

## **SALVALAT: Innovative Solution for Mastitis Management**

Salvalat is a product specifically developed for the treatment of subclinical mastitis, aiming to prevent infection chronicity and improve the recovery rate.

In cases of clinical mastitis, Salvalat can be used as an adjunctive therapeutic agent in combination with antibiotic and anti-inflammatory therapy. Its primary action consists of breaking down the bacterial biofilm, enhancing antibiotic efficacy, and improving the therapeutic response.

### **IMPORTANT:**

- Not indicated for peracute mastitis, characterized by persistent fever and toxemia.
- Subclinical mastitis treatment: must be performed within 90-100 days from onset.
- Clinical mastitis treatment: must be performed immediately upon symptom appearance, treating the affected quarter locally in combination with antibiotic and anti-inflammatory therapy.

## **SALVALAT PROTOCOL FOR LACTATING ANIMALS**

### **SUBCLINICAL MASTITIS TREATMENT**

1. Perform a California Mastitis Test (CMT) to identify infected quarters.
2. Completely milk out the animal.
3. Disinfect the teat tip using cotton and alcohol or another appropriate antiseptic.
4. Insert a sterile catheter into the teat sphincter for 6-7 cm, avoiding contamination.
5. Connect the Salvalat aerosol canister and insufflate the content until foam is emitted (indicator of complete filling).
6. After 24 hours, fully discard altered milk. Afterward, milk can be used for consumption.

### **CLINICAL MASTITIS TREATMENT**

- ✓ Completely empty the affected quarter before application.
- ✓ Apply Salvalat following the subclinical mastitis protocol.
- ✓ Simultaneously administer antibiotic and anti-inflammatory treatment, based on farm antibiograms.
- ✓ At the next milking, empty the affected quarter again and continue local antibiotic therapy for the prescribed period.

### **CLINICAL RESULTS**

Reduction in average somatic cell count in treated farms: -70%

Laboratory tests: Salvalat inhibits the growth of multiple pathogens (experimental data attached).

Residues in milk: completely negligible within 24 hours after treatment.

### **SCHEMATIC EXAMPLES AND CLINICAL RESULTS**

Studies conducted on several farms in the Po Valley have demonstrated that using Salvalat resulted in a significant reduction in the average somatic cell count in treated animals' milk.

### **KEY RESULTS:**

- ✓ -70% in the average somatic cell count in treated farms.
- ✓ Improved milk quality, reducing the risk of chronic mastitis.
- ✓ Faster recovery in treated animals, reducing the need for subsequent antibiotic interventions.

SUMMARY TABLE OF RESULTS (TO BE INSERTED WITH FARM DATA):

PARAMETER	PRE-TREATMENT VALUE	POST-TREATMENT VALUE	VARIATION
Average Somatic Cell Count (cells/ml)	1.200.000	360.000	-70%
Subclinical Mastitis Recovery Rate	0%	80%	+80%
Residual Presence in Milk After 24h	Present	Negligible	--

DATA OF JANUARY 2024

N°	CELLS	INFECTED QUARTERS	STATUS	FEBRUARY	MARCH	APRIL	MAY
1652	1723	PS	2 CHECKS	112	18	72	100
1834	2348	AD AS PS	2 CHECKS	354	468	1193	DRY
2035	2412	AD PD	2 CHECKS	1806	20	295	69
2044	2114	AS PD	1 CHECK	311	1586	37	18
2093	2271	PD	1 CHECK	98	27	232	63
2141	5388	AD PS	1 CHECK	335	41	15	97
2143	2541	PD PS	1 CHECK	37	335	32	44
2149	3698	AS	1 CHECK	110	104	9	417
2199	2298	AS PS	3 CHECKS	4114	1946	3070	203
2600	4095	PS	3 CHECKS	392	123	164	145

MARCH - APRIL – MAY

N°	CELLULE	QUARTI INFETTI	STATO	APRILE	MAGGIO
31	2348	4 CHECKS	PD PS	215	14602
152	1528	2 CHECKS	PD	414	1620
1070	1686	2 CHECKS	PD	70	90
1167	2495	1 CHECK	PS	400	222
1220	3301	1 CHECK	AS	96	87
1234	514	4 CHECKS	AS UNSTABLE	16	31
1279	1173	1 CHECKS	AD-PD CALVING	52	18
1291	257	5 CHECKS	PD-PS	ABSENT	ABSENT
1345	1110	3 CHECKS	AS	205	3428
1397	820	3 CHECKS	AS AD PD	1871	1248
1475	904	1 CHECK	AS 1/2 PS 1/2	137	594
1495	1177	1 CHECK	AD PS	424	4177
1624	1729	2 CHECKS	AS PS	2401	234
1728	3274	2 CHECKS	PD	35	329
1740	1115	2 CHECKS	AD	2569	109
1805	2218	1 CHECK	AD AS	337	154
1946	2852	1 CHECK	4/4 1B	90	119
2199	1986	5 CHECKS	PS CHRONIC	3070	203
2346	1386	2 CHECKS	AD AS PD LACTATION START	1341	403
2366	1725	1 CHECK	PS INIZIO LATT.	160	177
2476	1983	1 CHECK	PD HEIFER END LACT.	46	33
2537	1166	1 CHECK	AD HEIFER END LACT.	975	DRY

CELLS	STATUS (APRIL 30, 24)	STATUS	INFECTED QUARTERS	NUMBER OF ANIMALS	23.05.24	COMP	16.07.24
1825	2 CHECKS		PS	1	1482	1482	2219
3507	1 CHECK	HEIFER BEFORE CALVING	4/4	1	95	95	383
470	3 CHECKS		AS	1	112	X	X
755	2 CHECKS		4/4	2	849	849	4866
1176	3 CHECKS		4/4	2	1482	1482	2506
7230	2 CHECKS		AD-AS-PS	2	978	978	2623
3480	1 CHECK		4/4	1	431	431	198
1779	3 CHECKS		AD	1	3890	3890	1830
1418	2 CHECKS		PD-PS	2	2901	X	X
4929	1 CHECK	BEFORE CALVING	4/4	2	767	767	606
447	3 CHECKS		4/4	1	307	307	547
2318	1 CHECK	BEFORE CALVING	PD	1	319	319	51
—	1 CHECK		AD	1	X	X	X
14897	2 CHECKS		PD-PS	2	171	171	815
2526	1 CHECK	BEFORE CALVING	4/4	2	2371	2371	1908
526	3 CHECKS	BEFORE CALVING	AD-PS	2	2403	2403	1238
4518	3 CHECKS	BEFORE CALVING	AS	1	827	827	906

### 2022-2023

#### 1. Malagnino - CR

##### SALVALAT TEST

APPLICATION DATE: 25.10.2023

N°	CELLS	1st CHECK	2nd CHECK	3rd CHECK
84	1116	481	129	73
21	3566	20	875	321
309	677	83	55	71
30	1014	97	97	14

#### 2. Rodigo - MN

##### SALVALAT TEST

APPLICATION DATE: 18.10.2022

N°	CELLS	1st CHECK	2nd CHECK	3rd CHECK
825	3156	822	1425	28
459	3659	31	15	53
662	2129	802	317	171
673	2900	224	230	DRY PERIOD
730	3372	768	416	326
782	3154	786	623	97

#### 3. Carpenedolo - BS

##### SALVALAT TEST

APPLICATION DATE: 13.10.2022

N°	CELLS	1st CHECK	2nd CHECK	3rd CHECK
16	2015	236	138	84
148	4683	963	56	326
291	3500	743	DRY PERIOD	X
329	5100	955	920	1114

4. Revello - CN			
SALVALAT TEST			
APPLICATION DATE: 20.10.2022			
N°	CELLS	1st CHECK	2nd CHECK
839	1909	150	160
751	1500	531	320
829	1377	86	90
5. Spineda - CR			
SALVALAT TEST			
APPLICATION DATE: 15.11.2022			
N°	CELLS	1st CHECK	2nd CHECK
57	868	417	
884	1200	50	
892	1018	DRY PERIOD	
984	1905	103	

### ANTIMICROBIAL ACTIVITY OF SALVALAT

Laboratory studies have demonstrated that Salvalat, at its optimal concentration, effectively inhibits the growth of numerous pathogens responsible for bovine mastitis and other mammary infections.

MICROBIOLOGICAL TESTS CONDUCTED SHOW BACTERIOSTATIC AND BACTERICIDAL ACTION AGAINST:

- ✓ Staphylococcus aureus (one of the main agents of mastitis).
- ✓ Escherichia coli (opportunistic bacterium).
- ✓ Streptococcus uberis (frequent in environmental infections).
- ✓ Enterococcus faecalis (resistant to many antibiotics).
- ✓ Candida albicans (fungal pathogen associated with difficult-to-treat mastitis).

SUMMARY TABLE OF ANTIMICROBIAL ACTIVITY (TO BE INSERTED WITH TEST DATA):

PATHOGEN	INITIAL BACTERIAL LOAD (CFU/ML)	AFTER TREATMENT WITH SALVALAT	% INHIBITION
Staphylococcus aureus	10 <sup>6</sup>	<10	99,99%
Escherichia coli	10 <sup>6</sup>	<10	99,99%
Streptococcus uberis	10 <sup>6</sup>	<10	99,99%
Enterococcus faecalis	10 <sup>6</sup>	<10	99,99%
Candida albicans	10 <sup>6</sup>	<10	99,99%

### RESIDUAL PRESENCE OF SALVALAT IN MILK

Studies conducted by the Micro.B laboratory confirm that the extremely low concentration of Salvalat ensures an insignificant residual presence in milk, making it safe for consumption after treatment.

MICROBIOLOGICAL TEST DATA:

- ✓ Salvalat residues were not detected 24 hours after treatment.
- ✓ No interference with milk quality or standard analytical parameters.
- ✓ Compliance with regulations on residues in dairy products.

**SUMMARY TABLE OF RESIDUAL PRESENCE (TO BE INSERTED WITH TEST DATA):**

ANALYZED PARAMETER	PRE-TREATMENT	AFTER 24 HOURS
Silver Residue (ppm)	-	0,17
Inhibitory Substances in Milk	Present	Absent
Quality Alteration	None	None

Test Report No.: 1806184-002  
 Client: CLUSTERNANOTECH Ltd  
 GB London, N3 1HF  
 LONDON  
 Sampling Date: 11-Dec-18  
 Sample Reception Date: 11-Dec-18  
 Test Start Date: 11-Dec-18  
 Test Completion Date: 21-Dec-18  
 Sample Description: MILK  
 CODE: 550PS - LOT: 10/09/2018  
 Sampling Point: Client  
 Sample Prepared by: Client  
 Sampling Procedure: Performed by the client

Micro-B srl  
 Via Chimica, 256  
 41014 Montebelluna (TV)  
 C.F. 02144660219 P. IVA 02144660219  
 Tel. 0423 712074 Fax 0423 712020  
 Internet: www.micro-b.it e-mail: info@micro-b.it  
 Registro Imprese 186/02144660219 S.R.L. 186/227394  
 Cap. Soc. i.v. € 30.000,00

Laboratório de Análises Clínicas e Microbiológicas

Rapporto di prova n°: 1806184-002 Asola, giovedì 3 gennaio 2019

Committente: CLUSTERNANOTECH LM  
 GB London, N3 1HF

Parametro	Risultato	Incertezza	Unità di misura	Metodo	Limite Min	Limite Max
Argento	0,17	-	mg/Kg	Rapporto ISTISAN 1065/14 Pt. 3.2 Pag. 67 - EPA 821/02/2014		
Iodio	<5	-	mg/Kg	Rapporto ISTISAN 1065/14 Pt. 3.2 Pag. 67 - EPA 821/02/2014		

PARAMETER	RESULT	UNCERTAINTY	UNIT OF MEASUREMENT	METHOD	MIN LIMIT	MAX LIMIT
Silver	0.17	mg/Kg	ISTISAN Reports 1996/34, Sec. 3.2, Pg. 87 + EPA 6010D 2014	—	—	
Iodine	< 5	mg/Kg	ISTISAN Reports 1996/34, Sec. 3.2, Pg. 87 + EPA 6010D 2014	—	—	

**ABSENCE OF INHIBITION IN MILK TREATED WITH SALVALAT**

Tests conducted by the Chimica Casearia laboratory confirm that Salvalat does not exhibit any inhibitory effect, ensuring complete safety for the transformation of milk into dairy products.

**TEST RESULTS:**

- ✓ No inhibition detected 24 hours after treatment.
- ✓ No interference with lactic fermentation in dairy processing.
- ✓ Compliance with quality parameters required by the dairy industry.

**SUMMARY TABLE OF INHIBITION TEST RESULTS:**

ANALYZED PARAMETER	PRE-TREATMENT	AFTER 24 HOURS	EU REGULATIONS
Inhibition Test (Positive/Negative)	Positive	Negative	Negative
Interference with Milk Coagulation	Present	Absent	Absent
Effect on Lactic Bacteria	Altered	Normal	Normal

Test Report: 22PL02949  
 Sampling Date: 26/11/2022  
 Test Report Date: 28/11/2022  
 Sample Collected by: Client  
 Analysis Start Date: 28/11/2022  
 Analysis Completion Date: 28/11/2022  
 Sample Arrival Date: 28/11/2022

TEST	UNIT OF MEASURE	METHOD	INHIBITORY SUBSTANCES
22LT17272	Single cow milk, Al. Action 473	AFNOR DSM 902-03/12	Negative
22LT17273	Single cow milk, Al. Action 476	AFNOR DSM 902-03/12	Negative
22LT17274	Single cow milk, Al. Action 478	AFNOR DSM 902-03/12	Negative
22LT17275	Single cow milk, Al. Action 482	AFNOR DSM 902-03/12	Negative
22LT17276	Single cow milk, Al. Action 523	AFNOR DSM 902-03/12	Negative

## SELECTIVE DRY-OFF WITH SALVALAT ASCIUTTA AND PAPILLA SEAL

The combined use of Salvalat Asciutta and Papilla Seal has been developed to enhance the efficiency of selective dry-off, minimizing the use of antibiotics, in compliance with the new guidelines on antimicrobial resistance control.

### DRY-OFF PROTOCOL

6-7 days before dry-off, it is essential to:

- ✓ Perform a California Mastitis Test (CMT) to assess udder health.
- ✓ Identify positive quarters and review the cow's clinical history:
  - Past cases of mastitis during lactation.
  - Increase in somatic cell count (SCC) during lactation.
  - Bacteriological analysis and antibiograms, if available.

### INTERVENTION STRATEGIES

A) Cows with negative CMT in all quarters

- ✓ Reduce milk production using appropriate farm management strategies.
- ✓ On the dry-off day, repeat the CMT.
- ✓ If CMT remains negative:
  - Disinfect the teat tip with cotton and alcohol.
  - Insert Papilla Seal (1 tube per quarter).
  - Apply a post-dipping protective film for additional protection.
  - (See video for correct application).

B) Cows with positive CMT (< 500,000 cells/ml) without prior mastitis cases

- ✓ Treat positive quarters with Salvalat Asciutta.
- ✓ Gradually reduce milk production.
- ✓ Empty quarters once a day until dry-off.
- ✓ Apply Papilla Seal as described in section A.

C) Cows with positive CMT (> 500,000 cells/ml) and a history of mastitis

- ✓ Treat positive quarters with Salvalat Asciutta.
- ✓ Gradually reduce milk production.
- ✓ Empty quarters once a day until dry-off.
- ✓ Apply an antibiotic dry-off treatment (according to the farm's antibiogram).
- ✓ Apply Papilla Seal as described in section A.
- ✓ If mastitis is chronic, consider systemic antibiotic therapy.

**SALUS DIP: Post-Milking Disinfection and Protection**

Salus Dip is a post-milking disinfectant (post-dipping) designed to ensure optimal teat hygiene and protection after every milking.

- ✓ Film-forming protective action: creates a barrier against environmental pathogens.
- ✓ Manual immersion application: ensures uniform coverage of the product.
- ✓ Visible coloration: allows immediate verification of the treatment.
- ✓ Very low active ingredient concentration: no significant residues in milk, maintaining high-quality dairy production



TEST RESULTS

Parametro	U.M.	Risultato	Metodo
Argento	ppm	< 0,1	UNI EN 13657:2004 + UNI EN 11885:2009

Questo rapporto di prova si riferisce unicamente ai campioni sopra identificati e consegnati al Meta Lab s.r.l. in data 05/07/2023 ed esclude pertanto ogni implicazione legata alle metodiche di campionamento. Questo Rapporto di Prova non può essere riprodotto parzialmente senza l'approvazione scritta da parte di questo laboratorio.

PARAMETER	UNIT	RESULT	METHOD
Silver	ppm	< 0,1	UNI EN 13657:2004 + UNI EN 11885:2009

**DIPPING PRO: Optimized Disinfection for Automated Milking Systems**

Dipping Pro is a post-milking disinfectant (post-dipping) designed to be diluted to an appropriate concentration, specifically developed for use in automated milking systems.

- ✓ Highly effective disinfectant, ideal for automated systems.
- ✓ Does not require a film-forming action, but ensures continuous antimicrobial protection.
- ✓ SynthAg-based formula, reduces bacterial proliferation without negatively impacting the milking environment.
- ✓ Maintains the hygienic condition of teat skin, with negligible bacterial regrowth between milkings.

## Optimization of Milking Hygiene

- ✓ Mechanical cleaning (single-use wipes or sponges) during the next milking removes environmental impurities (dust, bedding).
- ✓ Compatible with cleaning and descaling agents, enhancing cleaning efficiency without the need for additional disinfectants.

## LABORATORY TESTS:

Experimental results demonstrate that Dipping Pro exhibits strong bactericidal action against major pathogens responsible for mammary infections.

TESTED PATHOGEN	% INHIBITION
Staphylococcus aureus	99,99%
Escherichia coli	99,99%
Streptococcus uberis	99,99%
Enterococcus faecalis	99,99%

```

Prova: Esame batteriologico   Tecnica: Microbiologica Metodo di Prova: MP 01/181 rev. 0 - 2012
Sui campioni: 1-6
Dettaglio: Ceppo 01
Risultato: Carica batterica totale: 160.000 UFC/substrato di campionamento., per il campione: 1
Carica batterica totale: 10.000 UFC/substrato di campionamento., per il campione: 2
Carica batterica totale: 10.000 UFC/substrato di campionamento., per il campione: 3
Carica batterica totale: 5.000 UFC/substrato di campionamento., per il campione: 4
Carica batterica totale: 150.000 UFC/substrato di campionamento., per il campione: 5
Carica batterica totale: 10.400 UFC/substrato di campionamento., per il campione: 6
    
```

```

Prova: Esame batteriologico   Tecnica: Microbiologica Metodo di Prova: MP 01/181 rev. 0 - 2012
Sui campioni: 1-6
Risultato: Coliformi: < 10 UFC/substrato di campionamento., per 6 campioni: 1, 2, 3, 4, 5, 6
    
```

```

Prova: Esame batteriologico   Tecnica: Microbiologica Metodo di Prova: MP 01/181 rev. 0 - 2012
Sui campioni: 7-12
Risultato: Coliformi: < 10 UFC/substrato di campionamento., per 6 campioni: 7, 8, 9, 10, 11, 12
    
```

```

Prova: Esame batteriologico   Tecnica: Microbiologica Metodo di Prova: MP 01/181 rev. 0 - 2012
Sui campioni: 7-12
Dettaglio: Ceppo 01
Risultato: Carica batterica totale: 120.000 UFC/substrato di campionamento., per il campione: 7
Carica batterica totale: 120.000 UFC/substrato di campionamento., per il campione: 8
Carica batterica totale: 17.000 UFC/substrato di campionamento., per il campione: 9
Carica batterica totale: 2.000 UFC/substrato di campionamento., per il campione: 10
Carica batterica totale: 150.000 UFC/substrato di campionamento., per il campione: 11
Carica batterica totale: 15.000 UFC/substrato di campionamento., per il campione: 12
    
```

### Test: Bacteriological Examination

Technique: Microbiological

Test Method: MP 01/181 rev. 0 - 2012

Sample Data: 1-6

Details: Strain 01

Result:

- Total bacterial load: 100,000 CFU/sample substrate → for sample: 1
- Total bacterial load: 160,000 CFU/sample substrate → for sample: 2
- Total bacterial load: 10,000 CFU/sample substrate → for sample: 3
- Total bacterial load: 5,000 CFU/sample substrate → for sample: 4
- Total bacterial load: 150,000 CFU/sample substrate → for sample: 5
- Total bacterial load: 10,400 CFU/sample substrate → for sample: 6

### Test: Bacteriological Examination

Technique: Microbiological

Test Method: MP 01/181 rev. 0 - 2012

Sample Data: 1-6

Result:

- Coliforms: < 10 CFU/sample substrate → for samples: 1, 2, 3, 4, 5, 6

### Test: Bacteriological Examination

Technique: Microbiological

Test Method: MP 01/181 rev. 0 - 2012

Sample Data: 7-12

Result:

- Coliforms: < 10 CFU/sample substrate → for samples: 7, 8, 9, 10, 11, 12



Test: Bacteriological Examination  
 Technique: Microbiological  
 Test Method: MP 01/181 rev. 0 - 2012  
 Sample Data: 7-12  
 Result:

- Total bacterial load: 200,000 CFU/sample substrate → for sample: 7
- Total bacterial load: 250,000 CFU/sample substrate → for sample: 8
- Total bacterial load: 350,000 CFU/sample substrate → for sample: 9
- Total bacterial load: 230,000 CFU/sample substrate → for sample: 10
- Total bacterial load: 180,000 CFU/sample substrate → for sample: 11
- Total bacterial load: 15,000 CFU/sample substrate → for sample: 12

SWABS	N o.	CMT - CFU	COLI FOR MS	N o.	AFTER CLEA NING WITH NEW SPON GE	COLIF ORMS	REFER ENCE SWAB	N o.	AFTER CLEANI NG WITH PAPER	COLIF ORMS	REFERE NCE SWAB
On teats at entry 12 hours after post-dipping treatment	1	160.000	<10	2	18.000	<10	1				
	3	32.000	<10	4	5.000	<10	3				
	5	150.000	<10	6	14.000	<10	5				
	7	330.000	<10					7	250.000	<10	7
	9	37.000	<10					9	8.000	<10	9
	11	250.000	<10					11	15.000	<10	11

### PODALIS: Regenerative Treatment for Hoof Lesions

Podalis is a sanitizing and regenerative ointment specifically designed for the treatment of hoof issues in livestock animals.

Its advanced formula, enriched with SynthAg, provides protective and antibacterial action, promoting tissue regeneration and reducing the risk of infections.

- ✓ Regenerative effect: accelerates the healing of hoof lesions.
- ✓ Antibacterial and protective action: the TNT bandage impregnated with SynthAg prevents bacterial regrowth.
- ✓ Ointment formulation: ensures targeted and long-lasting application.

### APPLICATION METHOD

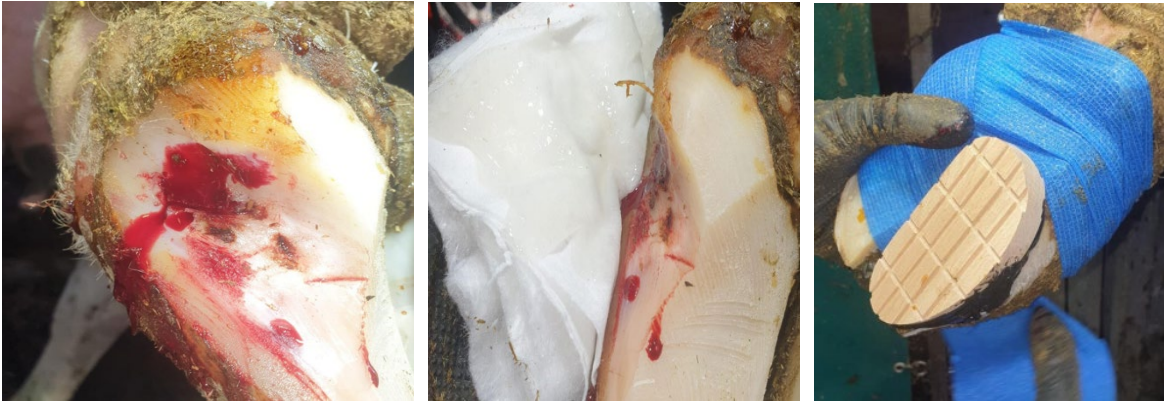
1. Lesion preparation: thoroughly clean the affected area, removing debris and necrotic tissues.
2. Ointment application: evenly apply Podalis over the lesion.
3. Maintenance bandaging: wrap the lesion with the TNT bandage, impregnated with SynthAg.
4. Long-term protection:
  - Keep the bandage for at least 15 days.
  - Apply an orthopedic sole on the contralateral hoof to reduce floor contact and support healing.

### CLINICAL RESULTS

#### EFFICACY OF TREATMENT WITH PODALIS

TIME AFTER TREATMENT	LESION CONDITION
Day 0 (start of treatment)	Open, ulcerative lesion
Day 10	Visible tissue regrowth
Day 21	Advanced regeneration with well-formed keratinized tissue

- ✓ Visible improvement within **10 days**.
- ✓ Complete tissue regeneration in approximately **21 days**.



*The images below illustrate the healing process.*



Ulcerative lesion on the hoof wall on the day of treatment.



Same lesion after **10 days** of treatment: good tissue regrowth is evident, almost completely covering the lesion.



Same lesion after **21 days** of treatment: the healing process appears significantly advanced, with abundant regrowth of keratinized tissue.

*Would you like to expand the product line for dermatological conditions?*



Necrotizing Dermatitis



Results after 20 days of treatment