

# Fulltonic - C

Solution for Injection

Veterinary Vitamin – Aminoacid

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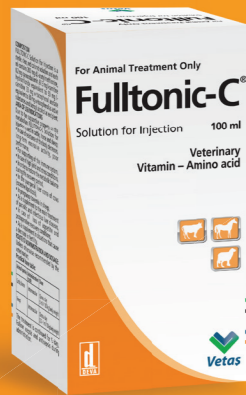
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## PRACTICAL DOSE TABLE

Animal Species	Administration Route	Dosage
Cattle, Horse	Intramuscular	Once a day 5 ml/100 kg body weight
Sheep	Intramuscular	Once a day 0.5 - 1 ml/10 kg body weight

The treatment is continued for 5 days.



**PACK SIZE**  
100-250 ml

**WITHDRAWAL PERIOD**  
"0" days  
for meat and milk.

**Shelf Life:**  
36 months

### REFERENCES:

Reevaluation of vitamin E supplementation of dairy cows: bioavailability, animal health and milk quality. *Animal* (2012), 6:9, pp 1427-1434 & The Animal Consortium 2012 doi:10.1017/S1751731112000225  
 2. Alterations of fatty acid Beta-Oxidation Capability in the Liver of Ketotic Cows. *J. Dairy Sci.* 95: 1759-1766 http://dx.doi.org/10.3168/jds.2011-4580 © American Dairy Science Association ©, 2012  
 3. Intestinal absorption, blood transport and hepatic and muscle metabolism of fatty acids in pre-ruminant and ruminant animals. *Review. Reprod. Nutr. Dev.* 39 (1999) 27-48, Inra/Elsevier, Paris  
 4. The effects of L-carnitine administration on energy metabolism in pregnant Halpe (Damascus) goats Turk. *J. Vet. Anim. Sci.* 2010; 34(2): 163-171 © TÜBİTAK doi:10.3906/vet-0805-11  
 5. Pregnancy Toxemia in Ewes and Does (Twin lamb disease, Pregnancy ketosis) By Paula I. Menzies, DVM, MPVM, DECS-RHM, Ruminant Health Management Group, Department of Population Medicine, Ontario Veterinary College, University of Guelph ; Christopher K. Cebra, VMD, MA, MS, DACVIM, Large Animal Medicine, College of Veterinary Medicine, Oregon State University

COMPOSITION FULLTONIC-C Solution for Injection is a sterile, clear, red coloured solution and each ml contains 200 mg d,l-acetylmethionine, 0.2 mg cyanocobalamin, 61.3 mg l-carnitine hydrochloride equivalent to 50 mg l-carnitine, 33 mg α-tocopherol acetate equivalent to 30 mg α-tocopherol as active substances and benzyl alcohol as excipient. PHARMACOLOGICAL PROPERTIES FULLTONIC-C Solution for Injection is an injectable preparation which contains Vitamin B12 (cyanocobalamin), Vitamin E (α-tocopherol acetate), l-carnitine and d,l-acetylmethionine. The formulation of the drug consists of the active substances which have functions such as detoxification processes, transport and use of fatty acids for energy metabolism. Pharmacodynamic properties: Vitamin B12 stimulates the reticulocytes (erythrocytes), thus plays a crucial role in hematopoiesis (blood formation) together with folic acid and is involved in the formation of deoxyribonucleotides (DNA). Vitamin B12, which plays a crucial role in liver protection and anti-fattening activities, in the formation of metabolic activities. It has the ability to assist in the treatment of striated muscles, vascular endothelium and immune system metabolic disorders and dysfunctions. It also helps in the treatment of protective and functional disorders on the cardiac muscle. Vitamin E is an antioxidant substance in the cell membrane and important organelles of the cell. It mainly works as antioxidant and essential nutrients. The amino acids in the product are the precursors and / or substrates of the coenzymes required for enzyme reactions. These have anti-fattening and protection activities in liver. L-carnitine (only the L form is active) is required as a complement of the amounts to be synthesized by the organism and eases the oxidation of unesterified fatty acids. Because of its effects on lipid metabolism, it can cause the excretion of the excessive ammonia by stimulating the urea synthesis in the liver. It is used for the metabolism of fats and for energy that causing to oxidation of long-chain fatty acids. Methionine forms the basis of proteins, also plays a crucial role by joining methyl groups in a large number of biochemical processes. It binds to lipids and lipoproteins in the transport of fats. It also prevents the accumulation of fatty acids in the blood and cells. It has liver protective and urine acidifying properties and chelating properties with heavy metals. FULLTONIC-C Solution for Injection is an anti-fatigue and detoxifying product, which regulates protein and lipid metabolisms, effective on hepatocytes and muscle cells with reactivation. Pharmacokinetic properties: Vitamin B12 diffuses to the tissues such as liver, bone marrow and placenta. It passes to the milk in lactating animals. The biological half-life of Vitamin B12 administered by intravenous route is approximately 6 days (400 days in the liver). The overages are mainly excreted via kidney. Tocopherols are absorbed from the intestine and diffuse to all tissues, especially to the fat tissue (subcutaneous, perineal, uterine, testicular fats), muscle tissue, cardiac muscle. It is excreted mainly via feces and 1% via urine. When L-carnitine is administered by oral route, bioavailability is about 15%. The half-life of carnitine administered in a single dose by intravenous route was reported as 17.4 hours. Excretion from the body is via kidney. Methionine is absorbed from the lumen of the small intestines by active transport. It is mainly catabolized to s-adenosylmethionine in the liver. It is excreted via urine and feces. AREA OF USE/INDICATIONS Due to the supportive property on the metabolism FULLTONIC-C Solution for Injection is used in cattle, horse and sheep:  
 • In case of resistance of the body decreases, long-term excessive activity, poor performance, • For supporting of the immune system, • In case of high yield and stress conditions, • In order to restore the metabolic balance during the recovery period, • In the puerperal liver coma of cows (excessive lipodosis), • In pregnancy toxemia in sheep, • As a supplement to the main treatment of parasitic and infectious liver diseases, • In case of loss of appetite and postoperative recovery conditions, • As a supplement in situations that cause a decrease in fertility. ROUTE OF ADMINISTRATION AND DOSAGE: Unless otherwise recommended by the veterinarian, Practical dose table. The treatment is continued for 5 days. Follow the asepsis and antisepsis during the administration. SPECIAL CLINICAL INFORMATION AND WARNINGS FOR TARGET SPECIES Bovine and horses should not be administered in an injection site with a volume of 10 ml and sheep with a volume greater than 5 ml. In this case, the total dose should be divided and applied to different injection sites. Methionine is a substance that can cause acidosis. Therefore, it is recommended to use carefully in animals with acidosis. Use during pregnancy and lactation: It is safe to use in pregnant and lactating animals. ADVERSE EFFECTS Transient local reactions may occur at the injection site after the administration. Rarely, it can cause hypersensitivity reactions. In this case, the administration of the drug should be terminated and immediately consult a veterinarian. INTERACTION WITH OTHER MEDICINAL PRODUCTS AND OTHER FORMS OF INTERACTIONS There is no study on incompatibility. It should not be administered with mixing with other drugs. WITHDRAWAL PERIOD Withdrawal period is "0" days for meat and milk. CONTRAINDICATIONS There is no known contraindication as long as following the treatment doses and the recommended route of administration. It should not be used in animals with hypersensitivity to the active substances. OVERDOSE (SYMPTOMS, EMERGENCY PROCEDURES, ANTIDOTES) Recommended therapeutic doses should not be exceeded. In practice, overdose is not observed. Symptomatic treatment should be performed in cases thought to be overdosed. There is no specific antidote. GENERAL WARNINGS Consult a veterinarian before use and in case of unexpected effects. Keep out of sight and reach of children. PRECAUTIONS TO BE TAKEN BY THE PERSON ADMINISTERING THE MEDICINAL PRODUCT TO ANIMALS In case of skin and eye contact, wash the body and eyes with plenty of water. Hands should be washed after the drug administration. Necessary precautions should be taken against the accidental injections in humans. The individuals who are sensitive to the active substances should not contact with the drug. STORAGE CONDITIONS AND SHELF LIFE: Shelf life is 36 months from the manufacturing date. Store at room temperature below 25°C without refrigeration and freezing and in its original package. Protect from sunlight. Store at room temperature below 25°C without refrigeration and freezing after the first opening and use within 28 days. The stopper of the product can be perforated for maximum 40 times. DISPOSAL OF WASTE MATERIALS AND WARNINGS FOR NON-TARGET SPECIES Any unused veterinary medicinal product or any waste material remaining from such a product should be disposed of as per the requirements of local laws. NATURE AND COMPOSITION OF IMMEDIATE PACKAGING It is presented in 100 ml and 250 ml glass vials. 100 ml vials are covered with a red coloured rubber stopper and aluminum-plastic white flip-off cap. 250 ml vials are covered with a grey coloured teflon coated rubber stopper and an aluminum-white flip-off cap. The vials are presented in a cardboard box with the leaflet. TERMS OF SALE Sold only in veterinary clinics and pharmacies by veterinary prescription. MARKETING AUTHORISATION DATE AND NUMBER: 02.06.2009 – 21.05.9 NAME AND ADDRESS OF THE MARKETING AUTHORISATION HOLDER DEVA HOLDING A.Ş. Halkali Merkez Mahallesi Basın Ekspres Cad. No:1 Küçükçekmece/İSTANBUL/TÜRKİYE Tel: 0212 692 92 92 Faks: 0 212 697 34 89 e-mail: vetas@vetas.com.tr NAME AND ADDRESS OF THE MANUFACTURER DEVA HOLDING A.Ş. Çerkezköy Organize Sanayi Bölgesi, Karaağaç Mah. Atatürk Cad. No.32 59610 Kapaklı/Tekirdağ/TÜRKİYE Tel: +90 282 735 20 00 Fax: +90 282 758 16 83

days for meat and milk. CONTRAINDICATIONS There is no known contraindication as long as following the treatment doses and the recommended route of administration. It should not be used in animals with hypersensitivity to the active substances. OVERDOSE (SYMPTOMS, EMERGENCY PROCEDURES, ANTIDOTES) Recommended therapeutic doses should not be exceeded. In practice, overdose is not observed. Symptomatic treatment should be performed in cases thought to be overdosed. There is no specific antidote. GENERAL WARNINGS Consult a veterinarian before use and in case of unexpected effects. Keep out of sight and reach of children. PRECAUTIONS TO BE TAKEN BY THE PERSON ADMINISTERING THE MEDICINAL PRODUCT TO ANIMALS In case of skin and eye contact, wash the body and eyes with plenty of water. Hands should be washed after the drug administration. Necessary precautions should be taken against the accidental injections in humans. The individuals who are sensitive to the active substances should not contact with the drug. STORAGE CONDITIONS AND SHELF LIFE: Shelf life is 36 months from the manufacturing date. Store at room temperature below 25°C without refrigeration and freezing and in its original package. Protect from sunlight. Store at room temperature below 25°C without refrigeration and freezing after the first opening and use within 28 days. The stopper of the product can be perforated for maximum 40 times. DISPOSAL OF WASTE MATERIALS AND WARNINGS FOR NON-TARGET SPECIES Any unused veterinary medicinal product or any waste material remaining from such a product should be disposed of as per the requirements of local laws. NATURE AND COMPOSITION OF IMMEDIATE PACKAGING It is presented in 100 ml and 250 ml glass vials. 100 ml vials are covered with a red coloured rubber stopper and aluminum-plastic white flip-off cap. 250 ml vials are covered with a grey coloured teflon coated rubber stopper and an aluminum-white flip-off cap. The vials are presented in a cardboard box with the leaflet. TERMS OF SALE Sold only in veterinary clinics and pharmacies by veterinary prescription. MARKETING AUTHORISATION DATE AND NUMBER: 02.06.2009 – 21.05.9 NAME AND ADDRESS OF THE MARKETING AUTHORISATION HOLDER DEVA HOLDING A.Ş. Halkali Merkez Mahallesi Basın Ekspres Cad. No:1 Küçükçekmece/İSTANBUL/TÜRKİYE Tel: 0212 692 92 92 Faks: 0 212 697 34 89 e-mail: vetas@vetas.com.tr NAME AND ADDRESS OF THE MANUFACTURER DEVA HOLDING A.Ş. Çerkezköy Organize Sanayi Bölgesi, Karaağaç Mah. Atatürk Cad. No.32 59610 Kapaklı/Tekirdağ/TÜRKİYE Tel: +90 282 735 20 00 Fax: +90 282 758 16 83

## A different glance to metabolism





# Fulltonic - C

Solution for Injection

Veterinary Vitamin – Aminoacid

## COMPOSITION

Each ml of FULLTONIC-C Solution for Injection contains:

**D,L-Acetylmethionine**  
200 mg

**Cyanocobalamin**  
0,2 mg

**L-Carnitin base**  
50 mg

**α-Tocopherol base**  
30 mg

## PHARMACOLOGICAL PROPERTIES

With the active substances in its composition, FULLTONIC-C Solution for Injection;

- ✓ Regulates protein and lipid metabolisms.
- ✓ Activates hepatocytes and muscle cells.
- ✓ Provides the use of fatty acids for energy metabolism.
- ✓ Has an anti-fatigue property.
- ✓ Is a detoxifier.



### D,L-Acetylmethionine:

Methionine is an essential amino acid which contains sulphur and acts in growth, development and wound healing by joining many of protein synthesis that are necessary for the organism.

- It chelates with heavy metals.
- It struggles with oxidative stress by increasing the antioxidant synthesis.
  - It is a lipotropic substance and acts in lipolysis.
- It binds to lipids and lipoproteins in the transport of fats. It also prevents the accumulation of fatty acids in the blood and cells.
  - It has liver protective and urine acidifying properties.

### L-Carnitine:

It is an essential substance for the organism and has an important role in oxidation of fatty acids in cells.

- It acts as a carrier substance for the transport of long-chain fatty acids to the mitochondria.
- It is used for the metabolism of fats and for energy that causing to oxidation of long-chain fatty acids.
- It provides the excretion of acyl groups by urine before the generation of toxic effects for the organism.
  - It acts on the excretion of the excessive ammonia by stimulating the urea synthesis in the liver.

### Cyanocobalamin:

It is a vitamin, known as Vitamin B12, with a complex structure and has an important role in metabolic activities.

- It acts in the formation of nerve cells, erythrocyte and DNA.
- It helps obtaining energy by joining carbohydrate and fat metabolism.
  - It acts as a regulator by joining to protein metabolism.
- It is used as supportive in cases of anemia, loss of appetite and weakness.

### Alfa-Tocopherol:

It shows a high **Vitamin E** effect.

- It has antioxidant and endotel protective properties by ensuring the destruction of free radicals.
  - It acts in struggling with oxidative stress. It supports immune system.
  - It helps avoiding the inflammation with the anti-inflammatory act.

Efficiency  
of Vitamin E  
(α-tocopherol)  
to animal health

Scientific studies demonstrated that the Vitamin E (α-tocopherol) administrations in transition period, reduce the risk of mastitis and stimulate the immunity. With the Vitamin E (α-tocopherol) administrations 5 and 10 days before the expected calving day it is demonstrated that

- Non-specific cells are stimulated,
- Increase in chemotaxis activity,
- Increase in phagocytosis capacities,
- It has an important role in forming of immune response,
- Passing of neutrophils to mammary tissue becomes easier,
- Decrease in somatic cell number,
- Decrease in mastitis incidency,
- Decrease in oxidative stress.<sup>(1)</sup>

## Maintenance of liver health and prevention of hepatic lipidosis matter in the protection of metabolic disorders.

Metabolic and infectious diseases, especially ketosis, are one of the most important problems of the cattle in transition period. High NEFA and BHBA concentrations are the important indicators in negative energy balance. Metabolic disorders, especially ketosis, are closely associated with fatty liver. Metabolic disorders and hepatic lipidosis affect all health conditions, productive activities and reproductive performance of the animal negatively. The critical points are lipid metabolism and fatty liver in all metabolic disorders caused by the transition period.<sup>(2)</sup>

Fatty liver is seen at the rate of 20-60% after calving in dairy cattle and characterised with decreasing in liver functions, decreasing in feed consumption, increasing in the risk of getting sick and decreasing in recovery. Accumulation of TGs can be decreased in liver, fats are transported from the liver by increasing liver VLDL secretion and incidency of the disease can be decreased with methionine administrations.<sup>(3)</sup>

L-carnitin has an important role in the conversion of free fatty acids to energy. It provides the oxidation of free fatty acids in mitochondria. It also has many functions such as; obtaining energy from the fatty acids, protection from ketosis, transportation of ATP into mitochondria, increasing of milk rate, supporting of immune system and struggling of the organism with the infections in this way.<sup>(4)</sup>

Fulltonic-C Solution for Injection support the metabolism by acting carbohydrate, lipid and protein metabolism with the active substances it contains. It provides the oxidation of long-chain fatty acids with the lipotropic effect.

## Fulltonic-C in sheep



- Neonatal, weak lambs
- Pregnancy toxemia
- Loss of appetite
- Eating disorder
- Gastrointestinal disorders
- Hepatopathies related to parasitic diseases
- Intoxications

Pregnancy toxemia is an important **METABOLIC** disorder which is characterised with loss of appetite, depression and neurological symptoms. Fat storages are mobilized for meeting the increased energy needs due to the the third trimester of the pregnancy and forthcoming lactation. The occurred negative energy balance is resulted with ketosis and hepatic lipidosis. In case of the presence of hoof problem which limits the feed intake, laminitis and dental diseases in sheep increase the severity of the disease.<sup>(5)</sup>

**Hypoglycemia and ketosis preventative administrations with lipid metabolism and liver supporting administrations are important in the third trimester of the pregnancy. severity of the disease.**



## INDICATIONS

Due to the supportive property on the metabolism FULLTONIC-C Solution for Injection is used in **CATTLE, HORSE and SHEEP;**

- In case of resistance of the body decreases, long-term excessive activity, poor performance,
  - For supporting of the immune system,
- In case of high yield and stress conditions,
- In order to restore the metabolic balance during the recovery period,
  - In the puerperal liver coma of cows (excessive lipoidosis),
  - In pregnancy toxemia in sheep,
- As a supplement to the main treatment of parasitic and infectious liver diseases,
- In case of loss of appetite and postoperative recovery conditions,
- As a supplement in situations that cause a decrease in fertility.