Physical Operating Principle

While the endogenous substance hypochlorous acid (HOCl) affects microorganisms by increasing the cell wall's permeability because of denaturing the proteins and fatty acids of the cell membrane, it does not kill microorganisms.

What destroys microorganisms is caused 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). In effect when a single cell organism gets in contact with a low concentration of salt in solution, the water molecules will move into the cell causing the cell to swell. If Osmolysis continues and becomes excessive the cell will eventually burst and kill the micro-organism.

Osmolysis is induced by a difference between the intracellular (inside micro-organism) and extracellular (surrounding the micro-organism) concentration of salt. The bigger the difference in concentration the greater the effect.

As per the below overview, the concentration of salt (Sodium Chloride) in Microdacyn is between 5x (Hydrogel) and 11x (solution) lower than Granudacyn.
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.

The latest 2018 consensus paper conducted by a team of highly respected KOLs acknowledges and recommends the use of HOCl in wound irrigation.

Results from in vitro and animal tests show:
- Highly effective against different types of (multi-resistant) bacteria
- Eradication of multiple categories of spores, aspergilli, fungi and even coated viruses
- PMMB is (slightly) less effective against biofilm
- Superiority to PVP-I, OCT and PHMB
- HOCl Technology is non-irritating, non-cytotoxic and non-carcinogenic
- HOCl Technology is the only recommended solution for peritoneal lavage

HOCl Technology is 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)

HOCl Technology uniquely positions against its competitors and strengthens the usage and recommendation to be used in multiple disciplines of surgery.

1. Safety
- INDIPENENT lab tests proof Safety- & Competability compliance on:
  - Bench testing
  - Biocompatibility testing
  - Preclinical animal testing
  - Clinical testing

2. Efficacy
- INDIPENENT lab tests proof Microdacyn60® is:
  - Bactericidal
  - Fungicidal
  - Sporicidal
  - Virucidal

3. Unique USA technology supported by 52 Patents
- Unique Chemistry
  - Superior Hypo-osmolar Solution (Very low concentration of Sodium Chloride)
  - Superior Stability
  - 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
  - Superior Antimicrobial Activity because of stable active ingredients & very low osmolarity
- Guaranteed quality

**BIOCOMPATIBILITY STUDIES**

<table>
<thead>
<tr>
<th>Category</th>
<th>Sub-Category</th>
<th>Method</th>
<th>Standard</th>
<th>Result</th>
<th>Reference</th>
</tr>
</thead>
</table>

"Microdacyn60® Wound Care" evidence based Stabil, Safe & Effective HOCl Technology