ANNEX I

SUMMARY OF PRODUCT CHARACTERISTICS

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Econor 50% premix for medicated feed for pigs
Econor 10% premix for medicated feed for pigs and rabbits

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Econor contains valnemulin in the form of valnemulin hydrochloride.

	Econor 50%	**Econor 10%**
Active substance Valnemulin hydrochloride	532.5 mg/g	106.5 mg/g
Equivalent to valnemulin base	500 mg/g	100 mg/g

For the full list of excipients, see section 6.1.

3. PHARMACEUTICAL FORM

Premix for medicated feeding stuff
White to slight yellowish powder

4. CLINICAL PARTICULARS

4.1 Target species

Pigs and rabbits

4.2 Indications for use, specifying the target species

Econor 50%
The treatment and prevention of swine dysentery.
The treatment of clinical signs of porcine proliferative enteropathy (ileitis).
The prevention of clinical signs of porcine colonic spirochaetosis (colitis) when the disease has been diagnosed in the herd.
Treatment and prevention of swine enzootic pneumonia. At the recommended dosage of 10–12 mg/kg bodyweight lung lesions and weight loss are reduced, but infection with *Mycoplasma hyopneumoniae* is not eliminated.

Econor 10%
Pigs:
The treatment and prevention of swine dysentery.
The treatment of clinical signs of porcine proliferative enteropathy (ileitis).
The prevention of clinical signs of porcine colonic spirochaetosis (colitis) when the disease has been diagnosed in the herd.
Treatment and prevention of swine enzootic pneumonia. At the recommended dosage of 10–12 mg/kg bodyweight lung lesions and weight loss are reduced, but infection with *Mycoplasma hyopneumoniae* is not eliminated.

Rabbits:
Reduction of mortality during an outbreak of epizootic rabbit enteropathy (ERE).
Treatment should be started early in the outbreak, when the first rabbit has been diagnosed with the disease clinically.

4.3 Contraindications

Do not administer the veterinary medicinal product to pigs or rabbits receiving ionophores.
Do not overdose in rabbits – increased doses may disturb gastrointestinal flora leading to the development of enterotoxaemia.

4.4 Special warnings for each target species

Pigs:
As an adjunct to treatment, good management and hygiene practices should be introduced in order to reduce the risk of infection and to control the potential build-up of resistance.

Especially in the case of swine dysentery, a targeted early eradication programme of the disease should be considered.

Rabbits:
The product should be used as part of a programme including measures aimed at controlling the disease on farm such as biosecurity and husbandry controls.
Clinical diagnosis should be confirmed by necropsy.

Rabbits may still show clinical signs of Epizootic Rabbit Enteropathy (ERE) even when treated with the product. However, mortality in affected rabbits is reduced by administering the product. In a field trial, treated rabbits showed a lower frequency of impaction and diarrhoea than untreated rabbits (4% and 12% vs 9% and 13%, respectively). Impaction is more frequently seen in rabbits that die. Tympanism is more frequently reported in rabbits treated with the product than untreated rabbits (27% vs16%). A large proportion of tympanic rabbits will recover.

4.5 Special precautions for use

Special precautions for use in animals

Adverse reactions have occurred in pigs following the use of Econor. Their occurrence appears to be mainly associated with breed mixes that include Danish and/or Swedish Landrace. Extreme care should therefore be taken in the use of Econor in pigs of the Danish and Swedish Landrace breeds, and their crossbreeds thereof, especially in younger pigs. When treating infections caused by *Brachyspira* spp., therapy should be based on local (regional, farm level) epidemiological information about susceptibility of the target bacteria.

Responsible use of antimicrobials
Only use in the case of confirmed epizootic rabbit enteropathy (ERE) outbreaks when diagnosis has been made clinically and confirmed by necropsy. Do not use prophylactically.
Official, national and regional 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 valnemulin and may decrease the effectiveness of pleuromutilins.

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

When mixing the veterinary medicinal product, and handling the final feed containing the product, direct contact with the skin and mucous membranes should be avoided. Gloves should be worn when handling the veterinary medicinal product.
In case of accidental ingestion, seek medical advice immediately and show the package leaflet or the label to the physician.

People with known hypersensitivity to valnemulin should administer the veterinary medicinal product with caution.

4.6 Adverse reactions (frequency and seriousness)

Rabbits:
See section 4.4

Pigs:
Adverse drug reactions following the use of Econor are mainly associated with breeds and cross breeds of Danish and/or Swedish Landrace.

Most common adverse reactions observed in these pigs are pyrexia, anorexia and in severe cases ataxia and recumbency. On affected farms, one third of the pigs treated were affected, with a mortality of 1%. A percentage of such pigs may also suffer oedema or erythema (posterior in distribution), and palpebral oedema. In controlled trials in susceptible animals mortality was less than 1%.

In the case of an adverse reaction, immediate withdrawal of medication is recommended. Severely affected pigs should be removed to clean dry pens and given appropriate treatment, including treatment for concurrent disease.

Valnemulin is well-accepted in feed, but administered at concentrations above 200 mg valnemulin / kg feed may result in transient reduction in food consumption associated with unpalatability during the first few days of feeding.

The frequency of adverse reactions is defined using the following convention:

- very common (more than 1 in 10 animals treated displaying adverse reaction(s))
- common (more than 1 but less than 10 animals in 100 animals treated)
- uncommon (more than 1 but less than 10 animals in 1,000 animals treated)
- rare (more than 1 but less than 10 animals in 10,000 animals treated)
- very rare (less than 1 animal in 10,000 animals treated, including isolated reports)

4.7 Use during pregnancy, lactation or lay

Pregnancy and lactation:

Whilst studies in rats and mice have not produced any evidence of teratogenic effect, the safety in pregnant and lactating sows and does has not been established.

4.8 Interaction with other medicinal products and other forms of interaction

Valnemulin has been shown to interact with ionophores such as monensin, salinomycin and narasin and may result in signs indistinguishable from an ionophore toxicosis. Animals should not receive products containing monensin, salinomycin or narasin, during or at least 5 days before or after treatment with valnemulin. Severe growth depression, ataxia, paralysis or death may result.

4.9 Amounts to be administered and administration route

In feed use for pigs:

The uptake of medicated feed depends on the clinical condition of the animal. In order to obtain the correct dosage, the concentration of Econor has to be adjusted. Inclusion levels may also need to be increased in older pigs or pigs on restricted feed to achieve target dosage.

Indication	Dosage (active substance)	Application period of medicated feed as the sole daily ration	Application in feed (premix)
Treatment of Swine dysentery	3–4 mg/kg bodyweight/day	Minimum of 7 days and up to 4 weeks or until signs of disease disappear	Incorporation of 75 mg active substance per kg feed with: Econor 50% 150 mg/kg feed Econor 10% 750 mg/kg feed

This dose level is effective in the treatment of clinical disease, but higher dosages or longer duration of treatment may be necessary for complete elimination of infection. It is important to institute medication as early as possible in an outbreak of swine dysentery. If there is no response to treatment within 5 days, the diagnosis should be re-established.

Indication	Dosage (active substance)	Application period of medicated feed as the sole daily ration	Application in feed (premix)
Treatment of Clinical signs of porcine proliferative enteropathy (ileitis)	3–4 mg/kg bodyweight/day	2 weeks or until signs of disease disappear	Incorporation of 75 mg active substance per kg feed with: Econor 50% 150 mg/kg feed Econor 10% 750 mg/kg feed

This dose level is effective under normal situation in the treatment of clinical signs of disease, but higher dosages or longer duration of treatment may be necessary for complete elimination of infection. It is important to institute medication as early as possible in an outbreak of porcine proliferative enteropathy. If there is no response to treatment within 5 days, the diagnosis should be re-established. For severely affected animals which fail to respond to treatment within 3–5 days, parenteral treatment should be considered.

Indication	Dosage (active substance)	Application period of medicated feed as the sole daily ration	Application in feed
Prevention of Swine dysentery Clinical signs of porcine colonic spirochaetosis (colitis)	1.0–1.5 mg/kg bodyweight/day	minimum of 7 days and up to 4 weeks 4 weeks	Incorporation of 25 mg active substance per kg feed with: Econor 50% 50 mg/kg feed Econor 10% 250 mg/kg feed

Repeated use of valnemulin should be avoided by improving management practice and thorough cleansing and disinfection. Consideration should be given to the eradication of infection from the farm.

Indication	Dosage (active substance)	Application period of medicated feed as the sole daily ration	Application in feed
Treatment and prevention of swine enzootic pneumonia	10–12 mg/kg bodyweight/day	Up to 3 weeks	Incorporation of 200 mg active substance per kg feed with: Econor 50% 400 mg/kg feed Econor 10% 2 g/kg feed

Secondary infection by organisms such as *Pasteurella multocida* and *Actinobacillus pleuropneumoniae* may complicate enzootic pneumonia and require specific medication.

In feed use for rabbits:
Repeated use of valnemulin should be avoided by improving management practice and thorough cleansing and disinfection.

Indication	Dosage (active substance)	Application period of medicated feed as the sole daily ration	Application in feed (premix)
Epizootic rabbit enteropathy	target 3 mg/kg bodyweight/day	21 days	Incorporation of 35 mg active substance per kg feed with: Econor 10% 350 mg/kg feed

The daily feed consumption should be recorded and the inclusion rate should be adjusted accordingly.

Mixing instructions:

The product has been shown to be stable to the pelleting process at temperatures of 75 °C. Aggressive pelleting conditions such as temperatures in excess of 80 °C, and the use of abrasive substances for pre-mixture should be avoided.

Econor 50%
mg Econor 50% premix/kg feed = Dosage required (mg/kg) x 2 x bodyweight (kg)/Daily feed intake (kg).
To achieve good mixture and homogeneity of incorporation, the use of pre-mixture is required. The required quantity of product is thoroughly mixed with a feed ingredient of similar physical nature (e.g. wheat middlings) in the proportion: 1 part Econor 50% premix to 20 parts feed ingredient.

Econor 10%
mg Econor 10% premix/kg feed = Dosage required (mg/kg) x 10 x bodyweight (kg)/Daily feed intake (kg).
To achieve good mixture and homogeneity of incorporation, the use of a pre-mixture is recommended. The required quantity of product is thoroughly mixed with a feed ingredient of similar physical nature (e.g. wheat middlings) in the proportion: 1 part Econor 10% premix to 10 parts feed ingredient.

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

Toxic signs have not been seen in pigs given 5 times the recommended dose.
Do not overdose in rabbits – increased doses may disturb gastrointestinal flora leading to the development of enterotoxaemia (see section 4.3).

4.11 Withdrawal period(s)

Pigs:
Meat and offal: 1 day.

Rabbits:
Meat and offal: Zero days.

5. PHARMACOLOGICAL PROPERTIES

Pharmacotherapeutic group: Antiinfectives for systemic use, pleuromutilins.

ATCvet code: QJ01XQ02.

5.1 Pharmacodynamic properties

Valnemulin is an antibiotic belonging to the pleuromutilin group, which acts by the inhibition of the initiation of protein synthesis at the level of the bacterial ribosome.

Valnemulin has activity against a range of bacteria including those responsible for enteric and respiratory disease in pigs.

For rabbits it is indicated to reduce the mortality during an outbreak of epizootic rabbit enteropathy (ERE) when the disease has been diagnosed in the herd. However, the aetiology of ERE still remains unclear.

Valnemulin shows high activity against *Mycoplasma* spp. and spirochaetes such as *Brachyspira hyodysenteriae* and *Brachyspira pilosicoli* and *Lawsonia intracellularis.*

Species	**MIC of wild-type population (µg/ml)**
Brachyspira hyodysenteriae	≤0.125
Brachyspira pilosicoli	≤0.125
Lawsonia intracellularis	≤0.125
Mycoplasma hyopneumoniae	≤0.008

Clostridium perfringens, a bacterium which may be involved in the development of ERE, isolated from rabbits with ERE, showed MIC_{90} values of 0.125 µg/ml (isolates from Hungary, Italy, Spain 2013-2017).

Valnemulin has little activity against *Enterobacteriaceae*, such as *Salmonella* spp. and *Escherichia coli*.

There appears to be no resistance development to valnemulin to date by *M. hyopneumoniae* and *L. intracellularis*.

There have been some increases of MICs of valnemulin against *B. hyodysenteriae* and to a lesser degree *B. pilosicoli*, some of which appear to have developed resistance.

Valnemulin binds to the ribosome and inhibits bacterial protein synthesis. Resistance development primarily occurs because of changes at the binding site associated with mutations of the ribosomal DNA genes.

5.2 Pharmacokinetic particulars

In pigs, after a single oral dose of radiolabelled material >90% absorption was demonstrated. Maximum plasma concentrations (C_{max}) of radio-labelled or 'cold' material were obtained 1–4 hours after dosing (T_{max}) with a plasma half-life (t½), estimated from non-radioactive data, between 1 and 4½ hours. A linear relationship between concentration and dose administered was established.
After repeat dosing, slight accumulation occurred, but a steady state was achieved within 5 days. Because of a marked 'first pass' effect, plasma concentrations are affected by the method of administration, but valnemulin is highly concentrated in tissues, particularly the lungs and liver, relative to plasma. Five days after the last of 15 doses of radiolabelled valnemulin administered to pigs, the concentration in liver was >6 times that in plasma. Two hours after withdrawal of premix given in feed twice daily for 4 weeks at a dose of 15 mg/kg bodyweight/day, liver concentration was 1.58 µg/g and lung concentration 0.23 µg/g whereas concentrations in plasma were below the limit of detection.

No radio-labelled metabolism studies were conducted in rabbits. However, as absorption, distribution and elimination were very similar in rats, dogs and pigs, it is reasonable to assume that they would be similar in rabbits. This assumption is supported by the results of an ex-vivo study which compared pig and rabbit liver metabolic profiles.

In pigs valnemulin is extensively metabolised and excretion of parent molecule and metabolites occurs mainly via bile. 73% – 95% of the daily dose of total radioactivity was recovered from the faeces. The plasma half-life was 1.3–2.7 hours, and the majority of the total radio-activity administered was excreted within 3 days of the last administration.
In rabbits, valnemulin is extensively metabolised with the same metabolites being found as in pigs. In liver, traces of valnemulin were observed.

6. PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Econor 10%
Hypromellose
Talc
Colloidal anhydrous silica
Isopropyl myristate
Lactose.

Econor 50%
Hypromellose
Talc

6.2 Major incompatibilities

None known.

6.3 Shelf life

Shelf life of the veterinary medicinal product as packaged for sale: Econor 50%: 5 years, Econor 10%: 2 years
Shelf life when incorporated into meal pig feed and protected from light and moisture: 3 months.
Shelf life when incorporated into pelleted pig feed and protected from light and moisture: 3 weeks.
Shelf life when incorporated into common rabbit feed and protected from light and moisture: 4 weeks.

6.4. Special precautions for storage

Do not store above 25 °C. Store in the original container.
Part-used containers should be tightly closed following dispensing.

6.5 Nature and composition of immediate packaging

Econor 10%, Econor 50%:
1 kg and 25 kg aluminium-lined plastic bags.

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

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

Elanco GmbH
Heinz-Lohmann-Str. 4
27472 Cuxhaven
Germany

8. MARKETING AUTHORISATION NUMBER(S)

EU/2/98/010/017-018 (Econor 10%)
EU/2/98/010/021-022 (Econor 50%)

9. DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

Date of first authorisation: 12/03/1999.
Date of last renewal: 06/03/2009.

10. DATE OF REVISION OF THE TEXT

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

PROHIBITION OF SALE, SUPPLY AND/OR USE

Consideration should be given to official guidance on the incorporation of medicated premixes in final feeds.

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Econor 10% oral powder for pigs

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Active substance:
Valnemulin 100 mg/g
(equivalent to valnemulin hydrochloride 106.5 mg/g)

For the full list of excipients, see section 6.1.

3. PHARMACEUTICAL FORM

Oral powder
White to pale yellow powder

4. CLINICAL PARTICULARS

4.1 Target species

Pigs.

4.2 Indications for use, specifying the target species

Treatment of swine dysentery caused by *Brachyspira hyodysenteriae*.
Treatment of clinical signs of porcine proliferative enteropathy (ileitis) caused by *Lawsonia intracellularis.*
Treatment of swine enzootic pneumonia caused by *Mycoplasma hyopneumoniae.*

4.3 Contraindications

Do not administer the veterinary medicinal product to pigs receiving the ionophores monensin, salinomycin or narasin.

4.4 Special warnings

As an adjunct to treatment, good management and hygiene practices should be introduced in order to reduce the risk of infection and to control the potential build-up of resistance.
Especially in the case of swine dysentery, a targeted early eradication programme of the disease should be considered.

4.5 Special precautions for use

Special precautions for use in animals

Adverse reactions have occurred following the use of Econor. Their occurrence appears to be mainly associated with breed mixes that include Danish and/or Swedish Landrace. Extreme care should therefore be taken in the use of Econor in pigs of the Danish and Swedish Landrace breeds, and their crossbreeds thereof, especially in younger pigs. When treating infections caused by *Brachyspira* spp., therapy should be based on local (regional, farm level) epidemiological information about susceptibility of the target bacteria.

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

When mixing the veterinary medicinal product, and handling the final feed containing the product, direct contact with the skin and mucous membranes should be avoided. Gloves should be worn when handling the veterinary medicinal product.

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

People with known hypersensitivity to valnemulin should administer the veterinary medicinal product with caution.

4.6 Adverse reactions (frequency and seriousness)

Adverse reactions following the use of Econor are mainly associated with breeds and cross- breeds of Danish and/or Swedish Landrace.

Most common adverse reactions observed in these pigs are pyrexia, anorexia and in severe cases ataxia and recumbency. On affected farms, one third of the pigs treated were affected, with a mortality of 1%. A percentage of such pigs may also suffer oedema or erythema (posterior in distribution), and palpebral oedema. In controlled trials in susceptible animals, mortality was less than 1%.

In case of an adverse reaction, immediate withdrawal of medication is recommended. Severely affected pigs should be removed to clean dry pens and given appropriate treatment, including treatment for concurrent disease.

Valnemulin is well-accepted in feed, but administration at concentrations above 200 mg valnemulin / kg feed may result in transient reduction in food consumption, associated with un-palatability during the first days of feeding.

The frequency of adverse reactions is defined using the following convention:

- very common (more than 1 in 10 animals treated displaying adverse reaction(s))
- common (more than 1 but less than 10 animals in 100 animals treated)
- uncommon (more than 1 but less than 10 animals in 1,000 animals treated)
- rare (more than 1 but less than 10 animals in 10,000 animals treated)
- very rare (less than 1 animal in 10,000 animals treated, including isolated reports).

4.7 Use during pregnancy, lactation or lay

Pregnancy and lactation:

Laboratory studies in rats and mice have not produced any evidence of teratogenic effect, however, the safety of the veterinary medicinal product in pregnant and lactating sows has not been established.

4.8 Interaction with other medicinal products and other forms of interaction

Valnemulin has been shown to interact with ionophores such as monensin, salinomycin and narasin and may result in signs indistinguishable from an ionophore toxicosis. Animals should not receive veterinary medicinal products containing monensin, salinomycin or narasin, during or at least 5 days before or after treatment with valnemulin. Severe growth depression, ataxia, paralysis or death may result.

4.9 Amounts to be administered and administration route

For use in individual pigs on farms where only a small number of pigs are to receive the veterinary medicinal product. Larger groups should be treated with medicated feeding stuff containing the premix.
For severely affected animals, which fail to respond to treatment within 3–5 days, parenteral treatment should be considered.

Treatment of swine dysentery
The recommended dose of valnemulin is 3–4 mg/kg bodyweight/day for a minimum of 7 days and up to 4 weeks, or until signs of disease disappear.

This dose level is effective in the treatment of clinical disease, but higher doses or longer duration of treatment may be necessary for complete elimination of infection. It is important to institute treatment as early as possible in an outbreak of swine dysentery. If there is no response to treatment within 5 days, the diagnosis should be re-established.

Treatment of clinical signs of porcine proliferative enteropathy (ileitis)
The recommended dose of valnemulin is 3–4 mg/kg bodyweight/day for 2 weeks or until signs of disease disappear.

This dose level is effective under normal situations in the treatment of clinical signs of disease, but higher doses or longer duration of treatment may be necessary for complete elimination of infection. It is important to institute treatment as early as possible in an outbreak of porcine proliferative enteropathy. If there is no response to treatment within 5 days, the diagnosis should be re-established.

Treatment of swine enzootic pneumonia
The recommended dose of valnemulin is 10–12 mg/kg bodyweight/day for up to 3 weeks.

At the recommended dose of 10–12 mg/kg bodyweight lung lesions and weight loss are reduced, but infection with *Mycoplasma hyopneumoniae* is not eliminated. Secondary infection by organisms such as *Pasteurella multocida* and *Actinobacillus pleuropneumoniae* may complicate enzootic pneumonia and require specific treatment.

Dosing instructions:

The amount of feed mixed with Econor 10% oral powder which is necessary for treatment should be freshly prepared daily.

Daily dose calculation:
Amount Econor 10% oral powder (mg) required = Dose required (mg/kg) x pig bodyweight (kg) x 10 / daily feed intake (kg).

This is achieved by thoroughly mixing the required amount of Econor oral powder into the daily ration for each individual pig. The veterinary medicinal product can be used in dry or liquid feeds, where water or milk co-products have been added. Scoops of 2 sizes are provided for measuring the correct amount of the veterinary medicinal product for mixing with the daily ration, according to the dosage guidance table below. The feed containing the oral powder should be provided as the sole ration for the treatment periods recommended above. The veterinary medicinal product may be mixed in liquid feeds containing water, or milk-based co-products only.

The pig to be treated should be weighed to calculate the correct dose of the veterinary medicinal product to be given and the amount of feed that the pig is likely to consume should be estimated, based on a daily feed intake equivalent to 5% of bodyweight for growing pigs.
Feed consumption may be reduced in clinically sick animals and also in older pigs therefore feed intake may need to be adjusted to achieve target dosage intake.

The correct quantity of Econor oral powder should be added to the estimated quantity of the daily ration for each pig, in a bucket or suitable receptacle and thoroughly mixed.

Dosage guidance table

Pig Type	Bodyweight (kg)	Dose rate(mg/kg bodyweight)	Econor 10% oralpowder (g)
Weaner	25	4	1.0
		12	3.0
Grower	50	4	2.0
		12	6.0
Finisher	100	4	4.0
		12	12
Sow	200	4	8.0
		12	24

Scoops – two scoops measuring 1 g and 3 g of Econor 10% oral powder are supplied.
NB: a level scoop of the veterinary medicinal product should be measured.

To achieve good mixture and homogeneity, the use of a pre-mixture can be used. The required quantity of Econor is thoroughly mixed with the feed in the proportion: 1 part Econor oral powder to 10 parts feed before the final addition of the remainder of the feed.

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

Toxic signs have not been seen in pigs given 5 times the recommended dose.

4.11 Withdrawal period

Meat and offal: 1 day.

5. PHARMACOLOGICAL PROPERTIES

Pharmacotherapeutic group: Antiinfectives for systemic use, pleuromutilins.
ATCvet code: QJ01XQ02.

5.1 Pharmacodynamic properties

Valnemulin is an antibiotic belonging to the pleuromutilin group, which acts by the inhibition of the initiation of protein synthesis at the level of the bacterial ribosome.
Valnemulin has activity against a range of bacteria including those responsible for enteric and respiratory disease in pigs.

Valnemulin shows high activity against *Mycoplasma* spp. and spirochaetes such as *Brachyspira hyodysenteriae* and *Brachyspira pilosicoli* and *Lawsonia intracellularis.*

Species	MIC of wild-type population(µg/ml)
Brachyspira hyodysenteriae	≤0.125
Brachyspira pilosicoli	≤0.125
Lawsonia intracellularis	≤0.125
Mycoplasma hyopneumoniae	≤0.008

Valnemulin has little activity against *Enterobacteriaceae*, such as *Salmonella* spp. and *Escherichia coli*.

There appears to be no resistance development to valnemulin to date by *M. hyopneumoniae* and *L. intracellularis.*
There have been some increases of MICs of valnemulin against *B. hyodysenteriae* and to a lesser degree *B. pilosicoli,* some of which appear to have developed resistance.
Valnemulin binds to the ribosome and inhibits bacterial protein synthesis. Resistance development primarily occurs because of changes at the binding site associated with mutations of the ribosomal DNA genes.

5.2 Pharmacokinetic particulars

In pigs, after a single oral dose of radiolabelled material more than 90% absorption was demonstrated. Maximum plasma concentrations (C_{max}) of radio-labelled or 'cold' material were obtained 1–4 hours after dosing (T_{max}) with a plasma half-life (t½), estimated from non-radioactive data, between 1 and 4.5 hours. A linear relationship between concentration and dose administered was established.
After repeat dosing, slight accumulation occurred, but a steady state was achieved within 5 days. Because of a marked 'first pass' effect, plasma concentrations are affected by the method of administration, but valnemulin is highly concentrated in tissues, particularly the lungs and liver, relative to plasma. Five days after the last of 15 doses of radiolabelled valnemulin administered to pigs, the concentration in liver was >6 times that in plasma. Two hours after withdrawal of product given in feed twice daily for 4 weeks at a dose of 15 mg/kg bodyweight/day, liver concentration was 1.58 µg/g and lung concentration 0.23 µg/g whereas concentrations in plasma were below the limit of detection.

At a dose of 3.8 mg/kg administration, the total colon contents concentration was 1.6 µg/g.

In pigs valnemulin is extensively metabolised and excretion of parent molecule and metabolites occurs mainly via bile. 73% – 95% of the daily dose of total radioactivity was recovered from the faeces. The plasma half-life was 1.3–2.7 hours, and the majority of the total radio-activity administered was excreted within 3 days of the last administration.

6. PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Hypromellose
Talc
Silica, colloidal anhydrous
Isopropyl myristate
Lactose

6.2 Major incompatibilities

None known.

6.3 Shelf life

Shelf life of the veterinary medicinal product as packaged for sale: 5 years.
Shelf life after first opening the immediate packaging: use within 6 months.
Feed to which Econor oral powder has been added should be replaced if not consumed within 24 hours.

6.4 Special precautions for storage

Do not store above 25 °C. Store in the original container.
Part-used containers should be tightly closed following dispensing.

6.5 Nature and composition of immediate packaging

Aluminium-lined plastic bags of 1 kg.
Plastic scoops: 50% HIPS (High Impact Polystyrene) and 50% GPPS (General Purpose Polystyrene).

6.6 Special precautions for the disposal of unused products or waste materials derived from the use of such products

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

7. MARKETING AUTHORISATION HOLDER

Elanco GmbH
Heinz-Lohmann-Str. 4
27472 Cuxhaven
Germany

8. MARKETING AUTHORISATION NUMBER(S)

EU/2/98/010/025

9. DATE OF FIRST AUTHORISATION / RENEWAL OF THE AUTHORISATION

Date of first authorisation: 12/03/1999.
Date of last renewal: 06/03/2009.

10. DATE OF REVISION OF THE TEXT

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

PROHIBITION OF SALE, SUPPLY AND/OR USE

Not applicable.

ANNEX II

A. MANUFACTURERS RESPONSIBLE FOR BATCH RELEASE

B. CONDITIONS OR RESTRICTIONS REGARDING SUPPLY AND USE

C. STATEMENT OF THE MRLs

D. OTHER CONDITIONS AND REQUIREMENTS OF THE MARKETING AUTHORISATION

A. MANUFACTURERS RESPONSIBLE FOR BATCH RELEASE

Name and address of the manufacturers responsible for batch release

Econor 10% premix and Econor 10% oral powder
Elanco France S.A.S
26, Rue de la Chapelle
68330 Huningue
FRANCE

Econor 50% premix
Sandoz GmbH
Biochemiestrasse 10
6250 Kundl
AUSTRIA

The printed package leaflet of the medicinal product must state the name and address of the manufacturer responsible for the release of the concerned batch.

B. CONDITIONS OR RESTRICTIONS REGARDING SUPPLY AND USE

Veterinary medicinal product subject to prescription.

C. STATEMENT OF THE MRLs

The active substance in Econor, valnemulin, is an allowed substance as described in table 1 of the annex to Commission Regulation (EU) No 37/2010:

Pharmaco-logically active substance	Marker residue	Animal species	MRLs	Target tissues	Other provisions	Therapeutic classification
Valnemulin[1]	Valnemulin	Porcine, rabbit	100 µg/kg 500 µg/kg 50 µg/kg	Kidney Liver Muscle	NO ENTRY	Anti-infectious agents

The excipients listed in section 6.1 of the SPC are either allowed substances for which table 1 of the annex to Commission Regulation (EU) No 37/2010 indicates that no MRLs are required, or considered as not falling within the scope of Regulation (EC) No. 470/2009 when used as in this veterinary medicinal product.

D. OTHER CONDITIONS AND REQUIREMENTS OF THE MARKETING AUTHORISATION

The periodic safety update report (PSUR) cycle should be re-started for submission of 6-monthly reports (covering all authorised presentations of the product) for the next two years, followed by yearly reports for the subsequent two years, and thereafter at 3 yearly intervals.

ANNEX III

LABELLING AND PACKAGE LEAFLET

A. LABELLING

PARTICULARS TO APPEAR ON THE IMMEDIATE PACKAGE - COMBINED LABEL AND PACKAGE LEAFLET

ALUMINIUM-LINED PLASTIC BAGS

1. Name and address of the marketing authorisation holder and of the manufacturing authorisation holder responsible for batch release, if different

Marketing authorisation holder:
Elanco GmbH
Heinz-Lohmann-Str. 4
27472 Cuxhaven
Germany

Manufacturer responsible for batch release:
Elanco France S.A.S
26, Rue de la Chapelle
68330 Huningue
FRANCE

2. Name of the veterinary medicinal product

Econor 10% premix for medicated feed for pigs and rabbits
Valnemulin hydrochloride

3. Statement of the active substance (s) and other ingredients

Econor 10% premix contains valnemulin in the form of valnemulin hydrochloride.
Valnemulin hydrochloride 106.5 mg/g
equivalent to valnemulin 100 mg/g.

Other ingredients:
Hypromellose
Talc
Colloidal anhydrous silica
Isopropyl myristate
Lactose.

White to slight yellowish powder.

4. Pharmaceutical form

Premix for medicated feeding stuff

5. Package size

1 kg
25 kg

6. Indication(s)

Pigs:
The treatment and prevention of swine dysentery.
The treatment of clinical signs of porcine proliferative enteropathy (ileitis).
The prevention of clinical signs of porcine colonic spirochaetosis (colitis) when the disease has been diagnosed in the herd.
Treatment and prevention of swine enzootic pneumonia. At the recommended dosage of 10–12 mg/kg bodyweight, lung lesions and weight loss are reduced, but infection with *Mycoplasma hyopneumoniae* is not eliminated.

Rabbits:
Reduction of mortality during an outbreak of epizootic rabbit enteropathy (ERE). Treatment should be started early in the outbreak, when the first rabbit has been diagnosed with the disease clinically.

7. Contraindications

Do not administer the product to pigs or rabbits receiving ionophores.
Do not overdose in rabbits – increased doses may disturb gastrointestinal flora leading to the development of enterotoxaemia.

8. Adverse reactions

Rabbits:
See section “Special warning(s)”

Pigs:
Adverse reactions following the use of Econor are mainly associated with breeds and cross breeds of Danish and/or Swedish Landrace.

Most common adverse reactions observed in these pigs are pyrexia, anorexia and in severe cases ataxia and recumbency. On affected farms, one third of the pigs treated were affected, with a mortality of 1%. A percentage of such pigs may also suffer oedema or erythema (posterior in distribution), and palpebral oedema. In controlled trials in susceptible animals mortality was less than 1%.

In the case of an adverse reaction, immediate withdrawal of medication is recommended. Severely affected pigs should be removed to clean dry pens and given appropriate treatment, including treatment for concurrent disease.

Valnemulin is well-accepted in feed, but administered at concentrations above 200 mg valnemulin / kg feed may result in transient reduction in food consumption associated with unpalatability during the first few days of feeding in pigs.

The frequency of adverse reactions is defined using the following convention:

- very common (more than 1 in 10 animals treated displaying adverse reaction(s))
- common (more than 1 but less than 10 animals in 100 animals treated)
- uncommon (more than 1 but less than 10 animals in 1,000 animals treated)
- rare (more than 1 but less than 10 animals in 10,000 animals treated)
- very rare (less than 1 animal in 10,000 animals treated, including isolated reports)

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 inform your veterinary surgeon.

9. Target species

Pigs and rabbits

10. Dosage for each species, route(s) and method of administration

In-feed use for pigs:

The uptake of medicated feed depends on the clinical condition of the animal. In order to obtain the correct dosage, the concentration of Econor has to be adjusted. Inclusion levels may also need to be increased in older pigs or pigs on restricted feed to achieve target dosage.

Indication	Dosage (active substance)	Application period of medicated feed as the sole daily ration	Application in feed (premix)
Treatment of swine dysentery	3-4 mg/kg bodyweight/day	Minimum of 7 days and up to 4 weeks or until signs of disease disappear	Incorporation of 75 mg active substance per kg feed with: Econor 10% 750 mg/kg feed

This dose level is effective in the treatment of clinical disease, but higher dosages or longer duration of treatment may be necessary for complete elimination of infection. It is important to institute medication as early as possible in an outbreak of swine dysentery. If there is no response to treatment within 5 days, the diagnosis should be re-established.

Indication	Dosage (active substance)	Application period of medicated feed as the sole daily ration	Application in feed (premix)
Treatment of clinical signs porcine proliferative enteropathy (ileitis)	3-4 mg/kg bodyweight/day	2 weeks or until signs of disease disappear	Incorporation of 75 mg active substance per kg feed with: Econor 10% 750 mg/kg feed

This dose level is effective under normal situation in the treatment of clinical signs of disease, but higher dosages or longer duration of treatment may be necessary for complete elimination of infection. It is important to institute medication as early as possible in an outbreak of porcine proliferative enteropathy. If there is no response to treatment within 5 days, the diagnosis should be re-established. For severely affected animals, which fail to respond to treatment within 3–5 days, parenteral treatment should be considered.

Indication	Dosage (active substance)	Application period of medicated feed as the sole daily ration	Application in feed (premix)
Prevention of swine dysentery Clinical signs of porcine colonic spirochaetosis (colitis)	1.0–1.5 mg/kg bodyweight/day	minimum of 7 days and up to 4 weeks 4 weeks	Incorporation of 25 mg active substance per kg feed with: Econor 10% 250 mg/kg feed

Repeated use of valnemulin should be avoided by improving management practice and thorough cleansing and disinfection. Consideration should be given to the eradication of infection from the farm.

Indication	Dosage (active substance)	Application period of medicated feed as the sole daily ration	Application in feed (premix)
Treatment and prevention of swine enzootic pneumonia	10–12 mg/kg bodyweight/day	Up to 3 weeks	Incorporation of 200 mg active substance per kg feed with: Econor 10% 2 g/kg feed

Secondary infection by organisms such as *Pasteurella multocida* and *Actinobacillus pleuropneumoniae* may complicate enzootic pneumonia and require specific medication.

In-feed use for rabbits:

Repeated use of valnemulin should be avoided by improving management practice and thorough cleansing and disinfection.

Indication	Dosage (active substance)	Application period of medicated feed as the sole daily ration	Application in feed (premix)
Epizootic rabbit enteropathy	target 3 mg/kg bodyweight/day	21 days	Incorporation of 35 mg active substance per kg feed with: Econor 10% 350 mg/kg feed

The daily feed consumption should be recorded and the inclusion rate should be adjusted accordingly.

11. Advice on correct administration

Mixing instructions:

mg Econor 10% premix/kg feed = Dosage required (mg/kg) x 10 x bodyweight (kg)/Daily feed intake (kg)

The product has been shown to be stable to the pelleting process at temperatures of 75 °C. Aggressive pelleting conditions such as temperatures in excess of 80 °C, and the use of abrasive substances for pre-mixture should be avoided.

To achieve good mixture and homogeneity of incorporation, the use of a pre-mixture is recommended. The required quantity of product is thoroughly mixed with a feed ingredient of similar physical nature (e.g. wheat middlings) and for rabbits in rabbit standard feed (e.g. mash, pellets) in the proportion: 1 part Econor 10% premix to 10 parts feed ingredient.

Consideration should be given to official guidance on the incorporation of medicated premixes in final feeds**.**

12. Withdrawal period(s)

Withdrawal period(s):

Pigs:
Meat and offal: 1 day.

Rabbits:
Meat and offal: Zero days.

13. Special storage precautions

Do not store above 25 °C.
Store in the original container.

Part-used containers should be tightly closed following dispensing.

Do not use this veterinary medicinal product after the expiry date which is stated on the label after "EXP".

14. Special warning(s)

As an adjunct to treatment, good management and hygiene practices should be introduced in order to reduce the risk of infection and to control the potential build-up of resistance.

Especially in the case of swine dysentery, a targeted early eradication programme of the disease should be considered.

Special warnings for use in pigs:
Adverse reactions have occurred in pigs following the use of Econor. Their occurrence appears to be mainly associated with breed mixes that include Danish and/or Swedish Landrace. Extreme care should therefore be taken in the use of Econor in pigs of the Danish and Swedish Landrace breeds, and their crossbreeds thereof, especially in younger pigs. When treating infections caused by *Brachyspira* spp., therapy should be based on local (regional, farm level) epidemiological information about susceptibility of the target bacteria.

Special warnings for use in rabbits:
Clinical diagnosis should be confirmed by necropsy. The product should be used as part of a programme including measures aimed at controlling the disease on farm such as biosecurity and husbandry controls.

Rabbits may still show clinical signs of epizootic rabbit enteropathy (ERE) even when treated with the product; however, mortality in affected rabbits is reduced by administering the product. In a field trial, treated rabbits showed a lower frequency of impaction and diarrhoea than untreated rabbits (4% and 12% vs 9% and 13% respectively). Impaction is more frequently seen in rabbits that die. Tympanism is more frequently reported in rabbits treated with the product than untreated rabbits (27% vs16%). A large proportion of tympanic rabbits will recover.

Responsible use of antimicrobials:
Only use in the case of confirmed epizootic rabbit enteropathy (ERE) outbreaks when diagnosis has been made clinically and confirmed by necropsy. Do not use prophylactically.
Official, national and regional antimicrobial policies should be taken into account when the product is used.
Use of the product deviating from the instructions given in the leaflet may increase the prevalence of bacteria resistant to valnemulin and may decrease the effectiveness of pleuromutilins.

Special precautions to be taken by the person administering the veterinary medicinal product to animals:
When mixing the veterinary medicinal product, and handling the final feed containing the product, direct contact with the skin and mucous membranes should be avoided. Gloves should be worn when handling the veterinary medicinal product.

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

People with known hypersensitivity to valnemulin should administer the veterinary medicinal product with caution.

Pregnancy and lactation:
Whilst studies in rats and mice have not produced any evidence of teratogenic effect, the safety in pregnant and lactating sows and does has not been established.

Interaction with other medicinal products and other forms of interaction:
Valnemulin has been shown to interact with ionophores such as monensin, salinomycin and narasin and may result in signs indistinguishable from an ionophore toxicosis. Pigs and rabbits should not receive products containing monensin, salinomycin or narasin, during or at least 5 days before or after treatment with valnemulin. Severe growth depression, ataxia, paralysis or death may result.

Overdose (symptoms, emergency procedures, antidotes):
Toxic signs have not been seen in pigs given 5 times the recommended dose.
Do not overdose in rabbits – increased doses may disturb gastrointestinal flora leading to the development of enterotoxaemia.

15. Special precautions for the disposal of unused product or waste materials, if any

Medicines should not be disposed of via wastewater or household waste.
Ask your veterinary surgeon how to dispose of medicines no longer required. These measures should help to protect the environment.

16. Date on which the label was last approved

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

17. Other information

Valnemulin is an antibiotic belonging to the pleuromutilin group, which act by the inhibition of the initiation of protein synthesis at the level of the bacterial ribosome.

Econor 10% premix for medicated feed for pigs and rabbits is available in 1 kg and 25 kg bags.
Not all pack sizes may be marketed.
For any information about this veterinary medicinal product, please contact the marketing authorisation holder.

18. The words “For animal treatment only” and conditions or restrictions regarding supply and use, if applicable

For animal treatment only. To be supplied only on veterinary prescription.

19. The words “Keep out of the sight and reach of children”

Keep out of the sight and reach of children.

20. Expiry date

EXP {month/year}

Shelf life when incorporated into meal pig feed and protected from light and moisture: 3 months.
Shelf life when incorporated into pelleted pig feed and protected from light and moisture: 3 weeks.
Shelf life when incorporated into common rabbit feed and protected from light and moisture: 4 weeks.

21. Marketing authorisation number(s)

EU/2/98/010/017 (1 kg)
EU/2/98/010/018 (25 kg)

22. Manufacturer’s batch number

Batch {number}

PARTICULARS TO APPEAR ON THE IMMEDIATE PACKAGE

ALUMINIUM-LINED PLASTIC BAGS

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Econor 50% premix for medicated feed for pigs
Valnemulin

2. STATEMENT OF ACTIVE SUBSTANCES

Valnemulin 500 mg/g (equivalent to 532.5 mg/g valnemulin hydrochloride)

3. PHARMACEUTICAL FORM

Premix for medicated feeding stuff

4. PACKAGE SIZE

1 kg
25 kg

5. TARGET SPECIES

Pigs

6. INDICATION(S)

7. METHOD AND ROUTE(S) OF ADMINISTRATION

In-feed use.

Mixing instructions:
Read the package leaflet before use.

8. WITHDRAWAL PERIOD(S)

Withdrawal period:
Meat and offal: 1 day.

9. SPECIAL WARNING(S), IF NECESSARY

Do not administer the product to pigs receiving ionophores.

As an adjunct to treatment, good management and hygiene practices should be introduced in order to reduce the risk of infection and to control the potential build-up of resistance.

Especially in the case of swine dysentery, a targeted early eradication programme of the disease should be considered.

Special precautions for use in pigs
Adverse reactions have occurred in pigs following the use of Econor. Their occurrence appears to be mainly associated with breed mixes that include Danish and/or Swedish Landrace. Extreme care should therefore be taken in the use of Econor in pigs of the Danish and Swedish Landrace breeds, and their crossbreeds thereof, especially in younger pigs. When treating infections caused by *Brachyspira* spp., therapy should be based on local (regional, farm level) epidemiological information about susceptibility of the target bacteria.

Special precautions to be taken by the person administering the veterinary medicinal product to animals
When mixing the veterinary medicinal product, and handling the final feed containing the product, direct contact with the skin and mucous membranes should be avoided. Gloves should be worn when handling the veterinary medicinal product.

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

People with known hypersensitivity to valnemulin should administer the veterinary medicinal product with caution.

See package leaflet for further information.

10. EXPIRY DATE

EXP {month/year}

11. SPECIAL STORAGE CONDITIONS

Do not store above 25 °C.

Store in the original container.
Part-used containers should be tightly closed following dispensing.

Shelf life when incorporated into meal pig feed and protected from light and moisture: 3 months.
Shelf life when incorporated into pelleted pig feed and protected from light and moisture: 3 weeks.

12. SPECIAL PRECAUTIONS FOR THE DISPOSAL OF UNUSED PRODUCTS OR WASTE MATERIALS, IF ANY

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

13. THE WORDS “FOR ANIMAL TREATMENT ONLY” AND CONDITIONS OR RESTRICTIONS REGARDING SUPPLY AND USE, IF APPLICABLE

For animal treatment only. To be supplied only on veterinary prescription.

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

Keep out of the sight and reach of children.

15. NAME AND ADDRESS OF THE MARKETING AUTHORISATION HOLDER

Elanco GmbH
Heinz-Lohmann-Str. 4
27472 Cuxhaven
Germany

16. MARKETING AUTHORISATION NUMBER(S)

EU/2/98/010/021 (1 kg)
EU/2/98/010/022 (25 kg)

17. MANUFACTURER’S BATCH NUMBER

Batch {number}

PARTICULARS TO APPEAR ON THE IMMEDIATE PACKAGE

ALUMINIUM-LINED PLASTIC BAGS

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Econor 10% oral powder for pigs
Valnemulin

2. STATEMENT OF THE ACTIVE AND OTHER SUBSTANCES

Valnemulin 100 mg/g (equivalent to 106.5 mg/g valnemulin hydrochloride)

3. PHARMACEUTICAL FORM

Oral powder

4. PACKAGE SIZE

1 kg

5. TARGET SPECIES

Pigs

6. INDICATION(S)

7. METHOD AND ROUTE OF ADMINISTRATION

Oral use.

Read the package leaflet before use

8. WITHDRAWAL PERIOD(S)

Withdrawal period(s):
Meat and offal: 1 day.

9. SPECIAL WARNING(S), IF NECESSARY:

Special precautions for use in animals:
Do not administer the veterinary medicinal product to pigs receiving monensin, salinomycin or narasin.

As an adjunct to medication, good management and hygiene practices should be introduced in order to reduce the risk of infection and to control the potential build-up of resistance.

Extreme care should be taken in the use of Econor in pigs of the Danish and Swedish Landrace breeds, and their crossbreeds thereof, especially in younger pigs.

Special precautions to be taken by the person administering the veterinary medicinal product to animals:
When mixing the veterinary medicinal product, and handling the final feed containing the product, direct contact with the skin and mucous membranes should be avoided. Gloves should be worn when handling the veterinary medicinal product.

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

People with known hypersensitivity to valnemulin should administer the veterinary medicinal product with caution.

See package leaflet for further information.

10. EXPIRY DATE

EXP {month/year}

Once opened use within 6 months.
Medicated feed should be replaced, if not consumed within 24 hours.

11. SPECIAL STORAGE CONDITIONS

Do not store above 25 °C. Store in the original container.
Part-used containers should be tightly closed following dispensing.

12. SPECIFIC PRECAUTIONS FOR THE DISPOSAL OF UNUSED PRODUCTS OR WASTE MATERIALS, IF ANY

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

13. THE WORDS “FOR ANIMAL TREATMENT ONLY” AND CONDITIONS OR RESTRICTIONS REGARDING SUPPLY AND USE, IF APPLICABLE

For animal treatment only. To be supplied only on veterinary prescription.

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

Keep out of the sight and reach of children.

15. NAME AND ADDRESS OF THE MARKETING AUTHORISATION HOLDER

Elanco GmbH
Heinz-Lohmann-Str. 4
27472 Cuxhaven
Germany

16. MARKETING AUTHORISATION NUMBER(S)

EU/2/98/010/025

17. MANUFACTURER’S BATCH NUMBER

Batch {number}

B. PACKAGE LEAFLET

PACKAGE LEAFLET:
Econor 50% premix for medicated feed for pigs

1. NAME AND ADDRESS OF THE MARKETING AUTHORISATION HOLDER AND OF THE MANUFACTURING AUTHORISATION HOLDER RESPONSIBLE FOR BATCH RELEASE, IF DIFFERENT

Marketing authorisation holder:
Elanco GmbH
Heinz-Lohmann-Str. 4
27472 Cuxhaven
Germany

Manufacturer responsible for batch release:
Sandoz GmbH
Biochemiestrasse 10
6250 Kundl
AUSTRIA

2. NAME OF THE VETERINARY MEDICINAL PRODUCT

Econor 50% premix for medicated feed for pigs
Valnemulin hydrochloride

3. STATEMENT OF THE ACTIVE SUBSTANCE(S) AND OTHER INGREDIENT(S)

Econor 50% premix contains valnemulin in the form of valnemulin hydrochloride.

Valnemulin hydrochloride	532.5 mg/g
equivalent to valnemulin	500 mg/g.

Other ingredients:
Hypromellose
Talc

White to slight yellowish powder.

4. INDICATION(S)

The treatment and prevention of swine dysentery.
The treatment of clinical signs of porcine proliferative enteropathy (ileitis).
The prevention of clinical signs of porcine colonic spirochaetosis (colitis) when the disease has been diagnosed in the herd.
Treatment and prevention of swine enzootic pneumonia. At the recommended dosage of 10–12 mg/kg bodyweight lung lesions and weight loss are reduced, but infection with *Mycoplasma hyopneumoniae* is not eliminated.

5. CONTRAINDICATIONS

Do not administer the product to pigs receiving ionophores.

6. ADVERSE REACTIONS

Adverse reactions following the use of Econor are mainly associated with breeds and cross breeds of Danish and/or Swedish Landrace.

Most common adverse reactions observed in these pigs are pyrexia, anorexia and in severe cases ataxia and recumbency. On affected farms, one third of the pigs treated were affected, with a mortality of 1%. A percentage of such pigs may also suffer oedema or erythema (posterior in distribution), and palpebral oedema. In controlled trials in susceptible animals mortality was less than 1%.

In the case of an adverse reaction, immediate withdrawal of medication is recommended. Severely affected pigs should be removed to clean dry pens and given appropriate treatment, including treatment for concurrent disease.

Valnemulin is well-accepted in feed, but administered at concentrations above 200 mg valnemulin / kg feed may result in transient reduction in food consumption associated with unpalatability during the first few days of feeding in pigs.

The frequency of adverse reactions is defined using the following convention:

- very common (more than 1 in 10 animals treated displaying adverse reaction(s))
- common (more than 1 but less than 10 animals in 100 animals treated)
- uncommon (more than 1 but less than 10 animals in 1,000 animals treated)
- rare (more than 1 but less than 10 animals in 10,000 animals treated)
- very rare (less than 1 animal in 10,000 animals treated, including isolated reports)

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 inform your veterinary surgeon.

7. TARGET SPECIES

Pigs

8. DOSAGE FOR EACH SPECIES, ROUTE(S) AND METHOD OF ADMINISTRATION

In-feed use.

The uptake of medicated feed depends on the clinical condition of the animal. In order to obtain the correct dosage, the concentration of Econor has to be adjusted. Inclusion levels may also need to be increased in older pigs or pigs on restricted feed to achieve target dosage.

Indication	**Dosage (active substance)**	**Application period of medicated feed as the sole daily ration**	**Application in feed (premix)**
Treatment of swine dysentery	3–4 mg/kg bodyweight/day	Minimum of 7 days and up to 4 weeks or until signs of disease disappear	Incorporation of 75 mg active substance per kg feed with: Econor 50% 150 mg/kg feed

This dose level is effective in the treatment of clinical disease, but higher dosages or longer duration of treatment may be necessary for complete elimination of infection. It is important to institute medication as early as possible in an outbreak of swine dysentery. If there is no response to treatment within 5 days, the diagnosis should be re-established.

Indication	Dosage (active substance)	Application period of medicated feed as the sole daily ration	Application in feed (premix)
Treatment of clinical signs porcine proliferative enteropathy (ileitis)	3–4 mg/kg bodyweight/day	2 weeks or until signs of disease disappear	Incorporation of 75 mg active substance per kg feed with: Econor 50% 150 mg/ kg feed

This dose level is effective under normal situation in the treatment of clinical signs of disease, but higher dosages or longer duration of treatment may be necessary for complete elimination of infection. It is important to institute medication as early as possible in an outbreak of porcine proliferative enteropathy. If there is no response to treatment within 5 days, the diagnosis should be re-established. For severely affected animals which fail to respond to treatment within 3–5 days, parenteral treatment should be considered.

Indication	Dosage (active substance)	Application period of medicated feed as the sole daily ration	Application in feed (premix)
Prevention of swine dysentery clinical signs of porcine colonic spirochaetosis (colitis)	1.0–1.5 mg/kg bodyweight/day	minimum of 7 days and up to 4 weeks 4 weeks	Incorporation of 25 mg active substance per kg feed with: Econor 50% 50 mg/ kg feed

Repeated use of valnemulin should be avoided by improving management practice and thorough cleansing and disinfection. Consideration should be given to the eradication of infection from the farm.

Indication	Dosage (active substance)	Application period of medicated feed as the sole daily ration	Application in feed (premix)
Treatment and prevention of swine enzootic pneumonia	10-12 mg/kg bodyweight/day	Up to 3 weeks	Incorporation of 200 mg active substance per kg feed with: Econor 50% 400 mg/kg feed

Secondary infection by organisms such as *Pasteurella multocida* and *Actinobacillus pleuropneumoniae* may complicate enzootic pneumonia and require specific medication.

9. ADVICE ON CORRECT ADMINISTRATION

Mixing instructions:

mg Econor 50% premix/kg feed = Dosage required (mg/kg) x 2 x bodyweight (kg)/Daily feed intake (kg)

The product has been shown to be stable to the pelleting process at temperatures of 75 °C. Aggressive pelleting conditions such as temperatures in excess of 80 °C, and the use of abrasive substances for pre- mixture should be avoided.
To achieve good mixture and homogeneity of incorporation, the use of a pre-mixture is required. The required quantity of product is thoroughly mixed with a feed ingredient of similar physical nature (e.g. wheat middlings) in the proportion: 1 part Econor 50% premix to 20 parts feed ingredient.

Consideration should be given to official guidance on the incorporation of medicated premixes in final feeds**.**

10. WITHDRAWAL PERIOD(S)

Meat and offal: 1 day.

11. SPECIAL STORAGE PRECAUTIONS

Keep out of the sight and reach of children.

Do not store above 25 °C.
Store in the original container.

Part-used containers should be tightly closed following dispensing.

Do not use this veterinary medicinal product after the expiry date which is stated on the label after "EXP".

Shelf life when incorporated into meal feed and protected from light and moisture: 3 months.
Shelf life when incorporated into pelleted feed and protected from light and moisture: 3 weeks.

12. SPECIAL WARNING(S)

As an adjunct to treatment, good management and hygiene practices should be introduced in order to reduce the risk of infection and to control the potential build-up of resistance.

Especially in the case of swine dysentery, a targeted early eradication programme of the disease should be considered.

Special precautions for use in animals:
Adverse reactions have occurred following the use of Econor. Their occurrence appears to be mainly associated with breed mixes that include Danish and/or Swedish Landrace. Extreme care should therefore be taken in the use of Econor in pigs of the Danish and Swedish Landrace breeds, and their crossbreeds thereof, especially in younger pigs. When treating infections caused by *Brachyspira* spp., therapy should be based on local (regional, farm level) epidemiological information about susceptibility of the target bacteria.

Pregnancy and lactation:
Whilst studies in rats and mice have not produced any evidence of teratogenic effect, the safety during pregnancy and lactation has not been established in pigs.

Special precautions to be taken by the person administering the veterinary medicinal product to animals:
When mixing the veterinary medicinal product, and handling the final feed containing the product, direct contact with the skin and mucous membranes should be avoided. Gloves should be worn when handling the veterinary medicinal product.

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

People with known hypersensitivity to valnemulin should administer the veterinary medicinal product with caution.

Interaction with other medicinal products and other forms of interaction:
Valnemulin has been shown to interact with ionophores such as monensin, salinomycin and narasin and may result in signs indistinguishable from an ionophore toxicosis. Animals should not receive products containing monensin, salinomycin or narasin during or at least 5 days before or after treatment with valnemulin. Severe growth depression, ataxia, paralysis or death may result.

Overdose (symptoms, emergency procedures, antidotes):
Toxic signs have not been seen in pigs given 5 times the recommended dose.

13. SPECIAL PRECAUTIONS FOR THE DISPOSAL OF UNUSED PRODUCT OR WASTE MATERIALS, IF ANY

Medicines should not be disposed of via wastewater or household waste.
Ask your veterinary surgeon how to dispose of medicines no longer required. These measures should help to protect the environment.

14. DATE ON WHICH THE PACKAGE LEAFLET WAS LAST APPROVED

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

15. OTHER INFORMATION

Valnemulin is an antibiotic belonging to the pleuromutilin group, which acts by the inhibition of the initiation of protein synthesis at the level of the bacterial ribosome.

Econor 50% premix for medicated feed for pigs is available in 1 kg and 25 kg bags.
Not all pack sizes may be marketed.

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

PACKAGE LEAFLET:
Econor 10% oral powder for pigs

1. NAME AND ADDRESS OF THE MARKETING AUTHORISATION HOLDER AND OF THE MANUFACTURING AUTHORISATION HOLDER RESPONSIBLE FOR BATCH RELEASE, IF DIFFERENT

Marketing authorisation holder:
Elanco GmbH
Heinz-Lohmann-Str. 4
27472 Cuxhaven
Germany

Manufacturer responsible for batch release
Elanco France S.A.S
26, Rue de la Chapelle
68330 Huningue
FRANCE

2. NAME OF THE VETERINARY MEDICINAL PRODUCT

Econor 10% oral powder for pigs
Valnemulin hydrochloride

3. STATEMENT OF THE ACTIVE AND OTHER SUBSTANCES

Valnemulin hydrochloride 106.5 mg/g
equivalent to valnemulin 100 mg/g.

Other ingredients
Hypromellose
Talc
Silica Colloidal anhydrous
Isopropyl myristate
Lactose.

White to pale yellow powder.

4. INDICATION(S)

The treatment of swine dysentery.
The treatment of clinical signs of porcine proliferative enteropathy (ileitis).
Treatment of swine enzootic pneumonia.

5. CONTRAINDICATIONS

Do not administer the veterinary medicinal product to pigs receiving the ionophores monensin, salinomycin or narasin.

6. ADVERSE REACTIONS

Adverse reactions following the use of Econor are mainly associated with breeds and cross breeds of Danish and/or Swedish Landrace.

Most common adverse reactions observed in these pigs are pyrexia, anorexia and in severe cases ataxia and recumbency. On affected farms, one third of the pigs treated were affected, with a mortality of 1%. A percentage of such pigs may also suffer oedema or erythema (posterior in distribution), and palpebral oedema. In controlled trials in susceptible animals mortality was less than 1%.

In the case of an adverse reaction, immediate withdrawal of medication is recommended. Severely affected pigs should be removed to clean dry pens and given appropriate treatment, including treatment for concurrent disease.

Valnemulin is well-accepted in feed, but administered at concentrations above 200 mg valnemulin / kg feed may result in transient reduction in food consumption associated with unpalatability during the first few days of feeding.

The frequency of adverse reactions is defined using the following convention:

- very common (more than 1 in 10 animals treated displaying adverse reaction(s))
- common (more than 1 but less than 10 animals in 100 animals treated)
- uncommon (more than 1 but less than 10 animals in 1,000 animals treated)
- rare (more than 1 but less than 10 animals in 10,000 animals treated)
- very rare (less than 1 animal in 10,000 animals treated, including isolated reports)

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 inform your veterinary surgeon.

7. TARGET SPECIES

Pigs

8. DOSAGE FOR EACH SPECIES, ROUTE AND METHOD OF ADMINISTRATION

Oral use.

For use in individual pigs on farms where only a small number of pigs are to receive the veterinary medicinal product. Larger groups should be treated with medicated feeding stuff containing the premix.
For severely affected animals which fail to respond to treatment within 3–5 days, parenteral treatment should be considered.

Treatment of swine dysentery
The recommended dose of valnemulin is 3–4 mg/kg bodyweight/day for a minimum of 7 days and up to 4 weeks or until signs of disease disappear.

This dose level is effective in the treatment of clinical disease, but higher doses or longer duration of treatment may be necessary for complete elimination of infection. It is important to institute treatment as early as possible in an outbreak of swine dysentery. If there is no response to treatment within 5 days, the diagnosis should be re-established.

Treatment of clinical signs of porcine proliferative enteropathy (ileitis)
The recommended dose of valnemulin is 3–4 mg/kg bodyweight/day for 2 weeks or until signs of disease disappear.

This dose level is effective under normal situations in the treatment of clinical signs of disease, but higher doses or longer duration of treatment may be necessary for complete elimination of infection. It is important to institute treatment as early as possible in an outbreak of porcine proliferative enteropathy. If there is no response to treatment within 5 days, the diagnosis should be re-established.

Treatment of swine enzootic pneumonia
The recommended dose of valnemulin is 10–12 mg/kg bodyweight/day for up to 3 weeks.

At the recommended dose of 10–12 mg/kg bodyweight lung lesions and weight loss are reduced, but infection with *Mycoplasma hyopneumoniae* is not eliminated. Secondary infection by organisms such as *Pasteurella multocida* and *Actinobacillus pleuropneumoniae* may complicate enzootic pneumonia and require specific treatment.

9. ADVICE ON CORRECT ADMINISTRATION

The amount of feed mixed with Econor which is necessary for treatment should be prepared daily.

Daily dose calculation: Amount Econor (mg) required = Dose required (mg/kg) x pig bodyweight (kg) x 10 / daily feed intake (in kg).

This is achieved by thoroughly mixing the required amount of Econor oral powder into the daily ration for each individual pig. The veterinary medicinal product can be used in dry or liquid feeds, where water or milk co-products have been added. Scoops of 2 sizes are provided for measuring the correct amount of the veterinary medicinal product for mixing with the daily ration, according to the dosage guidance table below. The feed containing the oral powder should be provided as the sole ration for the treatment periods recommended above. The veterinary medicinal product may be mixed in liquid feeds containing water, or milk-based co-products only.

The pigs to be treated should be weighed to calculate the correct dose of Econor oral powder to be given and the amount of feed that the pig is likely to consume should be estimated, based on a daily feed intake equivalent to 5% of bodyweight for growing pigs.
Feed consumption may be reduced in clinically sick animals and also in older pigs therefore feed intake may need to be adjusted to achieve target dosage intake.
The correct quantity of Econor oral powder should be added to the estimated quantity of the daily ration for each pig, in a bucket or suitable receptacle and thoroughly mixed.

Dosage guidance table

Pig type	Bodyweight (kg)	Dose rate(mg/kg bodyweight)	Econor 10% oralpowder (g)
Weaner	25	4	1
		12	3
Grower	50	4	2
		12	6
Finisher	100	4	4
		12	12
Sow	200	4	8
		12	24

Scoops – two scoops measuring 1 g and 3 g of Econor 10% oral powder are supplied.
NB: a level scoop of the veterinary medicinal product should be measured.

To achieve good mixture and homogeneity, the use of a pre-mixture can be used. The required quantity of Econor is thoroughly mixed with the feed in the proportion: 1 part Econor oral powder to 10 parts feed before the final addition of the remainder of the feed.

10. WITHDRAWAL PERIOD(S)

Meat and offal: 1 day.

11. SPECIAL STORAGE PRECAUTIONS

Keep out of the sight and reach of children.
Do not store above 25 °C. Store in the original container.
Part-used containers should be tightly closed following dispensing.

Once opened use within 6 months.
Feed to which the Econor oral powder has been added should be replaced if not consumed within 24 hours.
Do not use after the expiry date which is stated on the label after "EXP".

12. SPECIAL WARNING(S)

Special warnings for each target species:
As an adjunct to medication, good management and hygiene practices should be introduced in order to reduce the risk of infection and to control the potential build-up of resistance. Especially in the case of swine dysentery, a targeted early eradication programme of the disease should be considered.

Special precautions for use in animals:
Adverse reactions have occurred following the use of Econor. Their occurrence appears to be mainly associated with breed mixes that include Danish and/or Swedish Landrace. Extreme care should therefore be taken in the use of Econor in pigs of the Danish and Swedish Landrace breeds, and their crossbreeds thereof, especially in younger pigs. When treating infections caused by *Brachyspira* spp., therapy should be based on local (regional, farm level) epidemiological information about susceptibility of the target bacteria.

Special precautions to be taken by the person administering the veterinary medicinal product to animals:
When mixing the veterinary medicinal product, and handling the final feed containing the product, direct contact with the skin and mucous membranes should be avoided. Gloves should be worn when handling the veterinary medicinal product.

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

People with known hypersensitivity to valnemulin should administer the veterinary medicinal product with caution.

Pregnancy and lactation:
Whilst studies in rats and mice have not produced any evidence of teratogenic effect, the safety during pregnancy and lactation has not been established in pigs.

Interaction with other medicinal products and other forms of interaction:
Valnemulin has been shown to interact with ionophores such as monensin, salinomycin and narasin, and may result in signs indistinguishable from an ionophore toxicosis. Animals should not receive

monensin, salinomycin or narasin during or at least 5 days before or after treatment with valnemulin. Severe growth depression, ataxia, paralysis or death may result.

Overdose (symptoms, emergency procedures, antidotes):
Toxic signs have not been seen in pigs given 5 times the recommended dose.

13. SPECIAL PRECAUTIONS FOR THE DISPOSAL OF UNUSED PRODUCT OR WASTE MATERIALS, IF ANY

Medicines should not be disposed of via wastewater or household waste.
Ask your veterinary surgeon how to dispose of medicines no longer required. These measures should help to protect the environment.

14. DATE ON WHICH THE PACKAGE LEAFLET WAS LAST APPROVED

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

15. OTHER INFORMATION

Valnemulin is an antibiotic belonging to the pleuromutilin group, which act by the inhibition of the initiation of protein synthesis at the level of the bacterial ribosome.

Econor 10% oral powder for pigs is available in 1 kg bags.

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