**Pyoderm® Shampoo**

**Properties:**
- Antibacterial
- Antifungal

**Applications:**
Cleansing shampoo as an aid for the control of bacterial and fungal infections in dogs and cats

**What happens in skin infections?**

**Pyoderm® response: the dual action**

<table>
<thead>
<tr>
<th>TARGET ACTIONS</th>
<th>ACTIVE INGREDIENTS</th>
<th>PROPERTIES</th>
<th>BENEFITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Control of microbial proliferation</td>
<td>Chlorhexidine gluconate (3%)</td>
<td>Large antimicrobial spectrum (25, 26, 28, 29) (Gram + &amp; Gram –, yeasts)</td>
<td>Antimicrobial activity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adapted and efficient formulation (27)</td>
<td>Excellent tolerance</td>
</tr>
<tr>
<td>2. Reduction of skin inflammation</td>
<td>Glycotechnologies</td>
<td>Microbial anti-adhesive effects (5-9)</td>
<td>Antimicrobial activity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reduction of cytokine signalling (10)</td>
<td>Immunomodulatory properties, reduction of inflammation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Natural sugars present in epidermal cell membranes (11, 12)</td>
<td>Respect the skin / microflora</td>
</tr>
</tbody>
</table>
An optimised formula

A formulation for optimal tolerance

- Mild cleansing agents.
- Physiological pH.
- Moisturising agents
- Glycotechnologies strengthen the antimicrobial activity of chlorhexidine while respecting the cutaneous ecosystem balance.
- Chitosanide is a film-forming agent that has healing properties.
- The quality of chlorhexidine formulation (27) provides efficiency on bacteria and yeast at 3% concentration (25-29), with excellent dermal tolerance.

A formulation for deep targeted action in skin

To exert its inhibitory activity on deep microbial infections, some chlorhexidine should penetrate and diffuse into deep skin structures. For this purpose, chlorhexidine molecules are also incorporated, together with monosaccharides, in Non-ionic Spherulites® that favour the flow of active ingredients to their sites of action. (22)

A formulation for long lasting action

- Spherulites provide a progressive release of chlorhexidine and Glycotechnologies onto the skin.
- Chitosanide exerts its film-forming action on the skin and hair surface, thanks to its positive charges. This film keeps active ingredients in contact with target sites.
What are the proofs of Pyoderm® efficacy?

Antimicrobial activity of Pyoderm® versus competitor chlorhexidine shampoos (25)

Activity of chlorhexidine shampoos in vitro against Staphylococcus intermedius, Pseudomonas aeruginosa, Malassezia pachydermatis.

<table>
<thead>
<tr>
<th>% CHLORHEXIDINE</th>
<th>SHAMPOO (diluted to 15)</th>
<th>TIME TO KILL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Staphylococcus</td>
<td>Pseudomonas</td>
</tr>
<tr>
<td></td>
<td>intermedius</td>
<td>aeruginosa</td>
</tr>
<tr>
<td>4%</td>
<td>DVM</td>
<td>&lt; 1 minute</td>
</tr>
<tr>
<td>3%</td>
<td>PYODERM® (Virbac)</td>
<td>&lt; 1 minute</td>
</tr>
<tr>
<td>2.5%</td>
<td>VETRIDERM® (Bayer)</td>
<td>8 minutes</td>
</tr>
<tr>
<td>2%</td>
<td>DVM</td>
<td>&lt; 1 minute</td>
</tr>
</tbody>
</table>

Substantial differences in killing rates, while same apparent chlorhexidine content. Formulation is an important factor.

Antimicrobial activity of Pyoderm® versus a chlorhexidine+miconazole shampoo (26)

Pyoderm® performs equally well as Malaseb®

Pyoderm® clinical efficacy in the treatment of Malassezia dermatitis in dogs (28)

INCLUSION CRITERIA
- Dogs with high cutaneous Malassezia population
- +/- concomitant superficial pyoderma
- No deep pyoderma, parasitic disease, flea allergy dermatitis
- No treatment in the last week

28 dogs, 2 baths per week

D1

D21

6 clinical parameters were scored using a 0-4 scale (absent to severe): pruritus, excoriations, erythema, exudation, keratoseborrheic disorders (KSD) and the total extent of affected body surface.