



Veterinary  
Medicines  
Directorate



United Kingdom  
Veterinary Medicines Directorate  
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**DECENTRALISED PROCEDURE**

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

**Fiprotec 67 mg Spot On Solution for Small Dogs  
Fiprotec 134 mg Spot On Solution for Medium Dogs  
Fiprotec 268 mg Spot On Solution for Large Dogs  
Fiprotec 402 mg Spot On Solution for Extra Large Dogs**

**Date Created: September 2014**

**PuAR correct as of 24/07/2018 when RMS was transferred to NL.  
Please contact the RMS for future updates.**

## MODULE 1

### PRODUCT SUMMARY

EU Procedure number	UK/V/0490/001/DC UK/V/0490/003/DC UK/V/0490/004/DC UK/V/0490/005/DC
Name, strength and pharmaceutical form	Fiprotec 67 mg Spot On Solution for Small Dogs Fiprotec 134 mg Spot On Solution for Medium Dogs Fiprotec 268 mg Spot On Solution for Large Dogs Fiprotec 402 mg Spot On Solution for Extra Large Dogs
Applicant	Beaphar B.V. Drostenkamp 3 8101 BX Raalte The Netherlands
Active substance	Fipronil
ATC Vetcode	QP53AX15
Target species	Dogs
Indication for use	<p>The treatment and prevention of flea (<i>Ctenocephalides felis</i>) infestations in dogs. The duration of protection against flea infestations is 5 weeks.</p> <p>The product protects against new tick (<i>Dermacentor reticulatus</i>, <i>Rhipicephalus sanguineus</i>) infestations in dogs from day 7 to day 28 after application of the product.</p>

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## **MODULE 2**

The Summary of Product Characteristics (SPC) for this product is available on the Veterinary Medicines Directorate website ([www.vmd.defra.gov.uk](http://www.vmd.defra.gov.uk))

## MODULE 3

### PUBLIC ASSESSMENT REPORT

Legal basis of original application	Generic 'hybrid' application in accordance with Article 13 (3) of Directive 2001/82/EC as amended.
Date of completion of the original decentralised procedure	23 <sup>rd</sup> April 2014.
Date product first authorised in the Reference Member State (MRP only)	Not applicable.
Concerned Member States for original procedure	Belgium, Bulgaria, Cyprus, Czech Republic, Estonia, France, Germany, Greece, Hungary, Italy, Latvia, Lithuania, The Netherlands, Norway, Poland, Portugal, Romania, Slovakia,, Spain, Sweden.

#### I. SCIENTIFIC OVERVIEW

These applications were submitted as generic 'hybrid' applications, as defined under Article 13 (3) of Directive 2001/82/EC as amended. The products are intended for the treatment and prevention of flea (*Ctenocephalides felis*) infestations in dogs. The duration of protection against flea infestations is 5 weeks. The products also protect against new tick (*Dermacentor reticulatus*, *Rhipicephalus sanguineus*) infestations in dogs from day 7 to day 28 after application of the product.

The products are administered topically to the skin, at dose rates dependent on the weight of the dog. The product is produced and controlled using validated methods and tests which ensure the consistency of the product released onto the market. It has been shown that the product can be safely used in the target species, any reactions observed are indicated in the SPC<sup>1</sup>. 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<sup>2</sup> of the product was demonstrated according to the claims made in the SPC. The overall benefit/risk analysis is in favour of granting a marketing authorisation.

<sup>1</sup> SPC – Summary of product Characteristics.

<sup>2</sup> Efficacy – The production of a desired or intended result.

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## **II. QUALITATIVE AND QUANTITATIVE PARTICULARS OF THE CONSTITUENTS**

### ***II.A. Composition***

The product contains 100 mg/ml fipronil and the excipients butylhydroxyanisole (E320), butylhydroxytoluene (E321), benzyl alcohol (E1519) and diethylene glycol monoethyl ether.

One container/closure system consists of a coloured pipette composed of a heat-formed shell (polypropylene and acrylonitrile methyl acrylate copolymer/cyclic olefin copolymer polypropylene/polypropylene) and a film, (acrylonitrile methyl acrylate copolymer/aluminium/polyester), with 1, 2, 3 or 6 pipettes in a cardboard box. Another container/closure system consists of a coloured pipette composed of a heat-formed shell (polypropylene/cyclic olefin copolymer/ethylene-vinyl alcohol copolymer/polypropylene) and a film (polyethylene terephthalate/aluminium/polypropylene) enclosed in an aluminium blister (polyethylene/polyamide/aluminium/polyamide/polyethylene and polyamide/aluminium/polyethylene), with 1, 2, 3, 4, or 6 pipettes in a cardboard box.

The choice of the formulation and the 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.

### ***II.B Description of the Manufacturing Method***

The product is manufactured fully in accordance with the principles of good manufacturing practice from a licensed manufacturing site. Process validation data on the product have been presented in accordance with the relevant European guidelines. The manufacturing process is a simple mixing and adding procedure, followed by loading into pipettes.

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

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. All excipients are described in the Ph. Eur.

#### ***II.C.4 Substances of Biological Origin***

There are no substances within the scope of the TSE Guideline present or used in the manufacture of this product. A suitable declaration was provided.

### ***II.D Control Tests Carried Out at Intermediate Stages of the Manufacturing Process***

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Not applicable.

## ***II.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.

## ***II.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. Three batches were stored for 24 months at 25°C/60% RH and at 6 months at 40°C/75% RH in commercial packaging. No obvious degradation occurred.

## ***G. Other Information***

Do not store above 25°C.

Keep pipette within blister until ready for use, in order to protect from light.

# **III. SAFETY AND RESIDUES DOCUMENTATION (PHARMACOTOXICOLOGICAL)**

## ***III.A Safety Documentation***

### ***Pharmacological Studies***

#### Pharmacodynamics

Fipronil is a phenylpyrazole which blocks gamma-amino butyric acid (GABA) receptors within the cell membranes of target parasites. The active substance is more toxic to insects than animals, partially because of the difference in sensitivity in GABA receptors.

#### Pharmacokinetics

A concentration gradient of fipronil passes throughout the fur of the animal. A metabolite of fipronil, fipronil sulfone also possesses insecticidal and acaricidal activity. Fipronil is shed with the fur and sebum and level decrease within the fur to approximately 3 – 4 mg/kg two months after treatment. After topical

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application of the active substance, adsorption of fipronil through the skin is minimal.

### ***Toxicological Studies***

No data were supplied for this section apart from a user risk assessment, as in accordance with Article 13 (3) of Directive 2001/82/EC, these were not required. Some toxicological data were included in the user risk assessment.

### ***User Safety***

A user risk assessment was provided in compliance with the relevant guideline.

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

- Keep pipettes in original packaging until ready for use.
- Persons with known hypersensitivity to fipronil or to any of the excipients (see section 6.1) should avoid contact with the product. Avoid contents coming into contact with the fingers. If this occurs, wash hands with soap and water.
- This product can cause mucous membrane and eye irritation. Therefore, contact of the product with mouth and eyes should be avoided.
- After accidental ocular exposure the eye should be rinsed carefully with plain water.
- Ingestion of the product is harmful. Prevent children getting access to the pipettes and discard the used pipettes immediately after applying the product.
- Treated animals should not be handled until the application site is dry, and children should not be allowed to play with treated animals until the application site is dry. It is therefore recommended that animals are not treated during the day, but should be treated during the early evening, and that recently treated animals should not be allowed to sleep with owners, especially children.
- Do not smoke, drink or eat during application.
- Wash hands after use.

### ***Environmental Safety***

A Phase I risk assessment was provided in accordance with VICH and CVMP guidelines.

#### **Phase I:**

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The product will only be used in non-food animals and as a result environmental exposure will be low. A Phase II ERA was not required. The directions as cited on the SPC are acceptable:

- Any unused veterinary medicinal product or waste materials derived from such veterinary medicinal products should be disposed of in accordance with local requirements.
- Fipronil may adversely affect aquatic organisms. Do not contaminate ponds, waterways or ditches with the product or empty containers.

### ***III.B.2 Residues documentation***

#### ***Residue Studies***

No residue depletion studies were conducted because the product is not intended for use in food-producing species.

## **IV CLINICAL DOCUMENTATION**

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

#### ***Pharmacology***

##### Pharmacodynamics

A summary of the pharmacodynamics of fipronil was presented. These data are identical to those presented for the reference product, and the omission of pharmacodynamic data from this section of the dossier was accepted. Efficacy was demonstrated by means of a dose confirmation study.

##### Pharmacokinetics

An overview of absorption, distribution, metabolism and elimination was provided. Target animal safety and dose confirmation studies addressed this point, and the proposed product will be used in the same species and with the same posology as the reference product. The omission of pharmacokinetic data from this section of the dossier were therefore acceptable.

#### ***Tolerance in the Target Species***

The applicant conducted a controlled target animal tolerance, GCP/GLP - compliant study in young animals, using multiples of the recommended dose in the target species, (1x, 3x and 5x the recommended dose). A placebo containing no active substance, but containing the excipients was used as a control. All doses were administered by the dermal route at monthly intervals for 3 consecutive months. Parameters evaluated were systemic and/or local toxicity, behaviour, physical appearance, feed intake and mortality/viability.



Clinical tests were performed at various time points. No adverse effects were seen following doses up to 5x the recommended dose.

### **Resistance**

The bibliography provided suggested that although some resistance to fipronil has been noted, adequate warnings and precautions appear on the product literature, stating that all pets in a household be treated and that the immediate household environment and bedding should be treated.

## **IV.II. Clinical Documentation**

### **Laboratory Trials**

The applicant conducted 3 dose determination studies. As the products will be administered to animals in the same manner as the reference product, no bioequivalence studies were required.

#### **Dose confirmation studies:**

Study title	Efficacy testing of a fipronil spot-on formulation against artificial flea and tick infestations on dogs
Objectives	An <i>in vivo</i> dose confirmation study to assess the efficacy of 10%w/v fipronil against fleas and ticks on dogs
Test site(s)	Single-centre site
Compliance with Regulatory guidelines	Good Clinical Practice (GCP) Good Laboratory Practice (GLP) Good Management Practice (GMP)
Test Product	An invented medicinal product (IVP) containing fipronil at 10% w/v.
Control product/placebo	Positive control (Frontline Spot-on Dogs) and placebo.
Animals	28 mixed breed dogs, male and female.
Outcomes/endpoints	Measurement of parasites destroyed and assessment of health of animals.
Randomisation	Randomised
Blinding	Blinded
Method	14 dogs in negative control group, 7 in each positive control and IVP groups. 25 ticks of each species ( <i>D. reticulatus</i> and <i>R. sanguineus</i> ) were administered to each animal at various time points, separately or both species together. 48 hours after infestations, ticks were removed and counted. Dogs were also infested with 100 fleas ( <i>C. felis</i> ), at various time points, and flea counts were performed 48 hours later. Engorgement of

	ticks was evaluated.
Statistical method	<p><u>Ticks</u></p> <p>For the IVP and positive CP, efficacy was calculated at each time point using Abbott's formula below. Arithmetic means were used.</p> $\text{Efficacy against ticks (\%)} = 100 \times (m_c - m_t) / m_c$ <p>where <math>m_c</math> is the mean number of live ticks on the negative control animals and <math>m_t</math> is the mean number of live ticks (categories t1 - t3) on IVP or positive CP treated animals.</p> <p>An effective dose was defined as giving &gt;90% efficacy against ticks.</p> <p><u>Fleas</u></p> <p>For the IVP and positive CP, efficacy was calculated at each time point using the formula below. Arithmetic means were used.</p> $\text{Efficacy against fleas (\%)} = 100 \times (m_c - m_t) / m_c$ <p>where <math>m_c</math> is the mean number of live fleas on negative control animals and <math>m_t</math> is the mean number of live fleas on the IVP and positive CP treated animals.</p> <p>An effective dose was defined as giving &gt;95% efficacy against fleas.</p>
RESULTS	
Outcomes for endpoints	On specific days, the mean number of live ticks and fleas on IVP and positive control treated animals was significantly lower than on placebo-treated animals.
DISCUSSION	After additional data had been provided, the citation in the SPC with regard to indications was approved. Two further studies were provided.

Study title	Efficacy testing of a fipronil spot-on formulation against artificial flea and tick infestations on dogs
Objectives	An <i>in vivo</i> dose confirmation study to assess the efficacy of 9.94% w/v fipronil against fleas and ticks on dogs. To test immediate and persistent efficacy.
Test site(s)	Single-centre site
Compliance with	Good Clinical Practice (GCP)

Regulatory guidelines	
Test Product	An invented medicinal product (IVP) containing fipronil at 9.94% w/v.
Control product/placebo	Placebo
Animals	14 mixed breed dogs for total study, male and female.
Outcomes/endpoints	Measurement of parasites destroyed and assessment of health of animals.
Randomisation	Randomised
Blinding	Blinded
Method	IVP and placebo administered once, 7 dogs in each group selected from 34 initially selected, were infested with 100 adult fleas ( <i>C.felis</i> ), and 50 ticks ( <i>D. reticulatus</i> ). After 48 hours parasites were counted and engorgement evaluated.
Statistical method	<p><u>Ticks</u>          Efficacy was calculated using Abbott's formula, as follows:</p> $\text{Efficacy against ticks (\%)} = 100 \times (m_c - m_t) / m_c$ <p>where <math>m_c</math> is the arithmetic mean number of live ticks (categories 1-3) on dogs in the negative control group and <math>m_t</math> is the arithmetic mean number of live ticks (categories 1-3) and killed, engorged ticks (category 6) on dogs in the treatment group.</p> <p>An effective dose was defined as giving &gt;90% efficacy against ticks.</p> <p><u>Fleas</u>          Efficacy was calculated using Abbott's formula, as follows:</p> $\text{Efficacy against fleas (\%)} = 100 \times (m_c - m_t) / m_c$ <p>Where <math>m_c</math> is the arithmetic mean number of live fleas on the negative control group and <math>m_t</math> is the arithmetic mean number of live fleas on the treated group.</p> <p>An effective dose was defined as giving &gt;95% efficacy against fleas.</p>
RESULTS	
Outcomes for endpoints	On specific days, the mean number of live ticks and fleas on IVP-treated animals was significantly lower than on placebo-treated animals. For fleas 100% immediate and persistent efficacy was demonstrated.

	For ticks, 100% persistent efficacy was shown days 7-28.
DISCUSSION	The data supported the claim for immediate and persistent efficacy for fleas, showing 100% efficacy. Data were provided which supported a claim for 100% persistent efficacy against ticks from day 7 up to day 28 post-administration.

Study title	Efficacy testing of a fipronil spot-on formulation against artificial tick infestations ( <i>R. sanguineus</i> ) on dogs
Objectives	An <i>in vivo</i> dose confirmation study to assess the efficacy of 10% w/v fipronil against fleas and ticks on dogs
Test site(s)	Single-centre site
Compliance with Regulatory guidelines	Good Clinical Practice (GCP)
Test Product	An invented medicinal product (IVP) containing fipronil at 10% w/v.
Control product/placebo	Placebo
Animals	14 mixed breed dogs for total study, male and female.
Outcomes/endpoints	Measurement of parasites destroyed and assessment of the health of animals.
Randomisation	Randomised
Blinding	Blinded
Method	IVP and placebo administered once, 7 dogs in each group selected from 22 initially selected, were infested with 50 ticks ( <i>R. sanguineus</i> ). After 48 hours parasites were counted and engorgement evaluated.
Statistical method	<p><u>Ticks</u></p> <p>Efficacy was calculated at each time point using Abbott's formula below. Arithmetic means were used.</p> $\text{Efficacy against ticks (\%)} = 100 \times (m_c - m_t) / m_c$ <p>where <math>m_c</math> is the mean number of live ticks on the negative control animals and <math>m_t</math> is the mean number of live ticks (categories t1 - t3) on IVP or positive CP treated animals.</p> <p>An effective dose was defined as giving &gt;90% efficacy against ticks.</p>
RESULTS	
Outcomes for endpoints	On specific days, the mean number of live ticks on IVP-treated animals was significantly lower than on placebo-treated animals, with up to 98.3% efficacy

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	demonstrated by day 30.
DISCUSSION	Persistent efficacy was demonstrated against <i>R. sanguineus</i> up to day 28.

## 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 benefit/risk profile of the product(s) is favourable

## **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 Product Information Database of the Veterinary Medicines Directorate website.

[www.gov.uk/check-animal-medicine-licensed](http://www.gov.uk/check-animal-medicine-licensed)

The post-authorisation assessment (PAA) 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.

The PAA for this product is available on the Product Information Database of the Veterinary Medicines Directorate website.

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