus (HIV-1)	In-vitro	>99.9% reduction within 30 seconds
Human Influenza A Virus (H1N1)	In-vitro	>99.9% reduction within 30 seconds
Human Adenovirus 5 (AdV-5)	In-vitro	>99.9% reduction within 30 seconds
Human Rotavirus (RV)	In-vitro	>99.9% reduction within 30 seconds
Human Herpes Simplex Virus 1 (HSV-1)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 29219)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 43618)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 12228)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10591)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10408)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10561)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10559)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10562)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10560)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10563)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10564)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10565)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10566)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10567)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10568)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10569)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10570)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10571)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10572)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10573)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10574)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10575)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10576)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10577)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10578)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10579)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10580)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10581)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10582)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10583)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10584)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10585)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10586)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10587)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10588)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10589)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10590)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10591)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10592)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10593)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10594)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10595)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10596)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10597)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10598)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10599)	In-vitro	>99.9% reduction within 30 seconds
Staphylococcus aureus (ATCC 10600)	In-vitro	>99.9% reduction within 30 seconds

3. Unique USA technology supported by 52 Patents

- ✔ Unique Chemistry
 - o Superior Hypotonic Solution (Very low concentration of Sodium Chloride)
- ✔ Superior Stability
 - o High Tech manufacturing process” vs competitors’ old school technology guarantees a minimum active ingredients concentration of 60% (even after two years).
- ✔ Unique Mode of Action
 - o Superior Antimicrobial Activity because of stable active ingredients & very low osmolarity
- ✔ Guaranteed quality

