[Version 9,03/2022] corr. 11/2022

ANNEX I

SUMMARY OF PRODUCT CHARACTERISTICS

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

MARBOCYL FD, powder and solvent for solution for injection

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Before reconstitution:
Powder
1 g contains:
Active substance:
Marbofloxacin …….198.41 mg
Excipients:

Qualitative composition of excipients and other constituents	**Quantitative composition if that information is essential for proper administration of the veterinary medicinal product**
Powder:	
Disodium edetate	19,84 mg
Benzalkonium chloride	1.98 mg
Mannitol (E421)	
Sodium hydroxide (E524)	
Solvent:	
Water for injections	

Reconstituted solution:
1 mL contains:
Active substance:
Marbofloxacin …….10.00 mg
Excipients:

Qualitative composition of excipients and other constituents	**Quantitative composition if that information is essential for proper administration of the veterinary medicinal product**
Disodium edetate	1.00 mg
Benzalkonium chloride	0.10 mg
Mannitol (E421)	
Sodium hydroxide (E524)	
Water for injections	q.s. 1 mL

Powder and solvent for solution for injection
Pale yellow to pale beige powder and clear, colourless solvent

3. CLINICAL INFORMATION

3.1 Target species

Cats and dogs.

3.2 Indications for use for each target species

Treatment of Infections due to marbofloxacin susceptible bacteria.

In dogs:
- Treatment of infected wounds and abscesses
- Treatment of lower urinary tract infections due to *Escherichia coli* and *Proteus mirabilis*
- Prevention of surgical infections due to *Staphylococcus intermedius, Escherichia coli* and *Pseudomonas aeruginosa*.

In cats:
- Treatment of infected wounds and abscesses
- Prevention of surgical infections due to *Staphylococcus intermedius, Escherichia coli* and *Pseudomonas aeruginosa*.

3.3 Contraindications

In growing pups of large or very large sized breeds, articular impairments (erosion of the articular cartilage) may appear during prolonged treatments with fluoroquinolones. In medium-sized growing dogs marbofloxacine is well tolerated up to doses of 4 mg/kg/day administrated during 13 weeks.

However, it is not advised to administer the veterinary medicinal product
to pups of large or very large breeds up to the age of 12 and 18 months respectively.

Do not use in bacterial infections with cross-resistance to other fluoroquinolones.

Do not use in cases of hypersensitivity to the active substance or other (fluoro)quinolone, or to any of the excipients.

3.4 Special warnings

None.

3.5 Special precautions for use

Special precautions for safe use in the target species:

Fluoroquinolones should be reserved for the treatment of clinical conditions, which have responded poorly, or are expected to respond poorly, to other classes of antimicrobials.
Whenever possible, fluoroquinolones should only be used based on susceptibility testing. Official and local antimicrobial policies should be taken into account when the product is used.
Use of the product deviating from the instructions given in the SPC may increase the prevalence of bacteria resistant to the fluoroquinolones and may decrease the effectiveness of treatment with other quinolones due to the potential for cross resistance.

Some fluroquinolones at high doses may have an epileptogenic potential and a depressor effect on cardiovascular function. Before pre-surgical administration to animals with a history of seizures or cardiovascular disorders, presurgical
examination and anaesthetic protocol should be carefully considered.

Experimentally, marbofloxacin has not led to such epileptic reactions in dogs, including in case of over-dosages.

When given IV, the product should be injected slowly.

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

In case of contact with skin, rinse with clear water.
In case of eye contact or accidental ingestion, rinse the eye or mouth with clear water and seek medical advice immediately and show the package leaflet or the label to the physician.Special precautions for the protection of the environment:

Not applicable.

3.6 Adverse events

Cats and dogs:

Very rare (<1 animal / 10,000 animals treated, including isolated reports):	Neurological signs[1] (e.g. seizure, ataxia, mydriasis and muscle tremor)[1] Hypersalivation[1], emesis[1] Injection site reaction[1]

[1] *In severe cases, symptomatic treatment should be administered.*

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 also the package leaflet for respective contact details.

3.7 Use during pregnancy, lactation or lay

The safety of the veterinary medicinal product has not been established during pregnancy and lactation.

Pregnancy and lactation:
Use only according to the benefit-risk assessment by the responsible veterinarian.
Laboratory studies in rats and rabbits have not produced any evidence of teratogenic, embryotoxic or maternotoxic effect of marbofloxacin at the therapeutic dose.

3.8 Interaction with other medicinal products and other forms of interaction

Specific studies conducted in dogs did not show interaction between marbofloxacin and anaesthetic agents such as isoflurane and medetomidine/ketamine combination.
In the absence of studies with other anaesthetic agents, interactions cannot be excluded.

3.9 Administration routes and dosage

Prepare the solution by introducing the total content of the solvent vial into the lyophilisate vial.

Dogs:
- Treatment of infected wounds and abscesses: 2 mg marbofloxacin / kg / day by a single sub-cutaneous injection, followed by oral administration for 6 days in the form of tablets.
- Treatment of infections of lower urinary tract: 4 mg of marbofloxacin / kg / day by three sub-cutaneous injections at intervals of 4 days.
- Prevention of surgical infections: 2 mg of marbofloxacin / kg by a single intravenous injection, just before the intervention.

Cats:
- Treatment of infected wounds and abscesses: 2 mg marbofloxacin / kg / day by a single subcutaneous injection for 3 to 5 days.

- Prevention of surgical infections: 2 mg of marbofloxacin / kg by a single intravenous injection, just before the intervention.

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

Symptoms observed in case of over-dosage are neurological: hypersalivation, lacrimation, trembling, myoclonia and convulsions. In case of severe reactions, symptomatic treatment must be initiated. Bradycardia could also be observed.

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

.

3.12 Withdrawal periods

Not applicable.

4. PHARMACOLOGICAL PROPERTIES

4.1 ATCvet code:

QJ01MA93

4.2 Pharmacodynamics

Marbofloxacin is a synthetic bactericidal antimicrobial belonging to the fluoroquinolone group which acts by inhibition of DNA gyrase. It is effective against a wide range of Gram positive bacteria (especially *Staphylococcus* and *Streptococcus*), and Gram negative bacteria (especially *Escherichia coli, Citrobacter freundii, Enterobacter cloacae, Serratia marcescens, Morganella morganii, Proteus sp, Klebsiella sp, Pasteurella sp, Moraxella sp, Pseudomonas sp).*
In 2001, 100% of *Pasteurella multocida* and *Staphylococcus intermedius* were susceptible to marbofloxacin (with MIC90 = 0.052 µg/ml and 0.219 µg/ml respectively), as well as 83 % *Pseudomonas aeruginosa* (MIC90 = 1.357 µg/ml) and 90 % *E. coli* (MIC90 = 0.170 µg/ml).

The breakpoints are: MIC sensitive strain ≤1 µg/ml ; MIC resistant strain ≥ 4µg/ml.

Intrinsic resistance to quinolones is observed in some micro-organisms (yeast, fungi, strict anaerobes, some *Pseudomonas*). Acquired resistance is due to chromosome mutation. Since 1997, sensitivity of key pathogens to marbofloxacin remains very high.

4.3 Pharmacokinetics

After a sub-cutaneous administration to dogs and cats at the recommended dose of 2 or 4 mg/kg, marbofloxacin is rapidly absorbed and its bioavailability is close to 100 %. Maximum plasma concentrations reached in the 2 species are about 1.5 µg/ml after sub-cutaneous administration of 2 mg/kg in dogs and cats and 3 µg/ml at the dose of 4 mg/kg.
Marbofloxacin is weakly bound to plasma proteins (less than 10% in dogs and cats) and is widely distributed in the whole organism. In most tissues (skin, muscles, liver, kidney, lung, bladder, digestive tract), the tissue concentrations are higher than in plasma.
Marbofloxacin is eliminated slowly (elimination half life of about 13 hours in cats and dogs) and mainly in its active form in urine (2/3) and faeces (1/3).

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.
Shelf-life after reconstitution according to directions: 28 days.

5.3 Special precautions for storage

Before reconstitution: This veterinary medicinal product does not require any special storage conditions.
After reconstitution: Do not store above 25°C. Keep in the outer carton in order to protect from light.

5.4 Nature and composition of immediate packaging

Primary packaging

- Lyophilisate: colourled glass vial of type II
- Solvent: colourless glass vial of type II
- Chlorobutyl stopper
- Aluminium cap or flip cap

Sales-presentation(s) and administrative identification number(s)

- Box containing one 504 mg lyophilisate vial and 10 ml vial of solvent
- Box containing one 1008 mg lyophilisate vial and 20 ml vial of solvent

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.

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

VETOQUINOL S.A.

To be completed nationally.

7. MARKETING AUTHORISATION NUMBER(S)

EU/2/00/000/000
To be completed nationally.

8. DATE OF FIRST AUTHORISATION

Date of first authorisation: DD/MM/YYYY
To be completed nationally.

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

<{MM/YYYY}>
To be completed nationally.

10. CLASSIFICATION OF VETERINARY MEDICINAL PRODUCTS

Veterinary medicinal product subject to prescription.

Detailed information on this veterinary medicinal product is available on the website of the European Medicines Agency (http://www.ema.europa.eu/).

ANNEX III

LABELLING AND PACKAGE LEAFLET

A. LABELLING

PARTICULARS TO APPEAR ON THE OUTER PACKAGE

CARTON BOX WITH 1 VIAL OF LYOPHILISATE 5004/1008 mg AND 1 VIAL OF SOLVENT 10/20 ml

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

MARBOCYL FD, powder and solvent for solution for injection

2. STATEMENT OF ACTIVE SUBSTANCES

Before reconstitution:
Powder
1 g contains:
Active substance:
Marbofloxacin …….198.41 mg

Reconstituted solution:
1 ml contains:
Active substance:
Marbofloxacin …….10.00 mg

3. PACKAGE SIZE

Box containing one 504 mg lyophilisate vial and 10 ml vial of solvent
Box containing one 1008 mg lyophilisate vial and 20 ml vial of solvent

4. TARGET SPECIES

Cats and dogs.

5. INDICATIONS

6. ROUTES OF ADMINISTRATION

Subcutaneous and intravenous route.
Read the package leaflet before use.

7. WITHDRAWAL PERIODS

8. EXPIRY DATE

EXP {mm/yyyy}
Once opened, use within 28 days.

9. SPECIAL STORAGE PRECAUTIONS

Before reconstitution: This veterinary medicinal product does not require any special storage conditions.
After reconstitution: Do not store above 25°C, keep in the outer carton in order to protect from light.

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

VETOQUINOL S.A.
To be completed nationally.

14. MARKETING AUTHORISATION NUMBERS

EU/2/00/000/000
To be completed nationally.

15. BATCH NUMBER

Lot {number}

MINIMUM PARTICULARS TO APPEAR ON SMALL IMMEDIATE PACKAGING UNITS

Label of 504 and 1008 mg lyophilisate vials

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

MARBOCYL FD, powder and solvent for solution for injection

2. QUANTITATIVE PARTICULARS OF THE ACTIVE SUBSTANCES

Before reconstitution:
Powder
1 g contains:
Active substance:
Marbofloxacin …….198.41 mg

Reconstituted solution:
1 mL contains:
Active substance:
Marbofloxacin …….10.00 mg

3. BATCH NUMBER

<Batch><Lot> {number}

4. EXPIRY DATE

EXP {mm/yyyy}
Once opened, use within 28 days.

MINIMUM PARTICULARS TO APPEAR ON SMALL IMMEDIATE PACKAGING UNITS

Label of 10 and 20 ml solvent vials

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

MARBOCYL FD, powder and solvent for solution for injection

2. QUANTITATIVE PARTICULARS OF THE ACTIVE SUBSTANCES

Before reconstitution:
Powder
1 g contains:
Active substance:
Marbofloxacin …….198.41 mg

Reconstituted solution:
1 mL contains:
Active substance:
Marbofloxacin …….10.00 mg

3. BATCH NUMBER

<Batch><Lot> {number}

4. EXPIRY DATE

EXP {mm/yyyy}Once opened, use within 28 days.

B. PACKAGE LEAFLET

PACKAGE LEAFLET:

1. Name of the veterinary medicinal product

MARBOCYL FD, powder and solvent for solution for injection

2. Composition

Before reconstitution:
Powder
1 g contains:
Active substance:
Marbofloxacin …….198.41 mg
Excipients:

Qualitative composition of excipients and other constituents	**Quantitative composition if that information is essential for proper administration of the veterinary medicinal product**
Powder:	
Disodium edetate	19,84 mg
Benzalkonium chloride	1.98 mg
Mannitol (E421)	
Sodium hydroxide (E524)	
Solvent:	
Water for injections	

Reconstituted solution:
1 mL contains:
Active substance:
Marbofloxacin …….10.00 mg
Excipients:

Qualitative composition of excipients and other constituents	**Quantitative composition if that information is essential for proper administration of the veterinary medicinal product**
Disodium edetate	1.00 mg
Benzalkonium chloride	0.10 mg
Mannitol (E421)	
Sodium hydroxide (E524)	
Water for injections	q.s. 1 mL

Powder and solvent for solution for injection
Pale yellow to pale beige powder and clear, colourless solvent

3. Target species

Cats and dogs.

4. Indications for use

Treatment of Infections due to marbofloxacin susceptible bacteria.

In dogs:
- Treatment of infected wounds and abscesses
- Treatment of lower urinary tract infections due to *Escherichia coli* and *Proteus mirabilis*
- Prevention of surgical infections due to *Staphylococcus intermedius, Escherichia coli* and *Pseudomonas aeruginosa*.

In cats:
- Treatment of infected wounds and abscesses
- Prevention of surgical infections due to *Staphylococcus intermedius, Escherichia coli* and *Pseudomonas aeruginosa*.

5. Contraindications

In growing pups of large or very large sized breeds, articular impairments (erosion of the articular cartilage) may appear during prolonged treatments with fluoroquinolones. In medium-sized growing dogs marbofloxacine is well tolerated up to doses of 4 mg/kg/day administrated during 13 weeks.

However, it is not advised to administer the veterinary medicinal product
to pups of large or very large breeds up to the age of 12 and 18 months respectively.

Do not use in bacterial infections with cross-resistance to other fluoroquinolones.

Do not use in cases of hypersensitivity to the active substance or other (fluoro)quinolone, or to any of the excipients.

6. Special warnings

Special precautions for safe use in the target species:

Fluoroquinolones should be reserved for the treatment of clinical conditions, which have responded poorly, or are expected to respond poorly, to other classes of antimicrobials.
Whenever possible, fluoroquinolones should only be used based on susceptibility testing. Official and local antimicrobial policies should be taken into account when the product is used.
Use of the product deviating from the instructions given in the SPC may increase the prevalence of bacteria resistant to the fluoroquinolones and may decrease the effectiveness of treatment with other quinolones due to the potential for cross resistance.

Some fluroquinolones at high doses may have an epileptogenic potential and a depressor effect on cardiovascular function. Before pre-surgical administration to animals with a history of seizures or cardiovascular disorders, presurgical
examination and anaesthetic protocol should be carefully considered.

Experimentally, marbofloxacin has not led to such epileptic reactions in dogs, including in case of over-dosages.

When given IV, the product should be injected slowly.

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

In case of contact with skin, rinse with clear water.
In case of eye contact or accidental ingestion, rinse the eye or mouth with clear water and seek medical advice.

Pregnancy and lactation:

Studies on laboratory animals (rats, rabbits) did not reveal any teratogenic, embryotoxic or maternotoxic effect of marbofloxacin at the therapeutic dose. Safety has not been demonstrated in cats and dogs during pregnancy and lactation. Use during gestation or lactation only according to the benefit/risk assessment of the veterinarian.

Special precautions for the protection of the environment:
Not applicable.

Interaction with other medicinal products and other forms of interaction:

Specific studies conducted in dogs did not show interaction between marbofloxacin and anaesthetic agents such as isoflurane and medetomidine/ketamine combination./
In the absence of studies with other anaesthetic agents, interactions cannot be excluded.

Overdose:

Symptoms observed in case of over-dosage are neurological: hypersalivation, lacrimation, trembling, myoclonia and convulsions. In case of severe reactions, symptomatic treatment must be initiated. Bradycardia could also be observed.

7. Adverse events

Cats and dogs:

Very rare (<1 animal / 10,000 animals treated, including isolated reports):	Neurological signs[1] (e.g. seizure, ataxia, mydriasis and muscle tremor)[1] Hypersalivation[1], emesis[1] Injection site reaction[1]

[1] *In severe cases, symptomatic treatment should be administered.*

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 the local representative of the marketing authorisation holder> using the contact details at the end of this leaflet, or via your national reporting system: <{national system details}*[listed in Appendix I*]*>.

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

Prepare the solution by introducing the total content of the solvent vial into the lyophilisate vial.

Dogs:

- Treatment of infected wounds and abscesses: 2 mg marbofloxacin / kg / day by a single sub-cutaneous injection, followed by oral administration for 6 days in the form of tablets.
- Treatment of infections of lower urinary tract: 4 mg of marbofloxacin / kg / day by three sub-cutaneous injections at intervals of 4 days.
- Prevention of surgical infections: 2 mg of marbofloxacin / kg by a single intravenous injection, just before the intervention.

Cats:

- Treatment of infected wounds and abscesses: 2 mg marbofloxacin / kg / day by a single subcutaneous injection for 3 to 5 days.
- Prevention of surgical infections: 2 mg of marbofloxacin / kg by a single intravenous injection, just before the intervention.

9. Advice on correct administration

None.

10. Withdrawal periods

Not applicable.

11. Special storage precautions

Keep out of the sight and reach of children.

Before reconstitution: this veterinary medicinal product does not requie any special storage conditions.
After reconstitution: do not store above 25°C, keep in the outer carton in order to protect from light.

Shelf life after first opening the container: 28 days
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.

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.

13. Classification of veterinary medicinal products

Veterinary medicinal product subject to prescription.

14. Marketing authorisation numbers and pack sizes

EU/2/00/000/000
To be completed nationally.

Primary packaging

- Lyophilisate: colourled glass vial of type II
- Solvent: colourless glass vial of type II
- Chlorobutyl stopper
- Aluminium cap or flip cap

Sales-presentation(s) and administrative identification number(s)

- Box containing one 504 mg lyophilisate vial and 10 ml vial of solvent
- Box containing one 1008 mg lyophilisate vial and 20 ml vial of solvent

Not all pack sizes may be marketed.

15. Date on which the package leaflet was last revised

<{MM/YYYY}>

Detailed information on this veterinary medicinal product is available on the website of the European Medicines Agency (http://www.ema.europa.eu/).

16. Contact details

Marketing authorisation holder, and manufacturer responsible for batch release:

VETOQUINOL S.A.
MAGNY VERNOIS
70200 LURE
France

Local representatives and contact details to report suspected adverse reactions: *[To be completed nationally]*