1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Procapen Injector 3g intramammary suspension for cattle

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Each 10 ml intramammary syringe contains:

Active substance:
Benzylpenicillin, procaine monohydrate 3.0 g
(equivalent to 1.7 g benzylpenicillin)

Excipients:

Qualitative composition of excipients and other constituents
Sodium citrate
Propylene glycol
Povidone K 25
Lecithin
Potassium dihydrogen phosphate
Water for injections

White to yellowish suspension.

3. CLINICAL INFORMATION

3.1 Target species

Cattle (lactating cows)

3.2 Indications for use for each target species

For treatment of udder infection in lactating cows caused by benzylpenicillin-susceptible staphylococci and streptococci.

3.3 Contraindications

Do not use in the cases of
- infections with β-lactamase-producing pathogens
- hypersensitivity to the active substance, other substances of the β-lactam group or to any of the excipients.

3.4 Special warnings

None.

3.5 Special precautions for use

Special precautions for safe use in the target species:
Use of the veterinary medicinal product should be based on susceptibility testing of the bacteria isolated from the animal. If this is not possible, therapy should be based on local (regional, farm level) epidemiological information about susceptibility of the target bacteria. Official, national and regional antimicrobial policies should be taken into account when the product is used.
Use of the veterinary medicinal product deviating from the instructions given in the SPC may increase the prevalence of bacteria resistant to benzylpenicillin and may decrease the effectiveness of treatment

with other beta lactam antimicrobials (penicillins and cephalosporins) due to the potential for cross-resistance.
The feeding of waste milk containing residues of penicillin to calves should be avoided up to the end of the milk withdrawal period (except during the colostral phase), because it could select antimicrobial-resistant bacteria within the intestinal microbiota of the calf and increase the faecal shedding of these bacteria.
Care must be taken when applying the veterinary medicinal product in case of severe udder quarter swelling, milk duct swelling and/or congestion of detritus in the milk duct. Treatment should only be discontinued early after consultation with the veterinarian as this could lead to the development of resistant bacterial strains.

Special precautions to be taken by the person administering the veterinary medicinal product to animals:

- Penicillins and cephalosporins may cause hypersensitivity (allergy) following injection, inhalation, ingestion or skin contact. Hypersensitivity to penicillin may lead to cross reactions to cephalosporins and vice versa. Allergic reactions to these substances may occasionally be serious.
- Do not handle this veterinary medicinal product if you know you are sensitised to penicillins or cephalosporins or if you have been advised not to work with such preparations.
- Handle this veterinary medicinal product with great care to avoid exposure by accidental contact with the skin or eyes. Persons developing a reaction after contact with the veterinary medicinal product should avoid handling the veterinary medicinal product (and other penicillin and cephalosporin containing products) in future.
- Personal protective equipment consisting of gloves should be worn when handling or administering the veterinary medicinal product. Wash exposed skin after use. In case of any eye contact, wash the eyes thoroughly with copious amounts of clean running water.
- If you develop symptoms following exposure such as skin rash, seek medical advice and show the package leaflet or the label to the physician. Swelling of the face, lips or eyes or difficulty with breathing are more serious symptoms and require urgent medical attention.
- Wash hands after use.

Special precautions for the protection of the environment:
Not applicable.

3.6 Adverse events

Cattle (lactating cows):

Rare (1 to 10 animals / 10 000 animals treated):	Anaphylactic reaction[1]
Undetermined frequency (cannot be estimated from the available data):	Allergic reaction[2], anaphylactic shock[2], allergic skin reaction[2]

[1] due to the excipient polyvidone
[2] in animals which are sensitive to penicillin and/or procaine

The animal should be treated symptomatically if an adverse reaction occurs.

Reporting adverse events is important. It allows continuous safety monitoring of a veterinary medicinal product. Reports should be sent, preferably via a veterinarian, to either the marketing authorisation holder or its local representative or the national competent authority via the national reporting system. See also the package leaflet for respective contact details.

3.7 Use during pregnancy, lactation or lay

Pregnancy and lactation:
Use only accordingly to the benefit-risk assessment by the responsible veterinarian.

3.8 Interaction with other medicinal products and other forms of interaction

There is the possibility of antagonism towards antibiotics and chemotherapeutics with quick-onset bacteriostatic effect. The effect of aminoglycosides may be strengthened by penicillins.
Combinations with other veterinary medicinal products for intramammary use should be avoided because of possible incompatibilities.

3.9 Administration route and dosage

Intramammary use:

3.0 g benzylpenicillin, procaine monohydrate per diseased udder quarter, corresponding to: one syringe per diseased quarter every 24 h for 3 consecutive days.
All udder quarters are to be carefully milked immediately prior to each administration. After the teats and the teat tips have been cleaned and disinfected, one syringe is administered per infected udder quarter.

If there is no clear improvement in the condition after 2 days of treatment, the diagnosis should be checked and the treatment changed, if appropriate.
A parenteral antibiotic is also to be administered in cases of mastitis with systemic symptoms.

This veterinary medicinal product should be thoroughly shaken before use.

3.10 Symptoms of overdose (and where applicable, emergency procedures and antidotes)

Not applicable.

3.11 Special restrictions for use and special conditions for use, including restrictions on the use of antimicrobial and antiparasitic veterinary medicinal products in order to limit the risk of development of resistance

Not applicable.

3.12 Withdrawal periods

Meat and offal: 5 days
Milk: 6 days

4. PHARMACOLOGICAL INFORMATION

4.1 ATCvet code:
QJ51CE09

4.2 Pharmacodynamics

Mode of action:
Benzylpenicillin, procaine is a depot penicillin which is not easily dissolved in water and which releases benzylpenicillin and procaine in the organism by means of dissociation. The free benzylpenicillin is primarily effective against gram-positive pathogens including *Staphylococcus* spp. and *Streptococcus* spp. Penicillins have a bactericidal effect on proliferating pathogens by inhibiting cell wall synthesis. Benzylpenicillin is acid-labile and is inactivated by bacterial ß-lactamases.
The penicillin-breakpoint proposed in 2015 by CLSI (Clinical and Laboratory Standards Institute) can be summarised as follows:

	Clinical Breakpoints		
	Susceptible	**Intermediate**	**Resistant**
Staphylococcus spp. (e. g. *S. aureus; coagulase-negative staphylococci*)	≤ 0.12 µg/ml	-	≥ 0.25 µg/ml
Streptococci viridans group (e.g. *S. uberis*)	≤ 0.12 µg/ml	0.25 – 2 µg/ml	≥ 4 µg/ml
Streptococci beta-haemolytic group (e.g. *S. dysgalactiae* and *S. agalactiae)*	≤ 0.12 µg/ml	-	-

Data from various European surveillance programs confirm a very favourable sensibility profile for *S. uberis*, *S. dysgalactiae* and *S. agalactiae* towards penicillin. Some level of resistance is consistently reported for staphylococci, of which beta-lactamase positive strains occur naturally. According to data published in 2018 from a large survey conducted in Belgium, Czech Republic, Denmark, France, Germany, Italy, The Netherlands, Spain and United Kingdom proportion of the strains sensitive to penicillin from the isolates tested was 75 % for *S. aureus* and 71 % for coagulase negative staphylococci, while no resistance was reported for streptococci.

Mechanisms of resistance:
The most frequent mechanism of resistance is production of beta-lactamases (more specifically penicillinase especially in S. aureus), which cleave the beta-lactam ring of penicillins making them inactive. Modification of penicillin-binding proteins is another mechanism of acquired resistance.

4.3 Pharmacokinetics

Benzylpenicillin is partially resorbed from the udder following intramammary use. Only the non-dissociated penicillin ions enter the serum as a result of passive diffusion. As benzylpenicillin is strongly dissociated, only very low serum levels occur. One part (25%) of the intracisternally applied benzylpenicillin becomes irreversibly bound to milk and tissue protein.
Following intramammary use, benzylpenicillin is largely secreted in unchanged form via milk from the treated udder quarter, to a small extent via milk from the untreated quarters and also via the urine.

5. PHARMACEUTICAL PARTICULARS

5.1 Major incompatibilities

In the absence of compatibility studies, this veterinary medicinal product must not be mixed with other veterinary medicinal products.

5.2 Shelf life

Shelf-life of the veterinary medicinal product as packaged for sale: 3 years
Shelf life after first opening the immediate packaging: use immediately.

5.3 Special precautions for storage

Store in a refrigerator (2°C – 8°C).
Protect from light.

5.4 Nature and composition of immediate packaging

White linear low-density polyethylene intramammary syringes of 10 ml in a cardboard box.

Pack size:
24 x 10 ml

5.5 Special precautions for the disposal of unused veterinary medicinal products or waste materials derived from the use of such products

Medicines should not be disposed of via wastewater or household waste.

Use take-back schemes for the disposal of any unused veterinary medicinal product or waste materials derived thereof in accordance with local requirements and with any national collection systems applicable to the veterinary medicinal product concerned.

6. NAME OF THE MARKETING AUTHORISATION HOLDER

aniMedica GmbH

7. MARKETING AUTHORISATION NUMBER(S)

VPA10826/019/001

8. DATE OF FIRST AUTHORISATION

27/03/2015

9. DATE OF THE LAST REVISION OF THE SUMMARY OF THE PRODUCT CHARACTERISTICS

16/05/2025

10. CLASSIFICATION OF VETERINARY MEDICINAL PRODUCTS

Veterinary medicinal product subject to prescription.

Detailed information on this veterinary medicinal product is available in the Union Product Database (https://medicines.health.europa.eu/veterinary).