Anada 200-436, Approved by FDA

**Alverin™ PLUS**

Injection for Cattle

1% w/v ivermectin and 10% w/v clorsulon is a sterile solution

For the effective treatment and control of internal parasites, including adult liver flukes, and external parasites. Consult your veterinarian for assistance in the diagnosis, treatment and control of parasitism.

**INTRODUCTION**

The ability of ivermectin to deliver internal and external parasitic control has been proven in cattle markets around the world. New, ALVERIN PLUS combines ivermectin with clorsulon, an effective adult fluke.

A single injection of ALVERIN PLUS (ivermectin and clorsulon) offers all the benefits of an ivermectin injection plus control of adult Fasciola hepatica.

The dosage level of clorsulon supplied by ALVERIN PLUS is effective only against adult liver flukes (Fasciola hepatica).

**PRODUCT DESCRIPTION**

ALVERIN PLUS is a ready-to-use sterile solution containing 1% w/v ivermectin, 10% clorsulon, 40% glycerol formal, and 1% propylene glycol, q.s. ad 100%. It is formulated to deliver the recommended dose level of 200 mcg/55 lb body weight.

**MODE OF ACTION**

Ivermectin is a member of the macrocyclic lactone class of antiparasitic agents which have a unique mode of action.

Compounds of this class act selectively and with high affinity to chloride and sodium channels in the nerve and muscle cells of a wide range of parasitic and invertebrate species. At a concentration of about 1 mcg/ml, ivermectin is selective for the chloride channel of the nerve or muscle cell. When applied to the nerve or muscle cell, a concentration of 1 mcg/ml will hyperpolarize the nerve or muscle cell membrane, resulting in an increase of permeability of the chloride ions with hyperpolarization of the nerve or muscle cell, resulting in paralysis and death of the parasite.

Compounds of this class may also interact with other neurotransmitter systems for the regulation of physiological processes by the neurotransmitter gamma-amino butyric acid (GABA).

The margin of safety for compounds of this class is attributable to the fact that mammals do not have chloride and sodium channels which are specific for any of the macrocyclic lactone compounds and therefore do not readily cross the blood-brain barrier.

Clorsulon is rapidly absorbed into the circulating blood. Endochloroquine with bound drug and as plasma are ingested by Fasciola hepatica. Adult Fasciola hepatica are killed by clorsulon because of inhibition of enzymes in the metabolic pathways which are their primary source of energy.

**INDICATIONS**

ALVERIN PLUS Injection is indicated for the effective treatment and control of the following parasites in cattle:

- Gastrointestinal Roundworms (adults and fourth-stage larvae): Haemonchus placei, Trichuris vulgaris, Oesophagostomum radiatum, Cooperia oncophora, Ostertagia ostertagi, Trichostrongylus axei, Oesophagostomum radiatum (adults only)
- Lungworms (adults and fourth-stage larvae): Dictyocaulus viviparus
- Intestinal Tapeworms (including inhibited adults and fourth-stage larvae): Diphyllobothrium latum, Anoplocephala maculata

**Dosage**

The dosage level of ALVERIN PLUS is 1% w/v ivermectin and 10% w/v clorsulon in a sterile solution.

**ADMINISTRATION**

**Ivermectin**

Ivermectin is highly potent and should be used via the subcutaneous route only. A scar should be palpated 2 days after administration to ensure proper administration. A single injection of ALVERIN PLUS (ivermectin and clorsulon) will provide effective control of internal and external parasites in cattle for 28 days after treatment.

**Clorsulon**

The persistent activity of ALVERIN PLUS is attributable to the fact that mammals do not have chloroquine-binding sites for clorsulon and thus clorsulon is not expected to have an adverse impact on domestic animals.

**PRECAUTIONS**

Although ALVERIN PLUS Injection is not a vaccine, it is recommended that the vaccination status of animals be confirmed prior to the use of any therapeutic agent. This product is not for intravenous or intramuscular use.

When treating cattle with ALVERIN PLUS, the formulation is effective against all stages of the fluke lifecycle. Eye contact should be avoided with the formulation and accidental ingestion or inhalation of the formulation should be avoided.

When using the 500 mL or 1000 mL pack size, use only automatic syringe equipment.

**Storage**

Protect product from light. Store at 59°F to 86°F (15°C to 30°C).

**ENVIRONMENTAL SAFETY**

ALVERIN PLUS Injection contains a very small amount of formaldehyde which is not considered to be hazardous to the environment. Do not contaminate water by direct application or by improper disposal of drug containers.

**HOW SUPPLIED**

ALVERIN PLUS Injection is available in two ready-to-use pack sizes:

- The 500 mL pack is a multiple-dose, rubber-capped bottle designed for use with automatic syringe equipment. Each bottle contains sufficient solution to treat 100 head of cattle weighing 110 lb (50 kg) body weight.
- The 1000 mL pack is a multiple-dose, rubber-capped bottle designed for use with automatic syringe equipment. Each bottle contains sufficient solution to treat 100 head of cattle weighing 110 lb (50 kg) body weight.

When using ALVERIN PLUS Injection, follow the directions on the label carefully.

**WARNING**

**NOT FOR USE IN RUMINANTS**

Keep this and all drugs out of the reach of children.

**Residue Information**

Ivermectin is excreted in the dung of treated animals and can inhibit the development of insects that use dung as a source of food and for reproduction. The magnitude and duration of such effects are species and life-cycle specific. When used according to label directions, the product is not expected to have an adverse impact on populations of dung-decomposing insects.
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**Alverin™ PLUS**
Injection for Cattle

1% w/w ivermectin and 18% w/v clorsulon in a sterile solution

For the effective treatment and control of internal parasites, including adult liver flukes, and external parasites. Consult your veterinarian for assistance in the diagnosis, treatment and control of parasites.

**INTRODUCTION**

The ability of ivermectin to deliver internal and external parasite control has been proven in cattle markets around the world. Now, ALVERIN PLUS brings ivermectin with clorsulon, an effective adulticide.

A single injection of ALVERIN PLUS (ivermectin and clorsulon) offers all the benefits of an ivermectin injection plus control of adult Fasciola hepatica.

The dosage level of clorsulon supplied by ALVERIN PLUS is effective only against adult liver flukes (Fasciola hepatica).

**PRODUCT DESCRIPTION**

ALVERIN PLUS is a ready-to-use sterile solution containing 1% w/w ivermectin, 18% clorsulon, 48% glycerol formal, and water for injection. 1% w/w ivermectin and 18% w/v clorsulon in a sterile solution.

The recommended dose level of clorsulon supplied by ALVERIN PLUS is effective only against adult liver flukes (Fasciola hepatica).

**MODE OF ACTION**

Ivermectin is a member of the macrocyclic lactone class of endectocides which have a unique mode of action. Compounds of this class bind selectively and with high affinity to glutamate-gated chloride ion channels which occur in invertebrate nerve and muscle cells. This leads to an increase in the permeability of the cell membrane to chloride ions, which results in hyperpolarization of the nerve or muscle cell, resulting in paralysis and death of the parasite.

Chemically, the recommended dose of 200 mcg ivermectin/kg and 2 mg clorsulon/kg is very effective against the adult liver fluke Fasciola hepatica. Ivermectin is a very broad-spectrum agent and has few effects on other animal species as severe adverse reactions, including deaths, have never been reported in cattle or other domestic animals treated with ivermectin when used according to label directions. ALVERIN PLUS has a safety margin greater than 1000:1 when compared with the toxicological dose in the rat and is expected to have an adverse impact on populations of dung-dependent insects.

**INDICATIONS**

ALVERIN PLUS Injection is indicated for the effective treatment and control of the following parasites in cattle:

- Gastrointestinal Roundworms
  - Cooperia oncophora (adults and fourth-stage larvae): Dirocheteous vinchina
  - Haemonchus placei
  - Oesophagostomum radiatum (adults and fourth-stage larvae): Dirocheteous vinchina

- Liver Flukes: Fasciola hepatica (adults only)

**Low Flukes:**

- Cattle Grubs (parasitic stages): Hyalomma dromedarii
- Sucking Lice: Linognathus vituli
- Oestertagia ostertagi
- Solenopotes scabiei
- mange mites: O. scabiei

**PERSISTENT ACTIVITY**

Ivermectin and clorsulon injection has been proved to persist in the liver and in the gastro-intestinal tract and to persist for long periods in the bile. Urea and clorsulon have been found in the blood for 30 days after treatment.

**DOSAGE**

ALVERIN PLUS is recommended for use in cattle weighing 110 lb (50 kg) body weight or more when administered at a dose volume of 1 mL per 110 lb (50 kg) body weight. Re-treatment may be necessary after 49 days of treatment when using ALVERIN PLUS Injection. There is no maximum dose limitation when using ALVERIN PLUS Injection.

**APPLICATION**

The viscosity of the product increases in cool temperatures. Warming both the product and injection equipment to about 50°F (10°C) prior to use may help to reduce the viscosity.

**ADMINISTRATION**

ALVERIN PLUS (ivermectin and clorsulon) is injected i.m. or i.m. as follows:

- Use a 18-gauge, 1” or 2” 16-gauge needle

When using the 560 mL or 1000 mL pack sizes, use only automatic syringe equipment.

Use sterile equipment and sanitary the injection site by applying a suitable disinfectant. Clean, properly disinfected needles should be used to prevent the potential for infection site infections.

No special handling or protective clothing is necessary.

In the event of the product being exposed to cold temperatures, Administering ALVERIN PLUS at temperatures at or below 5°F (-15°C) or below may be difficult. Users can make dosing easier by warming both the product and injection equipment to about 50°F (10°C).

**ANIMAL SAFETY**

In breeding animals (bulls and cows), ivermectin and clorsulon used at the recommended level had no effect on breeding performance.

**WARNING**

**NOT FOR USE IN HUMANS.**

Keep this and all drugs out of the reach of children.

Material Safety Data Sheet (MSDS) contains more detailed occupational safety information. To report adverse effects, obtain an MSDS or for assistance, contact Zoetis Inc. at 1-800-980-6061.

**RESIDUE WARNINGS**

Do not treat cattle within 49 days of slaughter. Because a withdrawal time in beef has not been established, do not use in female dairy cattle of breeding age. A withdrawal period has not been established for this product in pre-ruminating calves. Do not use in calves to be processed for veal.

**PRECAUTIONS**

Transitory dermonecrosis has been observed in some cattle following subsequent administration. Soft tissue swelling, transitory discomfort or site reaction. Different injection sites should be used for subsequent treatments. This product is not expected to have an adverse impact on populations of dung-dependent insects.

**HOW SUPPLIED**

ALVERIN PLUS Injection is available in two ready-to-use pack sizes:

- The 560 mL pack is a multiple-dose, rubber-capped bottle designed for use with automatic syringe equipment. Each bottle contains sufficient solution to treat 100 head of cattle weighing 550 lb (250 kg) or less.
- The 1000 mL pack is a multiple-dose, rubber-capped bottle designed for use with automatic syringe equipment. Each bottle contains sufficient solution to treat 200 head of cattle weighing 550 lb (250 kg) or less.

**ENVIRONMENTAL SAFETY**

Studies indicate that when ivermectin comes in contact with soil and readily and tightly binds to the soil and becomes inactive over time. Free ivermectin may adversely affect fish and certain aquatic organisms.

Do not permit water runoff from fields to enter lakes, streams, or ponds. Do not contaminate water by direct application or by improper disposal of drug containers.

Scope of disposal in an approved landfill or by incineration. As with other anthelmintics, ivermectin is secreted in the dung of treated cattle and can inhibit the development of beneficial microorganisms. Do not contaminate the environment or water sources with the use of this product. Do not contaminate water by direct application or by improper disposal of drug containers.

Scope of disposal in an approved landfill or by incineration. As with other anthelmintics, ivermectin is secreted in the dung of treated cattle and can inhibit the development of beneficial microorganisms. Do not contaminate the environment or water sources with the use of this product. Do not contaminate water by direct application or by improper disposal of drug containers.

**STORAGE**

Protect product from light. Store at 50°F to 88°F (10°C to 30°C).

This product represents how this job will image on plate. Please check thoroughly to ensure it meets your requirements as NO liability will be accepted for consequential loss.