# Summary of Product Characteristics

## 1 NAME OF THE VETERINARY MEDICINAL PRODUCT

Vasotop 10.0 mg tablets

## 2 QUALITATIVE AND QUANTITATIVE COMPOSITION

**Active substance:**
1 tablet of Vasotop P 10 mg contains: 10 mg ramipril

**Excipients:**
Colourant: Red ferric oxide (E172): 1.0 mg

For the full list of excipients, see section 6.1.

## 3 PHARMACEUTICAL FORM

Tablet

Brownish red oblong tablet with dark spots and a score line on both sides.
Embossing: One side: V on both sides of the score line.
The tablets can be divided into equal halves.

## 4 CLINICAL PARTICULARS

### 4.1 Target Species

Dogs

### 4.2 Indications for use, specifying the target species

For treatment of congestive heart failure (according to New York Heart Association (NYHA) classification grade II, III & IV) caused by valvular insufficiency due to chronic degenerative valvular heart disease (endocardiosis) or cardiomyopathy, with or without adjunct therapy with the diuretic furosemide and/or the cardiac glycosides digoxin or methyldigoxin.

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|---|---|
| II | Fatigue shortness of breath, coughing etc. become evident when ordinary exercise is exceeded. Ascites may appear at this stage. |
| III | Comfortable at rest, but exercise capacity is minimal |
| IV | No capacity for exercise. Disabling clinical signs are present even at rest |

In patients treated concurrently with the product and furosemide the dose of the diuretic can be reduced to achieve the same diuretic effect as treatment with furosemide alone.

### 4.3 Contraindications

Do not use in any dog with haemodynamically relevant stenosis (e.g. aortic stenosis, mitral valve stenosis) or obstructive hypertrophic cardiomyopathy.
Do not use in case of hypersensitivity to the active substance or to any of the excipients.

### 4.4 Special warnings for each target species

None.

**4.5 Special precautions for use**

**Special precautions for use in animals**
The 10 mg tablet should only be used in dogs with a bodyweight over 20 kg.
If signs of apathy or ataxia (potential signs of hypotension) occur during treatment with the product, the drug should be discontinued and treatment resumed at 50% of the original dose once symptoms have subsided.
The use of ACE inhibitors in dogs with hypovolaemia/dehydration (e.g. as a result of diuretic treatment, vomiting or diarrhoea) can lead to acute hypotension. In such cases the fluid and electrolyte balance should be restored immediately and treatment with this product suspended until it has been stabilised.
In patients at risk of hypovolaemia the product should be introduced gradually over one week (starting with half the normal dose).
1 - 2 days before and after commencement of treatment with ACE inhibitors the patient's hydration status and renal function should be checked. This is also necessary after the Vasotop dose has been increased or if a diuretic is given concurrently.
Use according to the benefit/risk assessment in dogs with renal and hepatic failures.
In dogs with kidney problems renal function should be monitored during therapy with the product.

**Special precautions to be taken by the person administering the veterinary medicinal product to animals**
Wash hands after use. In case of accidental ingestion seek immediately medical advice and show the package leaflet or the label to the physician.

**4.6 Adverse reactions (frequency and seriousness)**

At the start of treatment with ACE inhibitors or after a dosage increase, reduced blood pressure can occur in rare cases, which may manifest itself by fatigue, lethargy or ataxia. In such cases treatment should be discontinued until the patient's condition has returned to normal and then resumed with 50% of the original dose. As high doses of diuretics can also lead to a fall in blood pressure, the concurrent administration of diuretics in the early phase of treatment with ACE inhibitors should be avoided in these patients.

The frequency of adverse reactions is defined using the following convention:
- very common (more than 1 in 10 animals treated displaying adverse reaction(s))
- common (more than 1 but less than 10 animals in 100 animals treated)
- uncommon (more than 1 but less than 10 animals in 1,000 animals treated)
- rare (more than 1 but less than 10 animals in 10,000 animals treated)
- very rare (less than 1 animal in 10,000 animals treated, including isolated reports).

**4.7 Use during pregnancy, lactation or lay**

As no data are available on the use of the product during pregnancy and lactation, the product should not be used in pregnant and lactating bitches.

**4.8 Interaction with other medicinal products and other forms of interactions**

Both diuretics and a low-sodium diet potentiate the action of ACE inhibitors by activating the renin-angiotensin-aldosterone system (RAAS). Large doses of diuretics and a low-sodium diet should therefore be avoided during treatment with ACE inhibitors in order to prevent hypotension (with symptoms such as apathy, ataxia and more rarely syncope or acute renal failure).
The concomitant administration of potassium or potassium-sparing diuretics should be avoided because of the risk of hyperkalaemia.

**4.9 Amounts to be administered and administration route**

The therapeutic dose in the dog is a single daily oral administration of 0.125 mg ramipril per kg body weight (1 tablet Vasotop P 10 mg per 80 kg bodyweight).
To ensure accurate dosing, each individual should be carefully weighed before calculating the dose.
Treatment should always be started with this lowest recommended dose. The dose should only be increased if the animal does not respond to the recommended initial dosage of 0.125 mg ramipril per kg bodyweight.
Depending on the severity of the pulmonary congestion in patients with cough or pulmonary oedema, the dose may be increased after 2 weeks to 0.25 mg ramipril per kg BW and day.

**4.10 Overdose (symptoms, emergency procedures, antidotes), if necessary**

Oral doses of up to 2.5 mg ramipril per kg bodyweight (10-times the recommended highest dose) have been well tolerated in healthy young dogs.
Hypotension may occur as a symptom of overdose with signs of apathy and ataxia.

**4.11 Withdrawal period(s)**

Not applicable.

**5 PHARMACOLOGICAL or IMMUNOLOGICAL PROPERTIES**

Pharmacotherapeutic group: ACE Inhibitors
ATCvet code: QC 09 AA 05

**5.1 Pharmacodynamic properties**

Ramipril is hydrolysed by esterases in the liver to its active metabolite ramiprilat. Ramiprilat inhibits the enzyme dipeptidylcarboxypeptidase I, also called angiotensin-converting enzyme (ACE). This enzyme catalyses the conversion of angiotensin I to angiotensin II in the blood plasma and endothelia and the breakdown of bradykinin. As angiotensin II has a potent vasoconstrictive action, while bradykinin is a vasodilator, the reduced formation of angiotensin II and the inhibition of bradykinin breakdown lead to vasodilation.
In addition, plasma angiotensin II causes the release of aldosterone (in the renin-angiotensin-aldosterone system - RAAS). Ramiprilat therefore also reduces the secretion of aldosterone. This leads to an increase in the serum potassium concentration.
The inhibition of tissue ACE causes a reduction of local angiotensin II, especially in the heart, and enhances the action of bradykinin. Angiotensin II induces cell division in smooth muscle, while bradykinin causes a local increase in prostacyclins (PGI2) and NO, which in turn inhibit the proliferation of smooth muscle. These two synergistic effects of local ACE inhibition are synonymous with a reduction of myotropic factors and lead to a marked reduction in the proliferation of smooth muscle cells in cardiac muscle and blood vessels. Ramipril thus prevents or substantially reduces myogenic hypertrophy in congestive heart failure (CHF) and leads to a reduction in peripheral resistance.
The plasma ACE activity was measured as a criterion of the pharmacodynamic action of ramipril. Following oral administration of the drug a rapid and significant inhibition of this activity occurs, which then gradually rises again during the interval between doses, eventually returning to 50 % of the baseline value at 24 hours post administration.
Treatment with ramipril improves the haemodynamic status of patients with congestive heart failure, the associated symptoms and the prognosis. In addition, ramipril reduces the mortality rate in patients with persistent or transient heart failure following an acute myocardial infarction (man, dog).

**5.2 Pharmacokinetic particulars**

Ramipril is rapidly absorbed in the gastrointestinal tract after oral administration and hydrolysed in the liver to the active metabolite ramiprilat. The relative bioavailability of the different tablets was documented and ranged from 87.9 to 97.7%.
Metabolism studies in dogs with 14C-labelled ramipril show that the active substance is distributed rapidly and extensively into the various tissues.
Following oral administration of 0.25 mg/kg BW ramipril to dogs, maximum ramiprilat concentrations occur on average after 1.2 hours (tablet). The mean of these peak concentrations is 18.1 ng/ml (tablet).
No cumulative effects were observed.

**6 PHARMACEUTICAL PARTICULARS**

**6.1 List of excipients**

Hydroxypropylmethylcellulose
Pregelatinised starch
Microcrystalline cellulose
Sodium stearyl fumarate
Red ferric oxide (E172)
Artificial powdered beef flavour
Silica colloidal anhydrous

**6.2 Major incompatibilities**

Not applicable.

**6.3 Shelf-life**

Shelf life of the veterinary medicinal product as packaged for sale: 2 years.

**6.4 Special precautions for storage**

Do not store above 30°C.
Store in a dry place.
After each opening, replace the cap tightly.
Do not remove the desiccant capsule.

**6.5 Nature and composition of immediate packaging**

15 mL HD polyethylene containers containing 28 tablets closed by LD polypropylene tamper-evident child resistant screw cap.
A desiccant capsule is inserted in the cap.
Box of 1, 3 or 6 containers.
Not all pack sizes may be marketed.

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

Any unused veterinary medicinal product or waste materials derived from such veterinary medicinal products should be disposed of in accordance with local requirements.

**7 MARKETING AUTHORISATION HOLDER**

Intervet Ireland Limited
Magna Drive
Magna Business Park, Citywest Road
Dublin 24
Ireland

**8 MARKETING AUTHORISATION NUMBER(S)**

VPA10996/138/005

**9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION**

Date of last renewal: 05 December 2008

**10 DATE OF REVISION OF THE TEXT**

December 2021