SUMMARY OF PRODUCT CHARACTERISTICS

1 NAME OF THE VETERINARY MEDICINAL PRODUCT

Cobactan 25 mg/ml Suspension for Injection

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

Each ml contains:
Active substance:
Cefquinome 25mg (equivalent to 29.64 mg/ml Cefquinome sulfate).

Excipient:
For full list of excipients, see section 6.1

3 PHARMACEUTICAL FORM

Suspension for injection
A light brown coloured suspension.

4 CLINICAL PARTICULARS

4.1 Target species

Cattle and pigs

4.2 Indications for use, specifying the target species

For the treatment of bacterial infections in cattle and pigs caused by the Gram positive and Gram negative microorganisms sensitive to cefquinome.

Cattle:
- Respiratory disease caused by *Pasteurella multocida and Mannheimia haemolytica*
- Digital dermatitis, infectious bulbar necrosis and acute interdigital necrobacillosis (foul in the foot)
- Acute *E.coli* mastitis with signs of systemic involvement

Calves:
- *E.coli* septicaemia in calves

Pigs:
- For the treatment of bacterial infections of the lungs and respiratory tract caused by *Pasteurella multocida, Haemophilus parasuis, Actinobacillus pleuropneumoniae, Streptococcus suis* and other cefquinome-sensitive organisms

- Mastitis-Metritis-Agalactia syndrome (MMA) with involvement of *E.coli, Staphylococcus spp., Streptococcus spp*. and other cefquinome sensitive organisms

Piglets:
- Reduction of mortality in cases of meningitis caused by *Streptococcus suis*.

For the treatment of:
- Arthritis caused by *Streptococcus ssp., E. coli* and other cefquinome-sensitive organisms.
- Epidermitis (mild or moderate lesions) caused by *Staphylococcus hyicus.*

4.3 Contra-indications

Do not use in animals, which are known to be hypersensitive to ß-lactam antibiotics.
Do not administer to animals less than 1.25 kg body weight.
Do not use in poultry (including eggs) due to risk of spread of antimicrobial resistance to humans.

4.4 Special warning for each target species

None

4.5 Special precautions for use

(i) Special precautions for use in animals
Shake the vial well before using.
The product does not contain an antimicrobial preservative. Swab the septum before removing each dose. Use a dry sterile needle and syringe. An appropriately graduated syringe must be used to allow accurate administration of the required dose volume. This is particularly important when injecting small volumes, for example when treating piglets. The cap may be safely punctured up to 25 times. The 50ml vial should be used for treating small piglets. When treating groups of animals, use a draw-off needle.

To prevent the claimed infections in piglets, attention should be paid to hygiene and ventilation, and overcrowding should be avoided. When the first piglets are affected, careful examination of the other animals of the same pen is recommended to enable an early treatment.

Cobactan 25 mg/ml selects for resistant strains such as bacteria carrying extended spectrum betalactamases (ESBL) which may constitute a risk to human health if these strains disseminate to humans e.g. via food. For this reason, Cobactan 25 mg/ml should be reserved for the treatment of clinical conditions which have responded poorly, or are expected to respond poorly (refers to very acute cases when treatment must be initiated without bacteriological diagnosis), to first line treatment. Official, national and regional antimicrobial policies should be taken into account when the product is used. Increased use, including use of the product deviating from the instructions given in the SPC, may increase the prevalence of such resistance. Whenever possible, Cobactan 25 mg/ml should only be used based on susceptibility testing.

Cobactan 25 mg/ml is intended for treatment of individual animals. Do not use for disease prevention or as a part of herd health programmes. Treatment of groups of animals should be strictly limited to ongoing disease outbreaks according to the approved conditions of use.

(ii) Special precautions to be taken by the person administering the medicinal product to the animals
Care should be taken to avoid accidental self-injection

Penicillins and cephalosporins may cause hypersensitivity (allergy) following injection, inhalation, ingestion or skin contact.

Hypersensitivity to penicillins may lead to cross sensitivity to cephalosporins and vice versa. Allergic reactions to these substances may occasionally be serious.

1. Do not handle this product if you know you are sensitized, or if you have been advised not to work with such preparation.
2. Handle this product with great care to avoid exposure, taking all recommended precautions.
3. If you develop symptoms following exposure such as a skin rash, you should seek medical advice and show the doctor this warning. Swelling of the face, lips or eyes or difficulty with breathing, are more serious symptoms and require urgent medical attention.

Wash hands after use.

4.6 Adverse reactions (frequency and seriousness)

Use of the product may result in localized tissue reaction. Tissue lesions are repaired 15 days after the last administration of the product.
Hypersensitivity reactions to cephalosporins occur rarely.
Hypersensitivity type reactions in cattle have been reported as individual isolated cases.

4.7 Use during pregnancy, lactation or lay

There is no available information indicating reproductive toxicity in cattle or pigs. In reproduction toxicity studies in laboratory animals cefquinome did not reveal any effect on reproduction or teratogenic potential.

4.8 Interaction with other medicinal products and other forms of interaction

It is known that a cross sensitivity to cephalosporin exists for bacteria sensitive to the cephalosporin group.

4.9 Amounts to be administered and administration route

Species	Indication	Dosage	Frequency
Cattle	• Respiratory disease caused by *Pasteurella multocida* and *M. haemolytica* • Digital dermatitis, infectious bulbar necrosis and acute interdigital necrobacillosis (foul in the foot)	1 mg cefquinome/kg bw (2 ml/50 kg bw)	Once daily for 3 or 5 consecutive days
	• Acute *E. coli* mastitis with signs of systemic involvement	1 mg cefquinome/kg bw (2 ml/50 kg bw)	Once daily for 2 consecutive days
Calves	• *E. coli* septicaemia	2 mg cefquinome/kg bw (4 ml/50 kg bw)	Once daily for 3 or 5 consecutive days
Pigs	• Respiratory disease	2 mg Cefquinome/kg bw (2 ml/25 kg bw)	Once daily for 3 consecutive days.
	• MMA	2 mg Cefquinome/kg bw (2 ml/25 kg bw)	Once daily for 2 consecutive days.
Piglets	• Meningitis • Arthritis • Epidermitis	2 mg Cefquinome/kg bw (2 ml/25 kg bw)	Once daily for 5 consecutive days

All treatments to be given by intramuscular injection. Studies have indicated the advisability of giving second and subsequent injections at a different injection site. The localization for the injection site is preferably the neck resp. cervical region.
To ensure a correct dosage, body weight should be determined as accurately as possible to avoid underdosing.

Combined Therapy
Cobactan 25 mg/ml and Cobactan MC can be used concurrently.
For the treatment of *E.coli* mastitis, experimental challenge studies have shown that the use of Cobactan 25 mg/ml in combination with Cobactan MC lead to an improvement in efficacy, particularly in terms of bacterial cure rate.
For combined therapy the following treatment regime should be followed:

Cobactan 25 mg/ml	Cobactan MC
1mg cefquinome/kg bw (2ml/50 kg bw) ↓ 24 hours ↓ 1mg cefquinome/kg bw (2ml/50 kg bw)	One syringe gently infused into the teat of the infected quarter ↓ 12 hours ↓ One syringe gently infused into the teat of the infected quarter ↓ 12 hours ↓ One syringe gently infused into the teat of the infected quarter

4.10 Overdose (symptoms, emergency procedures, antidotes), if necessary

Overdoses of 20 mg/kg/day in cattle and 10 mg/kg/day in pigs and piglets have been well tolerated.

4.11 Withdrawal period(s)

Pigs
Meat and offal: 3 days

Cattle
Meat and offal: 5 days
Milk: 24 hours

When using Cobactan 25 mg/ml and Cobactan MC Intramammary Suspension in combination for the treatment of *E.coli* mastitis in cattle, the withdrawal periods are 5 days for meat and offal and 120 hours for milk.

5. PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

ATCvet code: QJ01DE90
In vitro activity has been demonstrated against common Gram positive and Gram negative bacteria including Escherichia coli, Citrobacter spp., Klebsiella spp., Mannheimia haemolytica, Pasteurella multocida, Proteus spp., Salmonella spp., Serratia marcescens, Haemophilus somnus, Arcanobacterium pyogenes, Bacillus spp., Corynebacterium spp., Staphylococcus spp., Streptococcus spp., Bacteroides spp.,

Clostridium spp., Fusobacterium spp., Prevotella spp., Actinobacillus spp. and Erysipelothrix rhusiopathiae.
Bacterial strains were isolated between 1999 and 2002 from cattle and pigs presenting diseases corresponding to target indications in Germany, France, The Netherlands and United Kingdom. From a sample of more than 350 isolates, 97.7% were found to be susceptible to cefquinome (resistance breakpoint of 4 µg/mL). These susceptible strains had MIC levels ranging from < 0.004 to 2 µg/mL.
Cefquinome as a fourth generation cephalosporin combines high cellular penetration and ß-lactamase stability. In contrast to cephalosporins of previous generations, cefquinome is not hydrolysed by chromosomally–encoded cephalosporinases of the Amp-C type or by plasmid mediated cephalosporinases of some enterobacterial species. However, some Extended Spectrum beta-lactamases (ESBL) can hydrolyse cefquinome and cephalosporins of other generations. The potential for resistance development against cefquinome is rather low. High-level resistance to cefquinome would require the coincidence of two genetic modifications, i.e. hyperproduction of specific ß-lactamases as well as decreased membrane permeability.

5.2 Pharmacokinetic particulars

In cattle peak serum concentrations of about 2 µg/ml are reached within 1.5-2 hours after intramuscular or subcutaneous administration at the dose of 1 mg/kg. Cefquinome has a relatively short half-life (2.5 hours), is < 5 % protein bound and excreted unchanged in the urine. Cefquinome is not absorbed after oral administration.
In pigs or piglets, at 2 mg/kg dosage, maximum serum concentrations of around 5 µg/ml are measured within 15 to 60 minutes after intramuscular injection. The average half-life is about 9 hours.
Cefquinome binds poorly to plasma proteins and therefore penetrates into the cerebrospinal fluid (CSF) and the synovial fluid in pigs. The concentration profile is similar between the synovial fluid and the plasma. The concentrations reached in the CSF 12 hours after treatment are similar to those in plasma.

6 PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Ethyl oleate

6.2 Incompatibilities

None known

6.3 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

6.4 Special precautions for storage

Do not store above 25° C. Keep vial in outer carton.
Following withdrawal of the first dose, use the remaining contents within 28 days.

Discard unused material.
Protect from light
This product does not contain an antimicrobial preservative.

6.5 Nature and composition of immediate packaging

50ml and 100ml colourless glass bottles, type II with grey epichlorhydrine rubber stoppers, fluoro polymer coated, type I closure and sealed with aluminum caps.
Not all pack sizes may be marketed.

6.6 Special precautions for the disposal of unused veterinary medicinal product or waste materials derived from the use of such products, if appropriate

Any unused veterinary medicinal product or waste materials derived from such veterinary medicinal product should be disposed of in accordance with local requirements.

7. MARKETING AUTHORISATION HOLDER

MSD Animal Health UK Limited
Walton Manor
Walton
Milton Keynes
Buckinghamshire
MK7 7AJ

8. MARKETING AUTHORISATION NUMBER

Vm 01708/4445

9. DATE OF FIRST AUTHORISATION

09 February 1998

10. DATE OF REVISION OF TEXT

March 2021

Approved 12 March 2021