

Biosol-5:

SCHEDULING STATUS: S1

CURRENTLY COMPOUNDED FORMULATIONS:

Active ingredient(s)	Injectable	Oral equine paste	Oral carnivore paste	Orals for exotics	Oral solution/suspension	Topical treatment	Shampoo	Capsules/Tablets	Oral powder
Cyanocobalamin L-aspartate potassium Magnesium l-aspartate dehydrate Sodium selenite Adenosine 5'-triphosphate disodium salt hydrate	✓								

REGISTERED PRODUCT/ TRADE NAME: Biosolamine® (discontinued).

PHARMACOLOGICAL CLASSIFICATION: Growth stimulants.

PHARMACOLOGICAL ACTION: Vitamin B12 is a cobalt-containing vitamin required by cells throughout the body for conversion of ribose nucleotides into deoxyribose nucleotides, a major step in formation of deoxyribonucleic acid (DNA). Thus, it is an essential nutrient for nuclear maturation and cell division, and deficiency of this vitamin results in general depression of cellular development and tissue growth. Since the erythropoetic centers of bone marrow are among the most rapidly growing and proliferating tissues, inadequate amounts of vitamin B12 are especially manifested by decrease in red cell production. Selenium has been shown to be effective in prevention and treatment of a number of necrotizing diseases of domestic animals. It is necessary for growth and fertility and has an interaction with vitamin E that allows each to partially but not completely substitute for the other. Since both selenium and vitamin E have antioxidant properties, their protective functions have the ability to prevent membrane damage. Selenium is a component of the enzyme glutathione reductase. Selenium and vitamin E work together to decrease lipid peroxidation. Glutathione peroxidase functions to enhance the reaction of reduced glutathione (GSH) with hydrogen peroxide, which oxidizes GSH to GSSG and forms water. The result is less hydrogen peroxide available to cause lipid peroxidation; a decreased rate of lipid peroxidation lengthens the life of cellular membranes. Aspartic acid allows reinitiation of the Krebs cycle, improving the oxidative process. Aspartic acid captures CO₂, and NH₃ radicals, shunting toward the urea eliminatory cycle. Aspartic acid also has anticoagulant properties, and it exercises an entrophic effect on the cardiac muscle. The association of the two aspartic acid salts introduces essential potassium and magnesium ions into the organism. The K⁺ ion is necessary for the maintenance of the ionic equilibrium of the cell. The Mg⁺⁺ ion catalyses enzymatic reactions of the Krebs cycle and of ureo-genesis. ATP is involved in multiple reactions, including synthesis of proteins, fatty acids and steroids. Hydrolysis of ATP is the immediate source of energy for contraction in muscle, and all muscular metabolism contributes to reconstitution of ATP reserves. It is indispensable in conservation of elasticity of muscular fibres. ATP contributes to the maintenance of dynamic equilibrium of the organism's constituents. It furnishes the energy necessary for numerous biosynthesis. The energy furnished by ATP allows the maintenance of unequal distribution of ions between the intra- and extracellular pools. It allows the re-establishment of cellular polarization after the passage of a nervous influx, furnishing energy necessary to the ion pump.

INDICATIONS: In general stimulation of the body, and muscle tone in particular, in all species of animals and notably in the following cases:^[1]

- Asthenia due to nutritional, infective or congenital origin.
- Poorly-defined or acute myopathies.
- Stiffness in labs.
- Preparation for transport.
- Conditioning of race horses.
- Overexertion myositis (dogs and horses).

DOSAGE AND DIRECTIONS FOR USE:

DOGS:

2-5 ml IM oid. Maximum 3-4 injections per course of treatment.^[1]

CATS:

1 ml SC oid. Maximum 3-4 injections per course of treatment.^[1]

HORSES:

20 ml slow IV or IM for adult horses and 5-10 ml IM for foals. Maximum 3-4 injections per course of treatment. Inject at intervals of 2-5 days.^[1]

CATTLE:

20 ml IM for adult cattle and 5-10 ml for calves. Maximum 3-4 injections per course of treatment. Inject at intervals of 2-5 days.^[1]

SHEEP:

2-5 ml IM oid for lambs. Maximum 3-4 injections per course of treatment.^[1]

SWINE:

2-5 ml IM oid. Maximum 3-4 injections per course of treatment.^[1]

BIRDS:

5 ml per 10 L PO in drinking water oid.^[1]

WILDLIFE:

Antelope: 2-20 ml IM depending on body mass (extrapolation from sheep and cattle dosage)

WARNINGS/ PRECAUTIONS/ CONTRA-INDICATIONS:

- Do not slaughter animals for human consumption within 4 days of treatment.^[1]
- It is preferable to administer Biosol-5 to horses by slow intravenous injection as the intramuscular route may cause local reactions.^[1]

REFERENCES:

1. IDR, Volume 11 2011/2012