1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Tylucyl 200 mg/ml solution for injection for cattle and pigs

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Each ml contains:

Active substance:

Tylosin. ..... 200 000 IU
(equivalent to approximately 200 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)	40 mg
Propylene glycol (E1520)	
Water for injections	

Pale yellow to amber coloured solution.

3. CLINICAL INFORMATION

3.1 Target species

Cattle, pigs

3.2 Indications for use for each target species

For the treatment of specific infectious conditions (stated below) caused by microorganisms susceptible to tylosin.

Cattle (adult):
Respiratory infections, metritis caused by Gram-positive microorganisms, mastitis caused by *Streptococcus* spp*, Staphylococcus* spp and interdigital necrobacillosis, i.e. panaritium or foot root.

Calves:
Respiratory infections and necrobacillosis.

Pigs (more than 25 kg):
Enzootic pneumonia, haemorrhagic enteritis, erysipelas and metritis.
Arthritis caused by *Mycoplasma* spp. and *Staphylococcus* spp.

For information regarding swine dysentery see section 3.5.

3.3 Contraindications

Do not use in horses.
Intramuscular injection can be fatal in chickens and turkeys.
Do not use in cases of hypersensitivity to tylosin, other macrolides 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:

Use of the product should be based on identification and susceptibility testing of the target pathogens.
If it is not possible, therapy should be based on epidemiological information and knowledge of susceptibility of the target bacteria at farm level, or at local/regional level.

Use of the product should be in accordance with official, national and regional antimicrobial policies.
Use of the product deviating from the instructions given in the SPC may increase the prevalence of bacteria resistant to tylosin and may decrease the effectiveness of treatment with other macrolide antibiotics due to the potential for cross resistance.

A high rate of in vitro resistance has been demonstrated in European strains of *Brachyspira hyodysenteriae* implying that the product will not be sufficiently efficacious against swine dysentery.

The efficacy data do not support the use of tylosin for the treatment of bovine mastitis caused by *Mycoplama* spp. Use of tylosin in this case presents a serious concern to animal and human health, potentially delaying a correct diagnosis, enabling the spread of the pathogen to other cows, impeding efficient/prudent control measures and increasing the risk for the development of antimicrobial resistance.

Where repeat injections are to be administered, use different sites for each injection.

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

Care should be taken to avoid accidental self-injection.

In case of accidental self-injection, seek medical advice immediately and show the package leaflet or the label to the physician.

In the event of accidental skin contact, wash thoroughly with soap and water. In case of accidental eye contact, flush the eyes with plenty of clean, running water.

Wash hands after use.

Tylosin may induce irritation. Macrolides, such as tylosin, may also cause hypersensitivity (allergy) following injection, inhalation, ingestion or contact with skin or eye. Hypersensitivity to tylosin may lead to cross reactions to other macrolides and vice versa. Allergic reactions to these substances may occasionally be serious and therefore direct contact should be avoided.

Do not handle the product if you are allergic to ingredients in the product.

If you develop symptoms following exposure, such as skin rash, you should seek medical advice and show the physician this warning. Swelling of the face, lips and eyes or difficulty in breathing are more serious symptoms and require urgent medical attention.

Special precautions for the protection of the environment:

Tylosin is persistent in some soils.

3.6 Adverse events

Pigs:

Uncommon (1 to 10 animals / 1000 animals treated):	Hypersensitivity reaction
Very rare (<1 animal / 10000 animals treated, including isolated reports):	Injection site swelling, injection site inflammation Erythema, pruritus Anal prolapse[1] Anaphylactic shock, rectal oedema Death
Undetermined frequency (cannot be estimated from the available data)	Injection site reaction[2]

[1] Partial anal protrusion ("rosebudding")
[2] Blemishes may persist for up to 21 days after administration

Cattle:

Uncommon (1 to 10 animals / 1000 animals treated):	Hypersensitivity reaction
Very rare (<1 animal / 10000 animals treated, including isolated reports):	Injection site swelling, injection site inflammation Swollen vulva Anaphylactic shock Death
Undetermined frequency (cannot be estimated from the available data)	Injection site reaction[1]

[1] Blemishes may persist for up to 21 days after administration

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 authorization 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

Studies in laboratory animals have neither produced any evidence of a teratogenic or foetotoxic effects nor consequences on animals' fertility.

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

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 or slow intravenous (only in cattle) use.

Cattle:
5 mg to 10 mg of tylosin per kg bodyweight per day during 3 days, i.e 2.5 to 5 ml of solution per 100 kg bodyweight.

Maximum injection volume per injection site should not exceed 15 ml.

Pigs (more than 25 kg):
5 mg to 10 mg of tylosin per kg bodyweight per day during 3 days, i.e 2.5 to 5 ml of solution per 100 kg bodyweight.
In pigs do not administer more than 5 ml per injection site.

To ensure a correct dosage, body weight should be determined as accurately as possible.

The closures should not be broached more than 15 times. In order to prevent excessive broaching of the stopper, a suitable multiple dosing device should be used.

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

In pigs and calves an intramuscular injection of 30 mg/kg per day during 5 consecutive days produced no adverse effects.

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

Cattle:
Meat and offal: 28 days Milk: 108 hours

Pigs:
Meat and offal: 16 days

4. PHARMACOLOGICAL INFORMATION

4.1 ATCvet code

QJ01FA90

4.2 Pharmacodynamics

Tylosin is a macrolide antibiotic with a pKa of 7.1. Tylosin is structurally similar to erythromycin. It is produced by *Streptomyces fradiae*. Tylosin has a low solublility in water.
Tylosin exerts its antibiotic activity by a similar mechanism to other macrolides, i.e. by binding the 50 S fraction of the ribosomes resulting, in an inhibition of the synthesis of proteins. Tylosin has mainly a bacteriostatic activity.
Tylosin has an antibiotic effect against Gram positive cocci (Staphylococci, Streptococci), Gram positive bacilli (*Arcanobacterium spp., Clostridium spp., Erysipelothrix, Actinomyces*), some Gram-negative bacilli (*Haemophilus spp., Pasteurella spp., Mannheimia spp*.).
Resistance to macrolides is usually plasmid-mediated but modification of ribosomes may occur through chromosomal mutation. Resistance can occur by i) decreased entry into bacteria (most common with the gram-negative bacteria), ii) synthesis of bacterial enzymes that hydrolyze the drug and, iii) modification of the target (the ribosome).
This latter resistance type may also lead to cross-resistance with other antibiotics that preferentially bind to bacterial ribosome. Gram-negative anaerobic bacteria are often resistant.

4.3 Pharmacokinetics

Absorption:

Following intramuscular injection the tylosin concentration reaches its maximum at 3-4 hours following administration.

Distribution, Biotransformation and Elimination:

The maximum concentration in milk of cattle and sows is 3-6 times higher than the blood concentration about 6 hours following injection. In bovine and porcine lungs maximum tylosin concentrations of 7 - 8 times higher than the maximum concentrations in serum were found at 6-24 hours following intramuscular injection. In cattle (whether in heat or not) the Mean Residence Time (MRT) in uterus secretions of tylosin injected by intravenous route at a dose rate of 10 mg/kg was about 6-7 times higher than the one measured in serum. This illustrates that in uterine secretions a single tylosin injection at a dose rate of 10 mg/kg during 24 hours can result in concentrations exceeding the MIC90 of tylosin for *Arcanobacterium pyogenes*, one of the pathogens frequently isolated when metritis is diagnosed in cattle.

Tylosin is eliminated in unchanged form in bile and urine.

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: 2 years.
Shelf life after first opening the immediate packaging: 28 days.

5.3 Special precautions for storage

Do not store above 25°C.
Do not freeze.
Store in the original package.
Keep the vial in the outer carton in order to protect from light.

5.4 Nature and composition of immediate packaging

50 ml, 100 ml or 250 ml colourless type II glass vials closed with a bromobutyl rubber stopper and aluminium cap.
One vial per carton.

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 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.

7. MARKETING AUTHORISATION NUMBER(S)

VPA10521/045/001

8. DATE OF FIRST AUTHORISATION

06/05/2016

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

11/09/2026

10. CLASSIFICATION OF VETERINARY MEDICINAL PRODUCTS

Veterinary medicinal product subject to prescription.

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