



**College ter Beoordeling van Geneesmiddelen / Medicines Evaluation Board**

**Graadt van Roggenweg 500  
3531 AH Utrecht  
The Netherlands**

**MUTUAL RECOGNITION PROCEDURE**

**PUBLICLY AVAILABLE ASSESSMENT REPORT FOR A VETERINARY  
MEDICINAL PRODUCT**

**Vasotop P 10 mg tablet for dogs**

**Juni 2020**

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Intervet International B.V.	MRP
	Publicly available assessment report

## MODULE 1

### PRODUCT SUMMARY

EU Procedure number	NL/V/0245/005
Name, strength and pharmaceutical form	Vasotop P 10 mg tablet for dogs
Applicant	Intervet Nederland bv Wim de Körverstraat 35 Postbus 50 5830 AB Boxmeer
Active substance(s)	Ramipril
ATC Vetcode	QC09AA05
Target species	Dog
Indication for use	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 methyl digoxin.

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## **MODULE 2**

The Summary of Product Characteristics (SPC) for this product is available on the Heads of Veterinary Medicines Agencies website (<http://www.HMA.eu>).

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## MODULE 3

### PUBLIC ASSESSMENT REPORT

Legal basis of original application	Application for extension (DE/V/0103/004-05/E004)
Date of completion of the original mutual recognition procedure	23 <sup>rd</sup> March 2005
Date product first authorised in the Reference Member State (MRP only)	30 September 2004
Concerned Member States for original procedure	AT, BE, DE (former RMS), EL, IE, DK, FI, IT, LU, ES, NO, PT

Product is withdrawn in these member states

#### GENERAL

The applicant applied for the extension of the marketing authorisation to two additional tablet strengths, i.e. to Vasotop 0.625 mg tablets and to Vasotop 10 mg tablets for veterinary use. According to Article 2 of Commission Regulation (EC) No 1084/2003 this extension is to be examined in accordance with the procedure referred to in Article 21 of Directive 2001/82/EC.

Marketing authorisations for these tablets have been granted in Germany on September, 30, 2004 under the German reference numbers 400 183.03.00 (Vasotop 0.625 mg) and 400.183.04.00 (Vasotop 10 mg)

#### I. SCIENTIFIC OVERVIEW

The product is produced and controlled using validated methods and tests, which ensure the consistency of the product released on the market.

It has been shown that the product can be safely used in the target species; the slight reactions observed are indicated in the SPC.

The product is safe for the user and for the environment, when used as recommended. Suitable warnings and precautions are indicated in the SPC.

The efficacy of the product was demonstrated according to the claims made in the SPC.

The overall risk/benefit analysis is in favour of granting a marketing authorisation.

#### II. QUALITY ASPECTS

##### A. *Qualitative and quantitative particulars*

The product contains 10 mg ramipril and the following excipients:

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

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Silica colloidal anhydrous

The container/closure system is a 15 mL HD polyethylene container containing 28 oblong tablets closed by LD polypropylene tamper evident child resistant screw cap. A desiccant capsule is inserted in the cap.

The choice of the formulation and presence of preservative are justified.

The product is an established pharmaceutical form and its development is adequately described in accordance with the relevant European guidelines.

### ***B. Method of Preparation of the Product***

The product is manufactured fully in accordance with the principles of good manufacturing practice at a licensed manufacturing site.

The product is manufactured in accordance with the European Pharmacopoeia and relevant European guidelines.

### ***C. Control of Starting Materials***

The active substance is Ramipril, an established active substance. The active substance is manufactured in accordance with the principles of good manufacturing practice.

The active substance specification is considered adequate to control the quality of the material. Batch analytical data demonstrating compliance with this specification have been provided.

There are no substances within the scope of the TSE Guideline present or used in the manufacture of this product.

### ***D. Control on intermediate products***

The tests performed during production are described and the results of 3 consecutive runs, conforming to the specifications, are provided.

### ***E. Control Tests on the Finished Product***

The finished product specification controls the relevant parameters for the pharmaceutical form. The tests in the specification, and their limits, have been justified and are considered appropriate to adequately control the quality of the product.

Satisfactory validation data for the analytical methods have been provided.

Batch analytical data from the proposed production site have been provided demonstrating compliance with the specification.

### ***F. Stability***

Stability data on the active substance have been provided in accordance with applicable European guidelines, demonstrating the stability of the active substance when stored under the approved conditions.

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Stability data on the finished product have been provided in accordance with applicable European guidelines, demonstrating the stability of the product throughout its shelf life when stored under the approved conditions.

### **G. Other Information**

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

## **III. SAFETY AND RESIDUES ASSESSMENT (PHARMACO-TOXICOLOGICAL)**

### **III.A Safety Testing**

#### **Pharmacological Studies**

The applicant has conducted studies / has provided bibliographical data which show that Ramipril is hydrolysed by esterases in the liver to its active metabolite ramiprilat, which acts by inhibiting the enzyme dipeptidylcarboxypeptidase I (also called angiotensin-converting enzyme (ACE)), which catalyses the conversion of angiotensin I to angiotensin II 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.

The applicant has also has provided bibliographical data which show 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 ranged from 87.9 to 97.7%. Rampiril is rapidly and extensively distributed into the various tissues and maximum ramiprilat concentrations occur on average after 1.2 hours (tablet), with a mean peak concentration of 18.1 ng/ml (tablet).

#### **Toxicological Studies**

The applicant has provided bibliographical data which show the following:

- Single Dose Toxicity

Oral LD<sub>50</sub> in rats and mice is higher than 10 000 mg/kg bodyweight

Oral LD<sub>50</sub> in dogs is higher than 1000 mg/kg bodyweight

Intra-venous LD<sub>50</sub> in female rats is 600 mg/kg bodyweight and 700 mg/kg bodyweight in male rats

Intra-venous LD<sub>50</sub> in mice is 1200 mg/kg bodyweight

In mice dose-dependent decreased spontaneous activity, crouching and slightly increased breathing rate occurred at all dose levels. In rats only slightly reduced spontaneous activity occurred.

Slightly reduced spontaneous activity occurred in dogs at 1000 mg/kg bodyweight and no differences in acute toxicity between males and females occurred.

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- Repeated Dose Toxicity

NOAEL in dogs in a study with oral submission of ramipril for 12 months was 2.5 mg/kg bodyweight/day.

Dose-dependent effects reported included increased circulation concentrations of urea and creatinine, hyperplasia of renal juxta-glomerular cells, mild anaemia, slight neutrophilia, slight lymphopenia and a slight leucopenia.

- Reproductive Toxicity, including Teratogenicity:

No effects were noticed in embryotoxicity/foetotoxicity studies performed in rat, rabbit, dog and monkey.

### **Other Studies**

The applicant has conducted additional studies in cats which show that there were no significant differences between placebo and treated cats with respect to body weight and food consumption. No drop in blood pressure in cats treated with 5 times the RTD (0.625 mg/kg) was recorded and no changes in haematological and biochemical parameters, with exception of triglycerides, were observed. Lower plasma triglycerides concentrations were recorded for cats treated with 3 times the RTD (0.375 mg/kg) compared with cats that received the recommended starting dose (0.125 mg/kg). This shows that the product is well tolerated in cats and is devoid of toxic effects.

### **Observations in Humans**

The applicant has provided information which show that no or only very limited effects in humans will be triggered by accidental ingestion of the product. The most likely adverse reaction would be a transient and reversible hypotension.

### **User Safety**

The applicant has provided a user safety assessment in compliance with the relevant guideline which shows that no special risk management is necessary for professional and non-professional users.

Warnings and precautions as listed on the product literature are adequate to ensure safety to users of the product.

### **Environmental Risk Assessment**

A Phase I environmental risk assessment (ERA) was provided according to the CVMP/VICH guidelines.

#### **Phase I:**

The environmental risk assessment can stop in Phase I and no Phase II assessment is required because The veterinary medicinal product will only be used in non-food animals.

## **IV. CLINICAL ASSESSMENT (EFFICACY)**

### **IV.A Pre-Clinical Studies**

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## ***Pharmacology***

The applicant has provided bibliographical data to show that ramipril is a potent ACE inhibitor when administered orally as tablets and provides a rapid and sustained suppression of ACE activity at a dose as low as 0.125 mg/kg bodyweight following both single and repeated administrations. Following oral administration, ramipril is rapidly converted into its biologically active metabolite ramiprilat with peak concentrations about 2h following oral administration. Steady state concentrations of ramiprilat are reached by the second to the fourth dose and ACE inhibition is maintained for 24h at the lowest dose rate (0.125 mg/kg bodyweight once daily). Administration of the product at or around feeding does not significantly alter the pharmacokinetics of ramipril or ramiprilat.

Excretion pattern is predominantly faecal in all target species.

## ***Tolerance in the Target Species of Animals***

The applicant has conducted a target animal tolerance study using multiples of the recommended dose in the target species. All doses were administered once daily by oral submission for one week.

Parameters evaluated were physical performance, heart and respiratory rates and plasma ACE-activity at rest and after 5 and 10 min exercise on the treadmill, plasma renin concentration and -activity, plasma electrolytes (sodium, calcium, magnesium, potassium) and plasma catecholamines.

Minimal changes were seen during this study.

The product literature accurately reflects the type and incidence of adverse effects which might be expected.

## ***IV.B Clinical Studies***

### ***Field Trials***

The applicant has provided bibliographical data which show that enalapril and ramipril were equivalent regarding improvement of NYHA classes, dyspnoea, activity and pulmonary oedema. Enalapril gave better results for coughing while ramipril gave better results for general demeanour, but tests for superiority failed for both parameters. Tolerance to both products was rated as good.

This trial was designed as a multicentre, randomised, positive controlled, double blinded field trial, which tested the therapeutic equivalence between the test drug ramipril and the reference drug enalapril in the treatment of dogs with chronic heart failure (NYHA classification II, III or IV). 151 dogs (99 males and 52 females) of different breeds, age and weight were included. 110 of these dogs showed heart failure due to chronic valvular disease (CVD) and 39 dogs suffered from dilated cardiomyopathy (DCM). 20 dogs from 151 were withdrawn from the trial pre- and post-admission. Duration of the study treatment period was 8 weeks.

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## **V . OVERALL CONCLUSION AND BENEFIT– RISK ASSESSMENT**

The data submitted in the dossier demonstrate that when the product is used in accordance with the Summary of Product Characteristics, the risk benefit profile for the target species is favourable and the quality and safety of the product for humans and the environment is acceptable.

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## MODULE 4

### POST-AUTHORISATION ASSESSMENTS

The SPC and package leaflet may be updated to include new information on the quality, safety and efficacy of the veterinary medicinal product. The current SPC is available on the Heads of Veterinary Medicines Agencies website ([www.HMA.eu](http://www.HMA.eu)).

This section contains information on significant changes which have been made after the original procedure which are important for the quality, safety or efficacy of the product.

Summary of change	Section updated	Approval date
Renewal – DE as RMS (DE/V/0103/005/R/006)	NA	17 <sup>th</sup> April 2009
Change of the specification at release and at the end of shelf life regarding degradation product (DE/V/0103/005/II/009)	NA	19 <sup>th</sup> May 2009
Change in the name and/or address of the MAH in PT (DE/V/0103/005/IA/010)	NA	1 <sup>st</sup> December 2009
Change of specification limit for total impurities of the finished product as a consequence of variation DE/V/001-005/II/009 (DE/V/0103/005/IB/011)	Module 3 II.E	6 <sup>th</sup> August 2010
Transfer of RMS from DE (DE/V/0103/005) to NL (NL/V/0245/005)	Module 1	27 <sup>th</sup> November 2017
Change in the specification parameters and/or limits of the immediate packaging of the finished product and a change of the shelf life of the finished product as packaged for sale (NL/V/0245/IB/001/G)	Module 3 II.A and II.G	7 <sup>th</sup> March 2018