

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Pestigon 268 mg Spot-On Solution for large dogs

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

One 2.68 ml pipette contains:

Active substances:

Fipronil 268 mg

Excipients:

Qualitative composition of excipients and other constituents	Quantitative composition if that information is essential for proper administration of the veterinary medicinal product
Butylhydroxyanisole (E320)	0.536 mg
Butylhydroxytoluene (E321)	0.268 mg
Povidone K12	
Polysorbate 80	
Butyl Alcohol	
Diethylene Glycol Monoethyl Ether	

A clear, colourless to pale yellow solution.

3. CLINICAL INFORMATION

3.1 Target species

Dogs.

3.2 Indications for use for each target species

For the treatment of infestations by fleas (*Ctenocephalides felis*). The veterinary medicinal product shows immediate insecticidal effect and persistent insecticidal activity against new infestations by adult fleas for up to 8 weeks.

The veterinary medicinal product has a persistent acaricidal efficacy against *Ixodes ricinus* for up to 2 weeks, *Rhipicephalus sanguineus* for up to 3 weeks and *Dermacentor reticulatus* for up to 4 weeks. If ticks of these species are present when the veterinary medicinal product is applied, all ticks will not be killed within the first 48 hours but they may be killed within a week.

The veterinary medicinal product can be used as part of a treatment programme for Flea Allergy Dermatitis where this has been previously diagnosed by a veterinary surgeon.

3.3 Contraindications

Do not use in dogs weighing less than 20 kg.

In the absence of available data, the veterinary medicinal product should not be used in puppies less than 8 weeks old.

Do not use in sick (systemic diseases, fever...) or convalescent animals.

Do not use in rabbits, as adverse reactions and even death could occur.

This product is specifically developed for dogs. Do not use in cats, as this could lead to overdosing.

Do not use in cases of hypersensitivity to the active or to any of the excipients.

3.4 Special warnings

The veterinary medicinal product does not prevent ticks from attaching to the animals, but ticks may be killed in the first 24-48 hours after attachment prior to full engorgement and therefore minimising the risk of transmission of diseases. Once dead, ticks will often drop off the animal, but any remaining ticks may easily be removed by a gentle pull.

When used as part of a strategy for the treatment of Flea Allergy Dermatitis, monthly applications to the allergic patient and to other dogs in the household are recommended.

For optimal control of flea infestation in multi-pet household, all dogs and cats in the house should be treated with a suitable insecticide.

Fleas from pets often infest the animal's basket, bedding and regular resting areas such as carpets and soft furnishings which should be treated, in case of massive infestation and at the beginning of the control measures, with a suitable insecticide and vacuumed regularly.

Avoid frequent swimming or shampooing of the animal because the maintenance of effectiveness of the veterinary medicinal product in these cases has not been tested.

3.5 Special precautions for use

Special precautions for safe use in the target species:

Avoid contact with the animal's eyes. In the case of accidental eye contact immediately and thoroughly flush the eyes with water.

It is important to make sure that the veterinary medicinal product is applied to an area where the animal cannot lick it off, and to make sure that animals do not lick each other following treatment.

Do not apply the veterinary medicinal product on wounds or damaged skin.

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

This veterinary medicinal product can cause mucous membrane and eye irritation. Therefore, contact of the veterinary medicinal product with the mouth and eyes should be avoided.

In cases of accidental eye contact, immediately and thoroughly rinse the eye with plain water. If eye irritation persists seek medical advice and show the package leaflet or the label to a physician.

People with a known hypersensitivity to fipronil or any of the excipients should avoid contact with the veterinary medicinal product.

Avoid contents coming into contact with the fingers. If this occurs, wash hands with soap and water.

Wash hands after use. Do not smoke, drink or eat during application.

Treated animals should not be handled until this 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.

Keep pipettes in original packaging and dispose of used pipettes immediately.

Special precautions for the protection of the environment:

Fipronil may adversely affect aquatic organisms. Dogs should not be allowed to swim in watercourses for 2 days after application.

Other precautions:

The alcohol carrier may have adverse effect on painted, varnished or other household surfaces or furnishings.

This veterinary medicinal product is flammable. Keep away from heat, sparks, open flame or other sources of ignition.

3.6 Adverse events

Dogs:

Very rare (< 1 animal / 10,000 animals treated, including isolated reports):	Application site reactions (Skin discoloration ¹ , Hair loss ¹ , Itching ¹ , Reddening of the skin ¹). Generalised Itching, Hair loss. Hypersalivation ² , Vomiting. Neurological disorders ³ (Hyperaesthesia, Central nervous system depression, Neurological symptoms) Respiratory signs.
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¹ Transient.

² If licking occurs, a brief period of excessive salivation may be observed due mainly to the nature of the carrier.

³ Reversible.

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:

Laboratory studies using fipronil have not shown any evidence of teratogenic or embryotoxic effects. Studies have not been carried out with this veterinary medicinal product in pregnant and lactating animals. Use only according to the benefit-risk assessment by the responsible veterinarian.

3.8 Interaction with other medicinal products and other forms of interaction

None known.

3.9 Administration routes and dosage

Spot-on use.

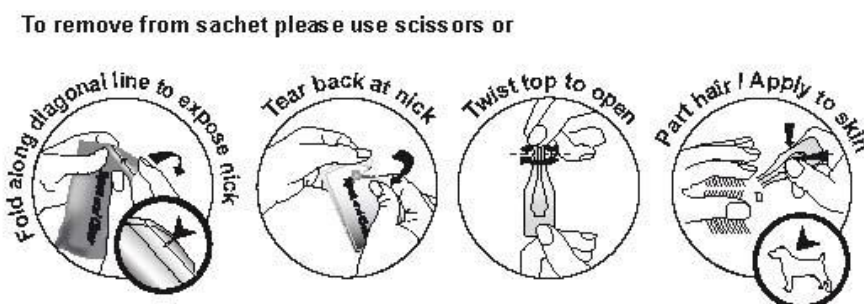
For external use only. Apply the veterinary medicinal product directly to the skin based on weight of the animal.

Animals should be weighed accurately prior to treatment.

Dosage: 1 pipette of 2.68 ml per dog weighing over 20 kg and up to 40 kg bodyweight.

Method of Administration: Hold upright. Tap the narrow part of the pipette to ensure the contents are within the main body of the pipette. Break back the snap-off top from the spot-on pipette along the

scored line. Part the coat between the shoulder blades until the skin is visible. Place the tip of the pipette on the skin and squeeze gently at one or two spots to empty its contents onto the skin.



It is important to make sure that the veterinary medicinal product is applied to an area where the animal cannot lick it off, and to make sure that the animals do not lick each other following treatment.

Care should be taken to avoid excessive wetting of the hair with the veterinary medicinal product since this will cause a sticky appearance of hairs at the treatment spot. However, should this occur, it will disappear within 48 hours post application.

For the optimal control of infestation by flea and or/tick the treatment schedule can be based on local epidemiological situation.

In the absence of safety studies, the minimum treatment interval is 4 weeks.

3.10 Symptoms of overdose (and where applicable, emergency procedures and antidotes)

No adverse effects were observed in target animal safety studies in 8 week old puppies, growing dogs and dogs weighing circa 2 kg treated on 3 occasions at five times the recommended dose. The risk of experiencing adverse effects may however increase when overdosing, so animals should always be treated with the correct pipette size according to bodyweight.

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

Not applicable.

3.12 Withdrawal periods

Not applicable.

4. PHARMACOLOGICAL IMMUNOLOGICAL INFORMATION

4.1 ATCvet code : QP53AX15

4.2 Pharmacodynamics

Fipronil is an insecticide/acaricide in the phenylpyrazole family. It acts by inhibiting the GABA complex, binding to the chloride channel and thereby blocking pre- and post-synaptic transfer of

chloride ions across the cell membrane. This results in uncontrolled activity of the central nervous system and death in insects and acarids.

Fipronil exhibits insecticidal activity against fleas (*Ctenocephalides felis*), and acaricidal activity against ticks (*Rhipicephalus sanguineus*, *Dermacentor reticulatus*, *Ixodes ricinus*) in the dog.

Newly arriving fleas are killed within 24 hours of landing on the animal. Ticks if already present at the time of application of the veterinary medicinal product, may not always be killed in the first 48 hours, however will be killed within 9 days post treatment.

The veterinary medicinal product is effective against flea infestation (*Ctenocephalides felis*) for approximately 8 weeks and against tick infestations for up to 4 weeks, depending on the tick species and the level of challenge.

4.3 Pharmacokinetics

After a local application of fipronil to the dog, it is slightly absorbed through the skin. Low levels of fipronil may be detected in the plasma, with a very high variability between dogs. After application, there is a good distribution of the chemical on the hair, presenting a good gradient of concentration between the application zone and the peripheral area.

Fipronil is mainly metabolised to its sulfone derivative (RM1602), which also possesses insecticidal and acaricidal properties.

The concentrations of fipronil on the hair decrease with time.

5. PHARMACEUTICAL PARTICULARS

5.1 Major incompatibilities

None known.

5.2 Shelf life

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

5.3 Special precautions for storage

This veterinary medicinal product does not require any special temperature storage conditions. Store in the original container in order to protect from light and moisture.

5.4 Nature and composition of immediate packaging

2.68 ml, pipette moulded from a film composed of 3 layers: a polypropylene/COC/polypropylene, solvent free lacquer laminate and a copolymer of polyethylene/EVOH/polyethylene. The pipettes are sealed within a child resistant 4-ply foil sachet composed of LDPE/nylon/aluminium foil/polyester film and presented in an outer box.

Boxes of 1, 2, 3, 4, 6, 8, 12, 24, 30, 60, 90, 120 or 150 pipettes
Not all pack sizes may be marketed.

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

Medicines should not be disposed of via wastewater or household waste.

The veterinary medicinal product should not enter water courses as fipronil may be dangerous for fish and other aquatic organisms.

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

Norbrook Laboratories (Ireland) Limited

7. MARKETING AUTHORISATION NUMBER(S)

8. DATE OF FIRST AUTHORISATION

Date of first authorisation: DD/MM/YYYY

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

<{MM/YYYY}>

10. CLASSIFICATION OF VETERINARY MEDICINAL PRODUCTS

Veterinary medicinal product not subject to prescription [AT, BG, EE, ES, HU, IT, LV, LT, NL, RO]

Veterinary medicinal product subject to prescription [IE, UK-NI].

Detailed information on this veterinary medicinal product is available in the [Union Product Database \(https://medicines.health.europa.eu/veterinary\)](https://medicines.health.europa.eu/veterinary).

ANNEX III
LABELLING AND PACKAGE LEAFLET

A. LABELLING

PARTICULARS TO APPEAR ON THE OUTER PACKAGE

Carton of 1, 2, 3, 4, 6, 8, 12, 24, 30, 60, 90, 120 or 150 pipettes containing 2.68 ml pipettes

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Pestigon 268 mg Spot-On Solution for Large Dogs

2. STATEMENT OF ACTIVE SUBSTANCES

One 2.68 ml pipette contains:

Adjuvants:

Fipronil 268 mg

Excipients:

Butylhydroxyanisole (E320) 0.536 mg

Butylhydroxytoluene (E321) 0.268 mg

A clear, colourless to pale yellow solution.

3. PACKAGE SIZE

Carton of 1, 2, 3, 4, 6, 8, 12, 24, 30, 60, 90, 120 or 150 pipette(s) containing 2.68 ml.

4. TARGET SPECIES

Dogs

5. INDICATIONS

For products not subject to veterinary prescription

For the treatment of infestations by fleas and ticks.

For the treatment of infestations by fleas (*Ctenocephalides felis*). The veterinary medicinal product shows immediate insecticidal effect and persistent insecticidal activity against new infestations by adult fleas for up to 8 weeks.

The veterinary medicinal product has a persistent acaricidal efficacy against *Ixodes ricinus* for up to 2 weeks, *Rhipicephalus sanguineus* for up to 3 weeks and *Dermacentor reticulatus* for up to 4 weeks. If ticks of these species are present when the veterinary medicinal product is applied, all ticks may not be killed within the first 48 hours but they will be killed within a week.

The veterinary medicinal product can be used as part of a treatment programme for Flea Allergy Dermatitis where this has been previously diagnosed by a Veterinary Surgeon.

6. ROUTES OF ADMINISTRATION

Spot-on use.

For dogs weighing >20-40 kg.

Do not remove the pipette from the sachet until required for use.

For external use only.

7. WITHDRAWAL PERIODS

Not applicable.

8. EXPIRY DATE

Exp. {mm/yyyy}

9. SPECIAL STORAGE PRECAUTIONS

This veterinary medicinal product does not require any special temperature storage conditions. Store in the original container in order to protect from light and moisture.

10. THE WORDS “READ THE PACKAGE LEAFLET BEFORE USE”

Read the package leaflet before use.

11. THE WORDS “FOR ANIMAL TREATMENT ONLY”

For animal treatment only.

12. THE WORDS “KEEP OUT OF THE SIGHT AND REACH OF CHILDREN”

Keep out of the sight and reach of children.

13. NAME OF THE MARKETING AUTHORISATION HOLDER

Norbrook Laboratories (Ireland) Limited

14. MARKETING AUTHORISATION NUMBERS

EU/0/00/000/000

15. BATCH NUMBER

Lot {number}

PARTICULARS TO APPEAR ON THE IMMEDIATE PACKAGE

Sachet for 2.68 ml pipette/blister

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Pestigon 268 mg Spot-On Solution for Large Dogs

2. STATEMENT OF ACTIVE SUBSTANCES

One 2.68 ml pipette contains
Fipronil 268mg

3. TARGET SPECIES

Dogs

4. ROUTES OF ADMINISTRATION

Spot-on use.

Read the package leaflet before use.

5. WITHDRAWAL PERIODS

Not applicable.

6. EXPIRY DATE

Sa

Exp. {mm/yyyy}

7. SPECIAL STORAGE PRECAUTIONS

This veterinary medicinal product does not require any special temperature storage conditions. Store in the original container in order to protect from light and moisture.

8. NAME OF THE MARKETING AUTHORISATION HOLDER

Norbrook Laboratories (Ireland) Limited

9. BATCH NUMBER

Lot {number}

MINIMUM PARTICULARS TO APPEAR ON SMALL IMMEDIATE PACKAGING UNITS

2.68 ml pipette/blister

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Pestigon



2. QUANTITATIVE PARTICULARS OF THE ACTIVE SUBSTANCES

One 2.68 ml pipette contains

Active substances:

Fipronil 268 mg

3. BATCH NUMBER

Lot {number}

4. EXPIRY DATE

Exp. {mm/yyyy}

B. PACKAGE LEAFLET

PACKAGE LEAFLET

1. Name of the veterinary medicinal product

Pestigon 268 mg Spot-On Solution for Large Dogs

2. Composition

One 2.68 ml pipette contains:

Active substance:

Fipronil 268 mg

Excipients:

Butylhydroxyanisole (E320) 0.536 mg

Butylhydroxytoluene (E321) 0.268 mg

A clear, colourless to pale yellow solution.

3. Target species

Dogs.



4. Indications for use

For the treatment of infestations by fleas (*Ctenocephalides felis*). The veterinary medicinal product shows immediate insecticidal effect and persistent insecticidal activity against new infestations by adult fleas for up to 8 weeks.

The veterinary medicinal product has a persistent acaricidal efficacy against *Ixodes ricinus* for up to 2 weeks, *Rhipicephalus sanguineus* for up to 3 weeks and *Dermacentor reticulatus* for up to 4 weeks. If ticks of these species are present when the veterinary medicinal product is applied, all ticks may not be killed within the first 48 hours but they will be killed within a week.

The veterinary medicinal product can be used as part of a treatment programme for Flea Allergy Dermatitis where this has been previously diagnosed by a veterinary surgeon.

5. Contraindications

Do not use in dogs weighing less than 20 kg.

In the absence of available data, the veterinary medicinal product should not be used in puppies less than 8 weeks old.

Do not use in sick (systemic diseases, fever...) or convalescent animals.

Do not use in rabbits, as adverse reactions and even death could occur.

This veterinary medicinal product is specifically developed for dogs. Do not use in cats, as this could lead to overdosing.

Do not use in cases of known hypersensitivity to the active or to any of the excipients.

6. Special warnings

Special warnings:

The veterinary medicinal product does not prevent ticks from attaching to the animals, but ticks may be killed in the first 24-48 hours after attachment prior to full engorgement and therefore minimising

the risk of transmission of diseases. Once dead, ticks will often drop off the animal, but any remaining ticks may easily be removed by a gentle pull.

When used as part of a strategy for the treatment of Flea Allergy Dermatitis, monthly applications to the allergic patient and to other dogs in the household are recommended.

For optimal control of flea infestation in multi-pet household, all dogs and cats in the house should be treated with a suitable insecticide.

Fleas from pets often infest the animal's basket, bedding and regular resting areas such as carpets and soft furnishings which should be treated, in case of massive infestation and at the beginning of the control measures, with a suitable insecticide and vacuumed regularly.

Avoid frequent swimming or shampooing of the animal because the maintenance of effectiveness of the veterinary medicinal product in these cases has not been tested.

Special precautions for safe use in the target species:

Avoid contact with the animal's eyes. In the case of accidental eye contact immediately and thoroughly flush the eyes with water.

For external use only

It is important to make sure that the veterinary medicinal product is applied to an area where the animal cannot lick it off, and to make sure that animals do not lick each other following treatment.

Do not apply the veterinary medicinal product on wounds or damaged skin.

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

This veterinary medicinal product can cause mucous membrane and eye irritation. Therefore, contact of the veterinary medicinal product with mouth and eyes should be avoided.

In cases of accidental eye contact, immediately and thoroughly rinse the eye with plain water. If eye irritation persists seek medical advice and show the package leaflet or the label to a physician.

People with a known hypersensitivity to fipronil or any of the other ingredients should avoid contact with the veterinary medicinal product.

Avoid contents coming into contact with the fingers. If this occurs, wash hands with soap and water.

Wash hands after use. Do not smoke, drink or eat during application.

Treated animals should not be handled until this 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.

Keep pipettes in original packaging and dispose of used pipettes immediately.

Special precautions for the protection of the environment:

Fipronil may adversely affect aquatic organisms. Dogs should not be allowed to swim in watercourses for 2 days after application.

Other precautions:

The alcohol carrier may have adverse effect on painted, varnished or other household surfaces or furnishings.

This veterinary medicinal product is flammable. Keep away from heat, sparks, open flame or other sources of ignition.

Pregnancy and lactation:

Laboratory studies using fipronil have not shown any evidence of teratogenic or embryotoxic effects. Studies have not been carried out with this veterinary medicinal product in pregnant and lactating animals. Use only according to the benefit-risk assessment by the responsible veterinarian.

Overdose:

No adverse effects were observed in target animal safety studies in 8 week old puppies, growing dogs and dogs weighing circa 2 kg treated on 3 occasions at five times the recommended dose. The risk of experiencing adverse effects may however increase when overdosing, so animals should always be treated with the correct pipette size according to bodyweight.

7. Adverse events

Dogs:

Very rare (< 1 animal / 10,000 animals treated, including isolated reports):	Application site reactions (Skin discoloration ¹ , Hair loss ¹ , Itching ¹ , Reddening of the skin ¹). Generalised Itching, Hair loss. Hypersalivation ² , Vomiting. Neurological disorders ³ (Hyperaesthesia, Central nervous system depression, Neurological symptoms)Respiratory signs.
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¹ Transient.

² If licking occurs, a brief period of excessive salivation may be observed due mainly to the nature of the carrier.

³ Reversible.

Reporting adverse events is important. It allows continuous safety monitoring of a product. If you notice any side effects, even those not already listed in this package leaflet, or you think that the medicine has not worked, please contact, in the first instance, your veterinarian. You can also report any adverse events to the marketing authorisation holder <or its local representative> using the contact details at the end of this leaflet, or via your national reporting system: {national system details}

8. Dosage for each species, routes and method of administration

Spot-on use.

For external use only. Apply the veterinary medicinal product directly to the skin based on weight of the animal.

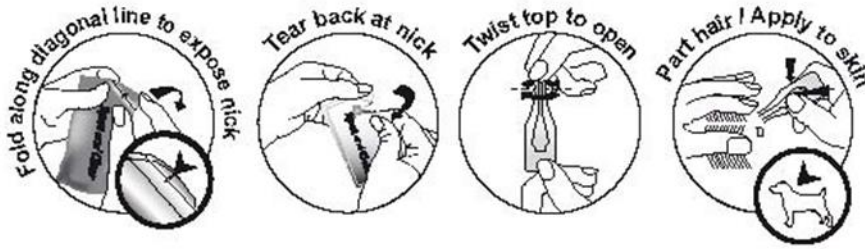
Do not remove the pipette from the sachet until required for use.

Dosage: 1 pipette of 2.68 ml per dog weighing over 20 kg and up to 40 kg bodyweight.

For dogs over 60 kg use two pipettes of 2.68 ml.

Method of Administration: Hold upright. Tap the narrow part of the pipette to ensure the contents are within the main body of the pipette. Break back the snap-off top from the spot-on pipette along the scored line. Part the coat between the shoulder blades until the skin is visible. Place the tip of the pipette on the skin and squeeze gently at one or two spots to empty its contents onto the skin.

To remove from sachet please use scissors or



9. Advice on correct administration

It is important to make sure that the veterinary medicinal product is applied to an area where the animal cannot lick it off, and to make sure that the animals do not lick each other following treatment.

Care should be taken to avoid excessive wetting of the hair with the veterinary medicinal product since this will cause a sticky appearance of hairs at the treatment spot. However, should this occur, it will disappear within 48 hours post application.

For the optimal control of infestation by flea and or/tick the treatment schedule can be based on local epidemiological situation.

In the absence of safety studies, the minimum treatment interval is 4 weeks.

Animals should be weighed accurately prior to treatment.

10. Withdrawal periods

Not applicable.

11. Special storage precautions

Keep out of the sight and reach of children.

This veterinary medicinal product does not require any special temperature storage conditions.

Store in the original container in order to protect from light and moisture.

Do not use this veterinary medicinal product after the expiry date which is stated on the label after Exp. The expiry date refers to the last day of that month.

12. Special precautions for disposal

Medicines should not be disposed of via wastewater or household waste.

This veterinary medicinal product should not enter water courses as fipronil may be dangerous for fish and other aquatic organisms.

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 applicable national collection systems. These measures should help to protect the environment.

Ask your veterinary surgeon or pharmacist how to dispose of medicines no longer required.

13. Classification of veterinary medicinal products

Veterinary medicinal product not subject to prescription [AT, BG, EE, ES, HU, IT, LV, LT, NL, RO].

Veterinary medicinal product subject to prescription [IE, UK-NI].

14. Marketing authorisation numbers and pack sizes

Not all pack sizes may be marketed.

2.68 ml, pipette moulded from a film composed of 3 layers: a polypropylene/COC/polypropylene, solvent free lacquer laminate and a copolymer of polyethylene/EVOH/polyethylene. The pipettes are sealed within a child resistant 4-ply foil sachet composed of LDPE/nylon/aluminium foil/polyester film and presented in an outer box.

Boxes of 1, 2, 3, 4, 6, 8, 12, 24, 30, 60, 90, 120 or 150 pipettes.

15. Date on which the package leaflet was last revised

<{MM/YYYY}>

<{DD/MM/YYYY}>

<{DD month YYYY}>

Detailed information on this veterinary medicinal product is available in the [Union Product Database \(https://medicines.health.europa.eu/veterinary\)](https://medicines.health.europa.eu/veterinary).

16. Contact details

Marketing authorisation holder and <manufacturer responsible for batch release>:

Norbrook Laboratories (Ireland) Limited
Rossmore Industrial Estate
Monaghan
Ireland
Tel : +44 (0)28 3026 4435
Email: phvdept@norbrook.co.uk

Manufacturer responsible for batch release:

Norbrook Laboratories Limited,
Station Works,
Newry,
Co. Down,
BT35 6JP,
Northern Ireland

Norbrook Manufacturing Limited
Rossmore Industrial Estate
Monaghan

Ireland

Local representatives <and contact details to report suspected adverse events>:

For any information about this veterinary medicinal product, please contact the local representative of the marketing authorisation holder.

17. Other information

Mode of Action

Fipronil is an insecticide/acaricide in the phenylpyrazole family. It acts by inhibiting the GABA complex, binding to the chloride channel and thereby blocking pre- and post-synaptic transfer of chloride ions across the membrane. This results in uncontrolled activity of the central nervous system and death in insects and acarids.