



**Veterinary
Medicines
Directorate**



**United Kingdom
Veterinary Medicines Directorate
Woodham Lane
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NATIONAL PROCEDURE

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

**Endectrid 80 mg + 8 mg Spot-On Solution for Large Cats
Endectrid 40 mg + 4 mg Spot-On Solution for Small Cats and Ferrets**

Date Created: February 2015

MODULE 1

PRODUCT SUMMARY

Name, strength and pharmaceutical form	Endectrid 80 mg + 8 mg Spot-On Solution for Large Cats Endectrid 40 mg + 4 mg Spot-On Solution for Small Cats and Ferrets
Applicant	Bayer plc Animal Health Division Bayer House Strawberry Hill Newbury Berkshire RG14 1JA - UK
Active substance	Imidacloprid Moxidectin
ATC Vetcode	QP54AB52
Target species	Cats, Cat and Ferrets
Indication for use	<p>For cats suffering from, or at risk from, mixed parasitic infections:</p> <ul style="list-style-type: none">• For the treatment and prevention of flea infestation (<i>Ctenocephalides felis</i>),• the treatment of ear mite infestation (<i>Otodectes cynotis</i>),• the treatment of notoedric mange (<i>Notoedres cati</i>),• the treatment of the lungworm <i>Eucoleus aerophilus</i> (syn. <i>Capillaria aerophila</i>) (adults)*• the prevention of heartworm disease (L3 and L4 larvae of <i>Dirofilaria immitis</i>),• the treatment of infections with gastrointestinal nematodes (L4 larvae, immature adults and adults of <i>Toxocara cati</i> and <i>Ancylostoma tubaeforme</i>). <p>The product can be used as part of a treatment strategy for flea allergy dermatitis (FAD).</p>

	<p>*New indication added for cats added via variation procedure, July 2018. Suitable data provided.</p> <p>For ferrets suffering from, or at risk from, mixed parasitic infections:</p> <ul style="list-style-type: none">• For the treatment and prevention of flea infestation (<i>Ctenocephalides felis</i>),• the prevention of heartworm disease (L3 and L4 larvae of <i>Dirofilaria immitis</i>).
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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)

MODULE 3

PUBLIC ASSESSMENT REPORT

Legal basis of original application	Generic application in accordance with Article 13 (1) of Directive 2001/82/EC as amended.
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I. SCIENTIFIC OVERVIEW

These were generic applications for products, for which the reference product was Advocate Spot-on Solution for Small Cats and Ferrets/for Large Cats, available in the UK since April 2003. (The reference product is the same product under a different name). The products are indicated for cats suffering from or at risk from mixed parasitic infections: flea infestation (*Ctenocephalides felis*), ear mite infestation (*Otodectes cynotis*), notoetric mange (*Notoedres cati*), and the prevention of heartworm disease (L3 and L4 larvae of *Dirofilaria immitis*). In addition, treatment of infections with gastrointestinal nematodes (L4 larvae, immature adults and adults of *Toxocara cati* and *Ancylostoma tubaeforme*). A new indication for cats only was added via variation procedure, for the treatment of the lungworm *Eucoleus aerophilus* (syn. *Caprillaria aerophila*, (adults).

Endectrid 40 mg + 4 mg spot-on solution for small cats and ferrets can be used to treat ferrets suffering from or at risk from mixed parasitic infections as follows: treatment and prevention of *Ctenocephalides felis*, and the prevention of heartworm disease (L3 and L4 larvae of *Dirofilaria immitis*). Imidacloprid is toxic to birds, especially canaries.

The products can also be used as part of a treatment strategy for flea allergy dermatitis.

The recommended doses are as follows:

40 mg + 4 mg Spot-on solution for Small Cats and Ferrets 0.4 ml pipette, CATS: imidacloprid 10 mg/kg bw, moxidectin 1 mg/kg bw.
FERRETS: One 0.4 ml pipette per animal.

Cats over 4 kg bodyweight should be administered the products for large cats:

80 mg + 8 mg Spot-on Solution for Large Cats 0.8 ml pipette. Cats > 4-8 kg imidacloprid 10-20 mg/kg bw moxidectin 1-2 mg/kg bw.

The products are 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 products can be safely used in the target species, any reactions observed are indicated in the SPC.¹ The products are safe for the user, and for

¹ SPC – Summary of product Characteristics.

the environment, when used as recommended. Suitable warnings and precautions are indicated in the SPC. The efficacy ² of the products was demonstrated according to the claims made in the SPC. The overall benefit/risk analysis is in favour of granting a marketing authorisation.

II. QUALITATIVE AND QUANTITATIVE PARTICULARS OF THE CONSTITUENTS

II.A. Composition

The products contain imidacloprid and moxidectin at varying concentrations, and the excipients are butylhydroxytoluene E321, benzyl alcohol and propylene carbonate.

The container/closure system consists of white screw-cap polypropylene pipettes containing various quantities of product. The particulars of the containers and controls performed are provided and conform to the regulation.

The choice of the formulation and the absence 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 products are 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 sequential dissolution process. Benzyl alcohol is stirred and butylhydroxytoluene added. Propylene carbonate is added, followed by the active substances. The product is filtered and filled into the appropriate containers.

II.C. Control of Starting Materials

The active substances are imidacloprid and moxidectin, established active substances. Moxidectin is described in the European Pharmacopoeia (Ph. Eur), and is produced in accordance with a Certificate of Suitability. Imadacloprid is controlled by an in-house specification. The active substances are manufactured in accordance with the principles of good manufacturing practice. Each excipient is monographed. (Benzyl alcohol and butylhydroxytoluene E 321: Ph Eur.; propylene carbonate: United States Pharmacopeia).

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.

² Efficacy – The production of a desired or intended result.

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.

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

The tests performed during production are described and the results of 3 consecutive runs, (3 older batches, 3 new batches), conforming to the specifications, are provided. The intermediate product can be stored for up to 12 months with additional benzaldehyde testing during development.

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. Tests on the finished product include those for clarity, colour, identity, density, water content, purity, uniformity of content and microbiological quality.

II.F. Stability

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

Active Substances

For moxidectin, stability data were provided for 3 batches of product stored in commercial packaging under suitably controlled conditions. The product was stored in refrigerated conditions for 24 months (2-8°C), and for 24 months at 25°C/60% RH. Data supported a retest at the refrigerated temperature for 2 years. For imidacloprid, 3 commercial batches were stored at 25°C/60% RH and 40°C/75% RH for 24 months and 12 months respectively. The active substance was very stable with no special storage conditions required. The proposed retest period of 2 years was satisfactory.

Finished products

Batches were stored at 25°C/60% RH, 30°C/50% RH, 30°C/80% RH and 40°C/75% RH. All data were considered acceptable.

G. Other Information

Shelf life of the veterinary medicinal product as packaged for sale: 3 years.
This veterinary medicinal product does not require any special storage conditions.

III. SAFETY AND RESIDUES DOCUMENTATION (PHARMACOTOXICOLOGICAL)

As these were generic applications according to Article 13 (1), and bioequivalence with a reference product has been established, results of safety and residues tests were not required.

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

III.A Safety Documentation

User Safety

A User Risk Assessment was not submitted with these applications. Because the products are identical to the reference product, this was acceptable. Warnings and precautions as listed on the product literature are adequate to ensure safety to users of the product.

Environmental Safety

Phase I:

An extended Phase I risk assessment was provided. 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 products are intended only for non-food producing species which are unlikely to enter water courses after treatment with the ectoparasiticide product. The SPC carries adequate warnings:

- Any unused product or waste materials derived from such veterinary medicinal products should be disposed of in accordance with local requirements.
- The product should not enter water courses as this may be dangerous for fish and other aquatic organisms.

IV CLINICAL DOCUMENTATION

As these were generic applications according to Article 13 (1), and bioequivalence with a reference product has been established, efficacy studies were not required. The efficacy claims for this product are equivalent to those of the reference product.

IV.I. Pre-Clinical Studies

Pharmacology

Pharmacodynamics

No data were submitted, however, relevant data reflects that of the reference product, and this is acceptable.

Imidacloprid is an ectoparasiticide which belongs to the chloronicotinyl group of compounds, effective against a variety of parasites. Inhibition of cholinergic transmission results in paralysis and death of the parasite. There is virtually no effect on mammalian cholinergic transmission due to the weak interaction of the active substance with mammalian nicotinic receptors and probable poor penetration of the blood-brain barrier.

Moxidectin is a second generation macrocyclic lactone belonging to the milbemycin family, and is a parasiticide interacting with GABA³ and glutamate-gated chloride channels. This ultimately causes flaccid paralysis of parasites, followed by death or expulsion.

Pharmacokinetics

No data were submitted, however, relevant data reflects that of the reference product, and this is acceptable.

Imidacloprid is rapidly absorbed via the skin and can be located on the body surface during the treatment interval. Moxidectin is also absorbed through the

skin, attaining maximum plasma concentrations approximately 4-9 days after treatment. Systemic distribution follows, followed by slow elimination. Refer to section 5.2 of the SPC for further information.

Tolerance in the Target Species

No data were submitted. Warnings in the SPC reflect those of the reference products.

Resistance

The applicant provided an update on the resistance in the target parasites. The SPC carries suitable warnings, which define the possibility of resistance developing to the products. It is advised that local epidemiological information be taken into account when the products are prescribed.

³ GABA – gamma-amino butyric acid.

IV.II. Clinical Documentation

As the products were established as being bioequivalent to the reference products, no further data were required.

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

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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