## VeyFo®

## Arthro-Plex-Mulgat Arthro Navicon forte

Complementary feeds with particular nutritional purposes for horses

- To provide the joints with essential nutrients and micronutrients
- To promote the development of cartilage, bone and connective tissue cells
- To strengthen and maintain the physiological function of the ligaments, tendons and joint capsules



Formulations for professionals demanding peak performance



#### Conception/essential components for the nutritional purpose\*



Formulated in the form of a microemulsion (particle size 90 %  $\leq$  5 µm) containing methylsulfonylmethane (MSM), calcium lacto gluconate, glucosamine HCl, chondroitin sulphate, sunflower oil, dextrose and hyaluronic acid as well as vitamin E, selenium (sodium selenite), manganese, copper, zinc, iodine and devil's claw as bitter substance.



Cold pressed granular feed containing herbs such as common horsetail, curcuma, fleabane, cat's claw, ginger, aniseed, meadowsweet, chrysanthellum, stinging nettle, dandelion, thistle, solidago, restharrow, black radish, fumitory, boldo, orthosiphon, and lucerne, barley, barley germ, wheat germ, hawthorn, barberry, artichoke, black currant, willow as well as crustacean flour (oyster shell), glucosaminoglycans, chondroitin sulphate, methyl sulfonyl methane, hyaluronic acid, collagen, molasses, vitamin C, vitamin D<sub>3</sub>, vitamin E, vitamin K<sub>3</sub>, selenium (sodium selenite)

<sup>\*</sup> The information given is to be understood as a general survey. The latest version of the labelling of the product is always valid.

#### **Product features**

VeyFo® Arthro-Plex Mulgat is a complementary feed for equines

- formulated with high quality components and micronutrients to ensure the performance ability functions of the joints
- with the particular nutritional purpose

"Support the preparation for and recovery from sport effort"

as defined in the list of intended uses of animal feedingstuffs.

VeyFo® Arthro Navicon forte is a complementary feed for equines

- formulated with high quality components and micronutrients
- with the particular nutritional purposes

"Support the preparation for and recovery from sport effort"

and

"Nutritional restoration, convalescence"

as defined in the list of intended uses of animal feedingstuffs.

#### Functions

VeyFo® Arthro-Plex-Mulgat and VeyFo® Arthro Navicon forte

- optimise the provision of nutrients and micronutrients to the joints that are indispensable for the regeneration process in cases of defective joints;
- strengthen the joint capsules, tendons and ligaments without the risk of an excess supply of calcium and thus avoid the calcification of the soft tissues;
- promote the development of cartilage, bone and connective tissue cells;
- are naturally pure products and can also be fed over long periods of time without side-effects;
- are easy to dose and are readily consumed.



# VeyFo<sup>®</sup> Arthro-Plex-Mulgat and VeyFo<sup>®</sup> Arthro Navicon forte have an all-embracing effect

A broad spectrum of nutrients specifically aimed at the needs of the joints and the locomotor system

- supports the essential convalescence/regenerative metabolic processes and
- thus becomes an indispensable part of a successful regeneration.

#### Degenerative functional disorders of the joints

These abrasion and wear-and-tear processes on the joints are in general referred to as "symptoms of arthrosis". It begins with the break-down of the cartilage in the joint. The cartilage serves as a shock-absorber between the bones in the joint. Its function is supported by the synovial fluid, which provides nutrients for the cartilage and surrounds it rather like a ball bearing. In arthrosis cases it recedes resulting in the bones rubbing painfully against each other. The irritated bone periosteum reacts with an inflammation (arthritis) and deformity of the bones in the joint. Thus, the joint's function is progressively and severely impaired. At an advanced stage it can even develop into an ossification of the joint and to permanent stiffness. Frequently, there are a number of joints affected. The causes of arthritis can be a lack of exercise (especially in foals), too early or excessive work demands, demanding exercise without a warm-up period, injuries, abnormal posture and inadequate nutrition.

#### How can arthrosis be recognised?

Signs for arthrosis are:

- Unwillingness to exercise
- Lameness
- Stiff gait
- Problems with lifting and presenting the hoof
- The avoidance of particular movements (tight turns, changing into a gallop)
- Pain symptoms (beating of the head, tense facial muscles, breathing behaviour, groaning).

#### What has to be done?

The first signs of a movement disorder should be the cause for the clarification of the subsequent procedures following the veterinary diagnosis. The use of antiphlogistics is the matter of veterinary medicine. One can never expect the same or similar effects from any complementary feeds. VeyFo® Arthro-Plex-Mulgat and VeyFo® Arthro Navicon forte have been designed to complement nutritional strategies targeted to maintain the endogenous regeneration processes (essential for the performance ability functions of the locomotor system).

### With regard to the importance and biological functions of the individual nutrients and micronutrients, the following information has been extracted from the technical literature, amongst others from the AWT series "Vitamins in Animal Nutrition" as well as from Wikipedia.

**Calcium** (Ca) is an important component for bones and teeth as well as for the formation of eggshells. It also acts as activator of various enzymes. It is also needed for the stimulation of nerves and for muscle contractions. A Ca-deficiency can cause rickets in young animals.

**Chondroitin sulphate** is, apart from keratan sulphate and Heparan sulphate, the main component of the glycosaminoglycans that form the macro molecules of the cartilage substance (proteoglycans). It supports the organism in the formation of proteoglycans and thus supports the repair of joint cartilage and the formation of synovial fluid.

Chondroitin is reported to have anti-inflammatory properties at the cellular level. It also has a catabolic activity on the stimulation of the synthesis of proteoglycans and hyaluronic acid, the decrease in catabolic activity of chondrocytes inhibiting the synthesis of proteolytic enzymes and reducing the damage of matrix molecules caused by free radicals.

**Collagen** is, in terms of quantity, the most important protein of our organism. It is the main component of most connective and supporting tissues thus determining their properties. It is a fibrous component of bones, cartilage and ligaments. A collagen fibre has a considerable tensile strength. For example, a load of 10 - 40 kg is required to tear one collagen fibre having a diameter of 1 mm.

**Copper** (Cu) belongs to the group of trace elements and along with iron is involved in the formation of haemoglobin and myoglobin. It is a component of enzymes and plays an important role in the skeletal growth and pigmentation. Signs of a Cu-deficiency are impaired growth, disorders of the skeletal development, in the function of the nervous system, in reproduction and anaemia-like symptoms. Protein synthesis is decreased, too.

**Glucosamine**  $(C_6H_{13}NO_5)$  is a highly concentrated amino sugar (a prominent precursor in the biochemical synthesis of glycosylated proteins and lipids) that is necessary for the formation of buffer layers. It is of major importance for the bone substance in the joints and the spine as well as the synovial fluid. Glucosamine is a basic component for cartilage, tendons and ligaments and stimulates the production of endogenous cartilage building blocks. Proteoglycans and glycosaminoglycans are responsible for the regeneration and repair of the cartilage substance and control the biochemical balance between the formation and degradation of cartilage. In case of a deficiency of glycosamine in the body organism, the synovial fluid will become thinner and more watery, resulting in an insufficient lubrication of the joint, is more sensitive to wear-and-tear and injuries. Ultimately, the joint cartilage will be damaged.

Hyaluronic acid (also called "Hyaluronan" - or HA) is a glycosaminoglycan and as such an important organic part of the connective tissue that plays a central role in the cell proliferation/cell migration. Hyaluronic acid, as the principal component of synovial fluid (joint fluids), acts as a lubricant for all joint movements. The structural viscosity properties are responsible for the highly specialised functions of the synovial fluid, the so called thixotropic effect, e.g. the ability of changing viscosity following the effect of mechanical forces. The stronger the gravitational forces, the lower the viscosity.

The synovial fluid remains fluid, however, due to its high molecular structure the viscosity grade is sufficient to avoid the joint fluid to be squeezed out of the joints like water. It exhibits the tendency to remain on the joint cartilage via biochemical interactions. If strong compression forces are acting on a joint at the beginning of a movement, e.g. in the knee joint when jumping or standing upright, the molecules roll up into the shape of a ball and hang on the cartilage surface like in a ball bearing. In case of shear movements, e.g. during walking, however, the viscosity of the hyaluronic acid and the friction are reduced due to its structural properties. If these sudden changes of viscosity grades fail, friction will cause wear and tear resulting in joint dysfunctions.

lodine (I) is, as a trace element, a component of the thyroid hormone thyroxin.

Manganese (Mn) as a trace element is involved in the activation of various enzymatic processes. It is involved in skeletal development and is necessary for the normal functioning of the genital organs

Methylsulfonylmethane (MSM) is an organosulphur compound. It occurs naturally in many animal and plant organisms and is thus also part of the animal's nutrition. Sulphur is an indispensable component of many enzymes and hormones (e.g. insulin) as well as of glutathione and many essential amino acids (e.g. cysteine, methionine, taurine). It is also found in the synovial fluid and the inside of the joint capsule. In case of a sulphur deficiency, the organism is not capable of doing the essential joint repairs. Degenerative functional disorders of the joints can be the result. Sulphur ensures a smooth energy production process on the cellular level by stimulating the metabolism with B-vitamins, thus increasing fitness and energy level. **Selenium** (Se), in close relationship with vitamin E, protects the cell membranes from oxidation. While vitamin E acts within the cell membrane, the effect of selenium is based on peroxide degradation by glutathione peroxidase in the soluble constituents of the cell. Sodium selenite shows a particularly fast absorption by the organism.

Vitamin C eliminates radicals and lipid peroxyl compounds in the cell metabolism in cooperation with other antioxidative vitamins such as vitamin E and betacarotene. Collagen synthesis in bones, cartilage, muscles, skin and eggshell. Regulating calcium metabolism through activating vitamin D3 metabolites. Function of macrophages, granulocytes and lymphocytes in the immune system. Inhibition of stress reactions caused by reduced hormone production (cortisol). Improvement of fertility-linked properties such as sperm quality, follicle maturation and progesterone synthesis. Improvement of iron absorption; reduction of the toxic effects of heavy metals such as lead, cadmium and nickel.

**Vitamin D**<sub>3</sub> regulates the calcium and phosphate metabolism and particulary promotes absorption of calcium and phosphate from the intestine. Regulation of the excretion of calcium and phosphate via the kidneys and the storage of calcium and phosphate in the skeleton. Stimulation of gametogenesis. Increases the performance of the immune system and inhibition of autoimmunisation. Regulation of the transcription.

Vitamin E (tocopherol) plays a decisive biological role for the muscle-metabolism and controls the development and function of the gonads. Because of its antitoxic effect it also acts as a protector.

**Vitamin K**<sub>3</sub> contributes to the synthesis of blood coagulation factors II (prothrombin), VII, IX and X. Production of the calcium transport protein osteocalcin for bone mineralisation, participation in carboxylation of other proteins.

Zinc (Zn) is an essential trace element and as such a component of various enzymes and of the hormone insulin. In the tissues and fluids of the organism it is predominantly bound to proteins. Zinc deficiency in animals results in retarded growth and reduced feed intake. Skin and epithelial damages are also being observed. The function of zinc in the development and regeneration of tissue in the health of hooves is of significant importance.

In addition, VeyFo<sup>®</sup> Arthro-Plex-Mulgat contains devil's claw as bitter substance thereby achieving a good acceptance of the feed.

#### VeyFo® Arthro-Plex-Mulgat: formulated as a microemulsion

VeyFo<sup>®</sup> Arthro-Plex-Mulgat provides an efficient complementary feed with a particular nutritional purpose for the locomotor system.



The formulation of the multiple microemulsion is of outstanding importance in this connection. It ensures the undamaged passage of important nutrients and micronutrients into the small intestine and their perfect dispersal over the whole area of the gut mucosa.

Emulsification means the break-up of liquids (i.e. oils or water) and the active nutrients dissolved therein into tiny droplets possessing a minute diameter  $(1 - 3 \mu m)$ . In order to ensure that these minute droplets with the fat-soluble nutrients are held inside and the water-soluble components stored around the droplet do not separate out once again a herbal emulsifier has to be added.



Thus emulsification means an extraordinary large increase in the effective surface area. Hence, for the efficacy of the emulsion it is highly important that

- it remains stable in the stomach until absorption occurs in the small intestines,
- it contains an emulsifier that can be metabolised and is absolutely harmless,
- no loss of nutrients and micronutrients occurs through the emulsification and the concomitantly high absorption capabilities of the components,
- absorption also remains assured during fat metabolism disorders,
- above all, that those substances that tend to accumulate in the liver will not exert additional stress.

#### VeyFo® Arthro Navicon forte: a gently granulated feed

VeyFo<sup>®</sup> Arthro Navicon forte is being granulated in a special cold press process below 40 °C. Both the gentle processing and the special vacuum packaging ensure full effectiveness of the active ingredients and essential oils contained in the herbs.

Factors influencing the stability of the vitamins						
Vitamin	Temperature	Oxygen	Humidity			
С	++	++	++			
D <sub>3</sub>	+	++	+			
E	0	+	0			
K <sub>3</sub>	+	+	++			

++ = strong influence

+ = average influence

0 = no influence

The cold press process has a direct impact on the factor temperature, whereas the vacuum packaging regulates oxygen and humidity of the granules.

The excellent blend of herbs, alongside with the particular structure, ensures that the food is readily accepted by the horses and positively influences resorption in the gastrointestinal tract.

When properly handled, the vacuum packaging ensures minimum loss of the essential oils as well as a long shelf-life of the product.

Owing to the formulation with dried granules, no soaking of the food occurs.

	Glucocor- ticoids	Glyco- samino- glycans	Hyaluronic acid	VeyFo® Arthro- Plex- Mulgat	VeyFo® Arthro Navicon forte
Facilitating normal joint functions	•	•	••	•••	•••
Fast reduction of the factors limiting unhindered mobility	•••	•	•	•••	•••
Consistent unhindered mobility	•	•	•	•••	•••
Physiological viscosity of the joint fluids	•	•	••	•••	•••
Thixotropy of Synovia (abrupt change of the viscosity from conva- lescence period to the performance phase				•••	•••
Inhibition of catabolic enzymes		•	••	•••	•••
Regeneration of the cartilage forming cells		•	••	•••	•••
Regeneration of the connective tissue cells			•	•••	•••
Increasing the formation of collagen proteins				•••	•••
Increasing the formation of non-collagen proteins				•••	•••

### The overall management of the biological processes is expedient

• = low influence •• = average influence ••• = strong influence

# VeyFo<sup>®</sup> Arthro-Plex-Mulgat and VeyFo<sup>®</sup> Arthro Navicon forte are simply added to the feed

Amongst other treatments, injections belong to the classic standard therapy for joint diseases. These carry a high risk of infection. Thus, it is essential to carry out an urgent assessment for a targeted provision of nutrients that takes account of the nutritional-physiological factors. A broad spectrum of micronutrients specifically aimed at the needs of the joints and the locomotor system will initiate and control the essential regenerative processes that are necessary for the stability and the performance ability functions of the locomotor apparatus and will thus become an indispensable part of a successful regeneration.



#### Give your horse a treat!

Adequate daily use will ensure that nutritionally derived deficiencies of important nutrients and micronutrients will be covered. In case of existing abrasion and wear-and-tear symptoms, providing VeyFo® Arthro-Plex-Mulgat or VeyFo® Arthro Navion forte is especially important in order to support the activities of the chondrocytes. It should be given over a four-week period and then repeated again at intervals of two to three months.

The provision of VeyFo® Arthro-Plex-Mulgat or VeyFo® Arthro Navicon forte is particularly important:

- in young horses to promote the development of strong bones and joints and to avoid developmental disorders;
- in mature horses to counteract the symptoms of wear-and-tear in the joints;
- for high performance requirements in sports and work;
- in case of existing abrasion and wear-and-tear symptoms, such as arthritis, tarsal osteoarthropathy or podotrochlitis, through providing the affected joints with the optimum supply of nutrients.

Due to the finely tuned combination of selected herbs, VeyFo<sup>®</sup> Arthro Navicon forte is readily consumed by horses also in unmixed form.

#### Recommendations for use and dosage

VeyFo® Arthro-Plex-Mulgat	Daily standard provision	Daily active provision		
Sport, riding and recreational horses	50 ml	70 ml		
Breeding horses	60 ml	70 ml		
Foals, ponies and young horses	25 ml	50 ml		
VeyFo® Arthro Navicon forte	Daily standard provision	Daily active provision		
Sport, riding and recreational horses	60 g	70 g		
Breeding horses	50 g	70 g		
Foals, ponies and young horses	30 g	40 g		
1 measuring cup is equal to 60 g				

Recommended feeding period: up to 8 weeks prior to sport-related exertion until 4 weeks after sport-related exertion.

The application can be repeated as required at 2 to 3 monthly intervals, possibly in the standard provision.

Since this product contains a higher content of selenium and vitamin  $D_3$  compared to complete feeds\* it must only be fed at a rate of 2.5 % of the daily ration.

\* without a particular nutritional purpose

#### High performance animals require optimised feeding regimes.

We want you to be successful and do our utmost to achieve this target. All constituents contained in the products are well known in animal nutrition. They are also used as nutritional supplements in humans. The quality and processing meet the highest purity criteria thus achieving a long shelf-life as well as a trouble-free application.

#### Package sizes

VeyFo<sup>®</sup> Arthro-Plex-Mulgat 500 ml bottle with dosing device

VeyFo<sup>®</sup> Arthro Navicon forte 1.8 kg bucket vacuum-packed, with dosing device

#### Notes

Store out of the reach and sight of children. Do not store above 20 °C.

Shelf-life: Original packages sealed and stored at temperatures not above 20 °C: 24 months from manufacturing date. Re-sealed packages after initial opening at least 6 months. Storage instructions see labelling.

In order to achieve a clear separation from our veterinary medicines and care products all our feed specialities that are subject to the feedstuff law – as the present products – are exclusively marketed and labelled under the umbrella brand "VeyFo®". They are no medicinal products and need not to be entered into the stable treatment diary.

Attention: No need to be entered into the equine passport. Contains substances that are not compliant with EADCMR, thus unintentional doping might be possible.

The information given in this product brochure corresponds to the state of knowledge upon completion. Please read the package leaflets prior to using the products.

Veyx-Pharma is GMP-, QS- and VLOG- certified.

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