



ORGANIC-MINERAL ANIMAL FEEDSTOCK FOR ALL ANIMAL SPECIES WITH A HIGH CONTENT OF HUMIC ACIDS

Increased immunity | Export of mycotoxins and other toxic substances | Improved feed conversion and better nutrient utilization | Prevention and treatment of metabolic diseases | Reduction of mortality

The basic material is Leonardite - a natural substance with a high biological effectivity that is technologically activated on the total content of humic acids over 65% (m/m).

HUMAC® Natur AFM

is supplied in a form of a fine powder of black/brownish colour. **It's aimed for all animal species.**

HUMAC® Natur AFM Liquid

is a suspension of black and brownish colour, gained from Leonardite. By its technological adjustment we obtain water soluble humifulvia with high content of humic acids in the suspension. Whilst important organic-mineral substances from the basic material are preserved, which remain in the liquid. **It's aimed mainly at calves and other animals fed with liquid feed.**

Their applications provide animals with minerals and trace elements in a chelated form, which is easily usable in animal organisms.

They have detoxification and antiseptic effects. They promote bactericidal, antiviral and fungicidal protection. Are used as prevention and supports the treatment of diarrheal diseases, dyspepsia and other intoxications. They stimulate the digestive process during intensive diets for high yields. Support reproductive indicators of animals and the production of livestock products without residue of foreign substances.

Humic acids are the active substances, with a great absorption capacity, **binding various toxic substances and viruses** in animal digestive systems (toxins, heavy metals, PCB, toxic substances formed throughout metabolism), which are excreted by faeces. **They are ensuring organism detoxification, supporting the immune system and activating the metabolism. Stabilize the pH** in the entire animal digestive system, optimizing digestive processes and promoting the reproduction and activity of symbiotic microflora.

Both preparations **improve feed conversion**, support the production of pancreatic enzymes, **reduce mortality** and ensure good productive healthiness of animals.

Technical parameters	Natur AFM	Natur AFM Liquid
Humic acids in dry matter	min. 65 %	min. 45 %
Free humic acids in dry matter	min. 60 %	-
Humic acids in liquid	-	min. 15 %
Other substances in dry matter		
Fulvic acids	min. 5 %	min. 5 %
Calcium (Ca)	42 278 mg/kg	1 200 mg/l
Magnesium (Mg)	5 111 mg/kg	55 mg/l
Iron (Fe)	19 046 mg/kg	260 mg/l
Copper (Cu)	15 mg/kg	1.70 mg/l
Zinc (Zn)	37 mg/kg	2.65 mg/l
Mangan (Mn)	142 mg/kg	1.97 mg/l
Cobalt (Co)	1.24 mg/kg	0.163 mg/l
Selenium (Se)	1.67 mg/kg	0.077 mg/l
Vanadium (V)	42.1 mg/kg	4.85 mg/l
Molybdenum (Mo)	2.7 mg/kg	0.295 mg/l
all naturally occurring trace elements	in µg/kg	in µg/l
Properties		
Particle size	up to 100 µm	up to 100 µm
Humidity	max. 15%	max. 70%



Results achieved in livestock farming

- increase of daily additions (by ca 8%) and improved use of feed per addition's kg (by ca 7%)
- reduced mortality of brood and grown ups (by ca 40%)
- with cows shows increased milk production (by 1-1.5 l), higher levels of fat and protein in milk, improved feed use; decrease of gynecological troubles, hooves and udder diseases; and a limited occurrence of mastitis
- stabilization of the physiological rumen pH at ruminants
- improved fertility, shortened service period (with cows by ca 11 days)
- increased productivity of laying hen (by ca 4%), significantly reduced share of damaged eggs
- a significant reduction of odor of feces and urea (NH₃ by up to 64%)
- decrease of respiratory problems
- a significant reduction of diarrhea of brood and grown ups
- better condition (fitness) and uniformity of the herd (breeding), lower culling
- stress management - decreased production of stress hormones, limited cannibalism
- stimulation of the immune system - mainly in juveniles
- reduced costs of antibiotics and other medicines

Method of feeding and dosage

HUMAC® Natur AFM is admixed in the feed, **HUMAC® Natur AFM Liquid** is admixed to milk, water or liquid feed. The feed can be fed immediately. **The feed materials have no withdrawal period.**

Dosage	Natur AFM	Natur AFM Liquid
Bovine cattle (adult animals)	100 - 150 g / day / piece 0.3 - 0.5 % in feed	1 l / 500 l water
Calves	20 - 40 g / day / piece in milk/water	10 - 50 ml / day / piece in milk/water
Pigs	0.5 % in feed	1 l / 300 l water
Weaners	0.5 % in feed	20 ml / day / piece
Poultry	0.4 - 0.7 % in feed	---
Horses, sheep, rabbits	0.5 - 1.0 % in feed	---
Pets (dogs, cats)	2 - 3 g / day / piece 0.5 % in feed	---

In case of diarrhea illnesses we recommend increasing the preventive dosage by 2-3x for a period of min. 5 days.

Packaging: **HUMAC® Natur AFM - 0.1, 0.5, 2.5, 10, 25 kg**
HUMAC® Natur AFM Liquid - 10 l

Warranty: **24 months** from the date of manufacture, at observing storage conditions.

Both products suitable for use in organic farming (dependent on local registrations)





SIGNIFICANCE OF HUMIC ACIDS CONTAINED IN HUMAC® NATUR AFM FEED MATERIAL RANGE WITHIN ANIMAL NUTRITION

General effects description

- Stabilizes the pH of the rumen environment with its buffering effects and by absorption captures undesirable metabolites and toxic substances and eliminates them in the digestive system.
- Inhibits the formation of inflammation and supports immunity.
- Maintains an optimal pH in the organism.
- Active substances - humic acids - are a natural component of animal feed. They are present in drinking water (such as in still waters, which animals are particularly fond of).
- Very positively affects the basic life functions of each organ and of the entire organism.
- Its buffering capacity keeps the organism in acid-base balance.
- Significantly impacts the maintenance of biological homeostasis of animal organisms.
- Effective prevention of metabolic acidosis and alkalosis.
- Has a protective effect on intestinal mucosa - healthy intestines ensures healthy animals.
- Its contents and effects have antiphlogistic, absorptive, antitoxic and antibacterial features.
- Improves livestock production and profitability.
- Positively impacts the utilization of nutrients from the feed ration, and thus improves feed conversion.
- Improves herd serenity.
- Significantly lowers the use of antibiotics and other medicine.
- Binds microbial and fungal toxins and other toxic compounds e.g. ammonia, PCB, dioxins, heavy metals etc., which are then excreted through faeces.

Optimization of the digestive process

Effects on the digestive system

- Effectively prevents diarrhea, dyspepsia and acute intoxication.
- Maintains an adequate motility of the digestive system.
- Keeps pH in an optimal physiological span - effective use of each feed component, creation and maintenance of optimal physiological digestive conditions.
- Reduces biosynthesis, resp. encourages the degradation of biogenic amines - histamine.

Effects on rumen function

- Positively affects the structure and development of microorganisms.
- Increases the level of rumen fermentation and nutrient utilization.
- Impacts the creation of elusive EFA (propionic, acetic and butyric acids) - quantity and composition of milk.
- Reduces the overproduction of NH_3 - toxic effect on the organism, mainly on liver.
- Significantly contributes to natural degradation of harmful substances and toxins (mycotoxins) within the rumen fermentation.

Effects on intestine activity

- By protecting and stabilizing the functional state of intestinal mucosa, it reduces the growth and multiplication of viruses, parasites (coccidia...), pathogenic bacteria - clostridia, coliforms etc.
- Promotes the uptake and excretion of biogenic amines on a GIT level and prevents their absorption into the blood stream.
- Stabilizes the digestive tract pH and thus of the organism, blood.

- By adjusting the GIT environment it inhibits the growth of pathogens and promotes the growth and development of symbiotic, health-benefiting microorganisms.
- Binds endotoxins and exotoxins - prevents their negative impacts on the digestive tract and organs, and thus positively affects their secretory features.
- Impacts the activity and composition of intestinal and rumen microflora in favor of symbiotic microorganisms.
- Supports a stable intestinal environment and stimulates the regulation and creation of pancreatic and intestinal enzymes.
- Stimulates the receptors of the immune system in intestinal villi during protection against pathogens.
- Positively affects all digestive system functions, improves digestion and resorption of nutrients, prevents digestive disorders (diarrhea, constipation) and increases appetite.

Effects on liver

- Reduces the operational load of the liver at conversion of ammonia to urea, by its absorption on rumen level, mainly during increased absorption of ammonia and thus stabilizing the energetic metabolism and regeneration of liver tissues.
- Positively impacts regenerative skills of liver tissues and actively affects liver metabolism.
- Affects liver functions and partially protects it from diseases and disorders.

Improvement of reproductivity indicators

- Reduces embryonic mortality by stabilizing the transformation of proteins, lowering urea levels and promoting the corpus luteum activity for creation of progesterone and reduction of PGF 2a (prostaglandin).
- Through regulation of serum urea levels positively affects dairy cows fertility, hinders toxic effect of urea on ovum and sperm after insemination. Protects the embryo from toxic effects, mainly until the 12th week, until formation of placenta.
- By binding endotoxins and exotoxins it affects the reproductive performance and proper development of the fetus.

Promotion of the immune system

- By uptaking toxic substances and stabilizing intestinal mucosa promotes and regulates the activity of the immune system, and thus increases organism immunity by activation of immunocompetent cells.
- Through catalyzation processes interferes with metabolism of protein and carbohydrate microbes, which leads to inhibition of pathogenic microorganisms.
- Recovers electrolytic balance of damaged cells.

Welfare

- Improves contentment of stalled livestock.
- Improves the microclimate in the stall by reducing the content and concentration of emission gasses (by 55%).
- Lowers the production of stress hormones - the animals bear operational stress better - high temperatures, environmental changes, sudden climatic changes, post changes, time consuming transfers.
- By stabilizing N in solid and liquid excrements is increasing their use as available sources of N for plant fertilization.

