

TECHNICAL SUMMARY

WHAT IS ENZYON 5000™?

Phytase is an enzyme found in nature mainly in plants. It is formed in the stage of sprouting to supply phosphorous during plant growth. Phytase is also found in the small intestine mucous of many animals, and in case of micro-organisms, it is found in *Aspergillus* sp. and yeast. It is obtained by a NON-GMO natural process from *Aspergillus Orizea*.

Mode of action

Inositol Hexa-phosphate (IH), present in grains and beans, contain one to three percent of (IH), of which, 60% to 80% is phosphoric acid. Wheat: 0.6 to 1.4 % (w/w); Bran: 2.6 to 5.4 % (w/w); Soy Flakes: 1.5 to 1.8% (w/w) Prot. Concr: 2.0 to 3.0% (w/w) Phytase breaks down the (IH) molecule releasing its phosphoric acid content making it bio-available to the animal, thus reducing the need for inorganic phosphate.

Enzyon 5000™ Savings in formulation, economic benefits and units of activity

Enzyon 5000™, when added to feed at the recommended levels, allows for reduction of inorganic phosphorus and an increase utilization of energy, protein and mineral element. One unit of activity of phytase in Enzyon 5000™ is the amount of enzyme required to liberate 1 micromole of inorganic phosphorous per minute under the conditions of the Enzyon™ assay method. One AGR U* (Unit of Activity) is the amount of enzyme required to produce, together with phytase, an increase of 0.1% (w/w) of liberated phosphorous and an increase of 1.5% (w/w) soluble protein in a gram of standard formulated feed ration, at pH 5, at 37 degrees centigrade. Enzyon 5000™ contain 5,000 units of PHYTASE per gram and 5,000 units of AGR PER gram.

Other benefits

Inositol Hexaphosphate (IH), binds minerals, such as iron, calcium, magnesium in feed, diminishing their bioavailability. It also forms an insoluble complex with protein which prevents activity of digestive enzymes, decreasing digestibility of proteins and their functions, such as emulsifying. Phosphoric acid in (IH) can not be used by single stomach animals. Therefore, the need to add inorganic phosphate in feeds as an additive. However, (IH) is secreted in feces, creating environmental problems in large swine operations.

In the Netherlands, the use of poultry manure as a fertilizer is regulated per regards to the amount of phosphate (P₂O₅) per acre.

Rate of application

40-100 grams per MT of feed as advised and depending on the condition. It can be pre-mixed or dispensed directly into the mixer without pre-mixing.

This inclusion rate provide 200,000-500,000 units (FTU) per MT of feed. Enzyon 5000™ can be pelletized at 85°C for 30 secs. max.

Characteristics

Activity Vrs. Temperature: 100% Act. @ 85 /90°C. under pelleting. Activity Vrs. pH : 100% Act. @ pH 6. (Range from 5.5 to 7). Enzyon 5000™ can be pelletized at maximum: 85 ° C for 1 min.. max with an approximate 5 % to 10% enzyme loss. It is 100 % soluble in water. For maximum effect, add after pelleting.

Packaging

Enzyon 5000™ is packed for bulk shipments in 20 kg boxes lined with special poly- plastic bag. It can also be packed in smaller poly-bags as required by customer.

All ingredients approved by (FDA) and American Feed Control Officials under Official Publication 1998- Chapter 30 Enzymes, and Chapter 34.14 under Direct Fed Micro-organisms.