

## SUMMARY OF PRODUCT CHARACTERISTICS

### 1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Banacep Vet 20 mg film-coated tablets for dogs

### 2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Each tablet contains:

#### Active substance:

Benazepril .....18.42 mg  
(equivalent to Benazepril Hydrochloride 20 mg)

#### Excipients:

Qualitative composition of excipients and other constituents	Quantitative composition if that information is essential for proper administration of the veterinary medicinal product
Iron oxide yellow (E 172)	0.117 mg
Iron oxide red (E 172)	0.014 mg
Iron oxide black (E 172)	0.004 mg
Titanium dioxide (E 171)	1.929 mg
Cellulose microcrystalline	
Lactose monohydrate	
Povidone	
Maize starch	
Silica colloidal anhydrous	
Magnesium stearate	
Hypromellose	
Macrogol 8000	

Beige oblong biconvex film-coated divisible tablets..

### 3. CLINICAL INFORMATION

#### 3.1 Target species

Dogs.

### 3.2 Indications for use for each target species

Dogs, weighing more than 20 kg bw:  
Treatment of congestive heart failure.

### 3.3 Contraindications

Do not use in cases of hypersensitivity to the active substance or to any of the excipients.  
Do not use in cases of hypotension, hypovolaemia, hyponatraemia or acute renal failure.  
Do not use in cases of cardiac output failure, due to aortic or pulmonary stenosis.  
Do not use during pregnancy or lactation (see section 3.7).

### 3.4 Special warnings

None

### 3.5 Special precautions for use

Special precautions for safe use in the target species:

No evidence of renal toxicity to benazepril has been observed in dogs. However, as is routine in cases of chronic renal insufficiency, it is recommended to monitor plasma creatinine, urea and erythrocyte counts during therapy.

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

Wash hands after use.

In case of accidental oral ingestion, seek medical advice immediately and show the label or the package leaflet to the physician.

Pregnant women should take special care to avoid accidental oral exposure, because angiotensin converting enzyme (ACE) inhibitors have been found to affect the unborn child during pregnancy in humans.

Special precautions for the protection of the environment:

Not applicable.

### 3.6 Adverse events

Undetermined frequency (cannot be estimated from the available data):	Vomiting Incoordination Fatigue Elevated creatinine*
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\*In dogs with chronic kidney disease, at the start of therapy.

A moderate increase in plasma creatinine concentrations following administration of ACE inhibitors is compatible with the reduction in glomerular hypertension induced by these agents and is therefore not necessarily a reason to stop therapy in the absence of other signs.

In double-blind clinical trials in dogs with congestive heart failure, the veterinary medicinal product was well tolerated with an incidence of adverse reactions lower than observed in placebo-treated dogs.

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 the package leaflet for respective contact details.

### **3.7 Use during pregnancy lactation or lay**

#### Pregnancy and lactation:

Do not use during pregnancy or lactation.

The safety of the veterinary medicinal product has not been established in breeding, pregnant or lactating dogs.

Embryotoxic effects (foetal urinary tract malformation) were seen in trials with laboratory animals (rats) at maternally non-toxic doses.

### **3.8 Interaction with other medicinal products and other forms of interaction**

In dogs with congestive heart failure, the veterinary medicinal product has been given in combination with digoxin, diuretics, pimobendan and anti-arrhythmic veterinary medicinal products without demonstrable adverse interactions.

In humans, the combination of ACE inhibitors and Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) can lead to reduced anti-hypertensive efficacy or impaired renal function. The combination of the veterinary medicinal product and other anti-hypertensive agents (e.g. calcium channel blockers,  $\beta$ -blockers or diuretics), anaesthetics or sedatives may lead to additive hypotensive effects. Therefore, concurrent use of NSAIDs or other medications with a hypotensive effect should be considered with care. Renal function and signs of hypotension (lethargy, weakness etc) should be monitored closely and treated as necessary.

Interactions with potassium preserving diuretics like spironolactone, triamterene or amiloride cannot be ruled out. It is recommended to monitor plasma potassium levels when using the veterinary medicinal product in combination with a potassium sparing diuretic because of the risk of hyperkalaemia.

### 3.9 Administration route and dosage

Oral use.

The veterinary medicinal product should be given orally once daily, with or without food. The duration of treatment is unlimited.

The veterinary medicinal product should be administered at a minimum dose of 0.25 mg (range 0.25-0.5) benazepril hydrochloride/kg body weight once daily, according to the following table:

Weight of dog (kg)	Banacep Vet 20 mg Film-Coated Tablet	
	Standard dose	Double dose
>20 - 40	0.5 tablet	1 tablet
>40 - 80	1 tablet	2 tablet

The dose may be doubled, still administered once daily, to a minimum dose of 0.5 mg/kg (range 0.5 – 1.0), if judged clinically necessary and advised by the veterinary surgeon.

### 3.10 Symptom of overdose (and where applicable, emergency procedures and antidotes):

The veterinary medicinal product reduced erythrocyte counts in normal dogs when dosed at 150 mg/kg body weight once daily for 12 months, but this effect was not observed at the recommended dose during clinical trials in dogs.

Transient reversible hypotension may occur in cases of accidental overdose. Therapy should consist of intravenous infusion of warm isotonic saline.

### 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

### 3.12 Withdrawal periods

Not applicable.

## 4. PHARMACOLOGICAL INFORMATION

### 4.1. ATCvet code: QC09AA07

### 4.2 Pharmacodynamics

Benazepril hydrochloride is a prodrug hydrolysed in vivo to its active metabolite, benazeprilat.

Benazeprilat is a highly potent and selective inhibitor of ACE, thus preventing the conversion of inactive angiotensin I to active angiotensin II, and thereby also reducing synthesis of aldosterone. Therefore, it blocks effects mediated by angiotensin II and

aldosterone, including vasoconstriction of both arteries and veins, retention of sodium and water by the kidney and remodelling effects (including pathological cardiac hypertrophy and degenerative renal changes).

The veterinary medicinal product causes long-lasting inhibition of plasma ACE activity, with more than 95% inhibition at peak effect and significant activity (>80% in dogs) persisting for 24 hours after dosing.

The veterinary medicinal product reduces the blood pressure and volume load on the heart in dogs with congestive heart failure.

### **4.3 Pharmacokinetics**

After oral administration of benazepril hydrochloride, peak levels of benazepril are attained rapidly ( $T_{max}$  0.5 hour in dogs) and decline quickly as the active substance is partially metabolized by liver enzymes to benazeprilat. The systemic bioavailability is incomplete, (~13% in dogs) due to incomplete absorption (38% in dogs) and first pass metabolism.

In dogs, peak benazeprilat concentrations ( $C_{max}$  of 37.6 ng/ml after a dose of 0.5 mg/kg benazepril hydrochloride) are achieved with a  $T_{max}$  of 1.25 hours.

Benazeprilat concentrations decline biphasically: the initial fast phase ( $t_{1/2}$  = 1.7 hours in dogs) represents elimination of free drug, while the terminal phase ( $t_{1/2}$  = 19 hours in dogs) reflects the release of benazeprilat that was bound to ACE, mainly in the tissues. Benazepril and benazeprilat are extensively bound to plasma proteins (85-90%), and in tissues are found mainly in the liver and kidney.

There is no significant difference in the pharmacokinetics of benazeprilat when benazepril hydrochloride is administered to fed or fasted dogs. Repeated administration of the veterinary medicinal product leads to slight bioaccumulation of benazeprilat ( $R=1.47$  in dogs with 0.5 mg/kg), steady state being achieved within a few days (4 days in dogs).

Benazeprilat is excreted 54% via the biliary and 46% via the urinary route in dogs. The clearance of benazeprilat is not affected in dogs with impaired renal function and therefore no adjustment of the veterinary medicinal product dose is required in cases of renal insufficiency.

## **5. PHARMACEUTICAL PARTICULARS**

### **5.1 Major incompatibilities**

Not applicable

### **5.2 Shelf-life**

Shelf life of the veterinary medicinal product as packaged for sale: 3 years

Shelf-life of tablet halves: 24 hours

### **5.3 Special precautions for storage**

Do not store above 25°C.

Store in a dry place

Protect from light

Return any halved tablet to the open blister space and use within 1 day. The blister pack should be inserted back into the cardboard box.

### **5.4 Nature and composition of immediate packaging:**

Blister made of clear film of PVC/PE/PVDC and aluminium film containing 14 tablets.

Box with:

- 1 blister (14 tablets)
- 2 blisters (28 tablets)
- 4 blisters (56 tablets)
- 10 blisters (140 tablets)

Not all pack size may be marketed.

### **5.5 Special precautions for the disposal of unused veterinary medicinal product 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**

Laboratorios Calier, S.A.  
C/Barcelones 26 (Pla del Ramassa)  
08520 Les Franqueses del Valles  
Spain

## **7. MARKETING AUTHORISATION NUMBER**

Vm 20634/3005

## **8. DATE OF THE FIRST AUTHORISATION**

17 October 2011

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

June 2024

## 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>).

*Gavin Hall*

Approved 22 June 2024