SUMMARY OF PRODUCT CHARACTERISTICS

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

FORCYL swine 160 mg/ml solution for injection for pigs

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Each ml contains:

Active substance:

Marbofloxacin .....160 mg

Excipients:

Qualitative composition of excipients and other constituents	Quantitative composition if that information is essential for proper administration of the veterinary medicinal product
Benzyl alcohol (E1519)	15 mg
Glucono-delta-lactone	
Water for injection	

Clear yellow greenish to yellow brownish solution.

3. CLINICAL INFORMATION

3.1 Target species

Pigs (for fattening, weaned piglets, sows).

3.2 Indications for use for each target species

In fattening pigs:
- Treatment of respiratory tract infections caused by susceptible strains of *Actinobacillus pleuropneumoniae and Pasteurella multocida.*

In weaned piglets:
- Treatment of intestinal infections caused by susceptible strains of *E. coli.*

In post-partum sows:
- Treatment of metritis mastitis agalactia syndrome (form of postpartum dysgalactiae syndrome, PPDS) caused by susceptible strains of *E. coli*.

3.3 Contraindications

Do not use in cases of hypersensitivity to the active substance, other fluoroquinolones or to any of the excipients.

Do not use fluoroquinolones as prophylaxis or metaphylaxis to prevent diarrhoea at weaning, to limit development of resistance.

3.4 Special warnings

Do not use in cases where the pathogen involved is resistant to other fluoroquinolones (cross resistance).

3.5 Special precautions for use

Special precautions for safe use in the target species:

Official and local antimicrobial policies should be taken into account when this veterinary medicinal product is used.
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. Wherever possible, use of the veterinary medicinal product should only be based on susceptibility testing.

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

People with known hypersensitivity to (fluoro)quinolones and benzyl alcohol should avoid any contact with the veterinary medicinal product.
Wash hands after use. Avoid contact of the skin and eyes with the veterinary medicinal product. If the product comes into contact with the skin or eyes, rinse with copious amounts of water.
Care should be taken to avoid accidental self-injection. In case of accidental self-administration, the user should seek medical advice immediately and show the package leaflet or the label to the physician.
Accidental self-injection can induce a slight irritation.

Special precautions for the protection of the environment:

Not applicable.

3.6 Adverse events

Swine:

Common (more than 1 but less than 10 animals in 100 animals)	Injection site pain
Very rare (<1 animal / 10,000 animals treated, including isolated reports):	Injection site reaction[1]

[1] Disappear within 36 days.

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 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

The safety of the veterinary medicinal product has not been established at 8 mg/kg in pregnant sows or in suckling piglets when used in sows.

Pregnancy and lactation:

Laboratory studies in rats and rabbits have not produced any evidence of a teratogenic, embryotoxic or maternotoxic effect.

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

Intramuscular use.

The recommended dosage is 8 mg of marbofloxacin /kg body weight i.e. 1 ml of veterinary medicinal product/20 kg body weight in a single intramuscular injection in the side of the pig neck.
To ensure a correct dosage, body weight should be determined as accurately as possible.

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

Lesions of the joint cartilage, potentially leading to difficulties in movement, were observed in some animals treated at three times the recommended dose and treatment duration.

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

See section ‘3.5 Special precautions for safe use in the target species’.

3.12 Withdrawal periods

Meat and offal: 9 days.

4. PHARMACOLOGICAL INFORMATION

4.1 ATC Vet code:

QJ01MA93

4.2 Pharmacodynamics

Marbofloxacin is a synthetic, bactericidal antimicrobial, belonging to the fluoroquinolone group, which acts by inhibition of DNA gyrase. It has a broad-spectrum activity *in vitro* against Gram-positive bacteria and, Gram-negative bacteria.

Between 2009 and 2013, the activity of marbofloxacin against *Pasteurella multocida* (n=444) and *Escherichia coli* (n=1226) isolated from swine diseases in Europe was for *P. multocida:* MIC range*:* 0,004-1 µg/ml, MIC_{50}: 0.013µg/ml MIC_{90}: 0,028µg/ml and for *E. coli* (digestive infections): MIC range 0,008-64µg/ml; MIC_{50}:0,026µg/ml; MIC_{90}:0,681µg/ml, for E. coli (MMA syndrome): MIC range 0,015-16µg/ml; MIC_{50}:0,024µg/ml; MIC_{90}:0,475µg/ml. Marbofloxacin MIC distribution among E. coli strains isolated from digestive or MMA syndrome are similar with a trimodal distribution.

The clinical breakpoints defined for marbofloxacin are S ≤ 1 µg/mL, I = 2 µg/mL and R ≥ 4 µg/mL for *Pasteurellaceae* according to the “Comité de l’Antibiogramme de la Société Française de Microbiologie” (=French Society of Microbiology) (CA-SFM 2013).

Between 2009 and 2012, the activity of marbofloxacin against *Actinobacillus pleuropneumoniae* (n=157) isolated from swine diseases in Europe was: MIC range: 0.015-2µg/mL, MIC_{50}: 0.03µg/mL, MIC_{90}: 0.06µg/mL.
The activity of marbofloxacin against the target bacterial species is bactericidal concentration dependent.

A decrease of susceptibility of *Campylobacter spp*. against fluoroquinolones was observed since 1999. Resistance to fluoroquinolones occurs by chromosomal mutation with three mechanisms: decrease of the bacterial wall permeability, expression of efflux pump or mutation of enzymes responsible for molecule binding. To date, only sporadic cases have been reported for plasmid mediated fluoroquinolone resistance in animals. Depending on the underlying resistance mechanism cross-resistance to other (fluoro)quinolones and co-resistance to other antimicrobial classes can occur.

4.3 Pharmacokinetics

After administration of an intramuscular dose of 8 mg/kg, the following mean plasmatic pharmacokinetic parameters were observed:

Parameter	Fattening pigs	Weaned pigs	Sows
T_{max}	0.95 h	0.93 h	1 h
C_{max}	6.295 µg/mL	5.550 µg/mL	5.809 µg/mL
AUC_{INF}	114.7 µg.h/mL	79.89 µg.h/mL	112.0 µg.h/mL
T½lz	15.14 h	13.23 h	11.92 h
F	91.53 %	89.57 %	nc

C_{max} = maximal plasmatic concentration;T_{max} = mean observed occurrence time of the Cmax; AUC_{INF} = area under the concentration-time curve extrapolated to infinity; T½lz = mean elimination half-life; F mean absolute bioavailability; nc: not calculated

Marbofloxacin is extensively distributed. Uterus tissue concentrations in sows reach Cmax of 9.346 µg/g in the uterine body observed at Tmax of 1.00 h after administration and the AUClast was 105.4 µg.h/g.

Binding to plasma proteins is weak, about 4%. In pigs, the elimination is predominantly as the active form in urine and faeces.

Marbofloxacin is eliminated slightly faster in post-weaning piglets than in heavier animals.

5. PHARMACEUTICAL PARTICULARS

5.1 Major incompatibilities

In the absence of compatibility studies, this veterinary medicinal product must not be mixed with other veterinary medicinal products.

5.2 Shelf life

Shelf life of the veterinary medicinal product as packaged for sale: 3 years.
Shelf life after first opening the immediate packaging: 28 days.

5.3 Special precautions for storage

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

5.4 Nature and composition of immediate packaging

Amber type II glass vials
Chlorobutyl rubber stopper
Aluminium cap or flip cap

Pack sizes:
Cardboard box containing one 50 ml vial
Cardboard box containing one 100 ml vial
Cardboard box containing one 250 ml vial

Not all pack sizes may be marketed.

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

Medicines should not be disposed of via wastewater.

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 UK Limited

7. MARKETING AUTHORISATION NUMBER

Vm 08007/4134

8. DATE OF FIRST AUTHORISATION

22 August 2012

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

May 2025

10. CLASSIFICATION OF VETERINARY MEDICINAL PRODUCT

Veterinary medicinal product subject to prescription.

Find more product information by searching for the 'Product Information Database' on www.gov.uk.

Gavin Hall

Approved: 28 July 2025