AVITASA

NUTRACEUTICAL EFFICIENCY

LYSOPLUS 50

(EMULSIFIER)



Optimizing Energy • Improving Feed Efficiency • Supporting Performance

LYSOPLUS 50

ADVANCED FAT + ENERGY UTILIZATION

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LYSOPLUS 50

DESCRIPTION:

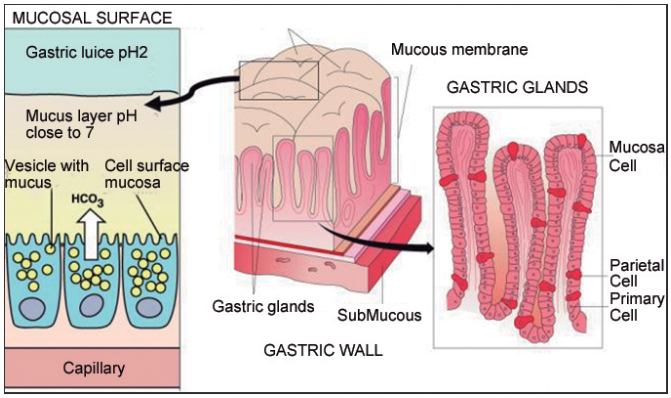
LYSOPLUS 50 is an emulsifier technological premixture. This product has been designed for increasing the fatty ingredient homogenization located in the gastric juices; favoring nutrients assimilation through intestinal villous.

OBJECTIVE:

Fat absorption depends of micelle formation mixed and in continuous movement with lipids from oil droplets located in the intestinal lumen, which are within said micelles. In presence of bile sales, fatty acids and mono-acylglycerol produced by pancreatic lipase action of pancreatic, are aggregated into mixed micelles.

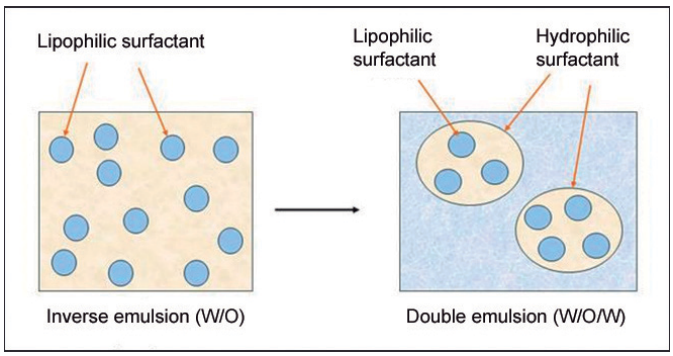
LYSOPLUS 50 has been created to facilitate the dispersion of fat in an aqueous medium by forming micro-droplets, so that they are distributed evenly, thereby increasing the number of particles in contact with the surface of the villi for greater assimilation.

On this case, both type of nutrients, hydrophilic and lipophilic, are in contact with cells of the intestinal mucous and able for their absorption, including lipid solubilization and subsequent incorporation into the biliary micelles.



The active ingredient of this premix is based on the stabilization of emulsifiers and binders agents, its solvent and active ingredient also is lecithin enzymatically hydrolysed.

Moreover, the active ingredient is excipiented on precipitated silica, allowing a slowly release along of time and in depending of receptor environment characteristics.





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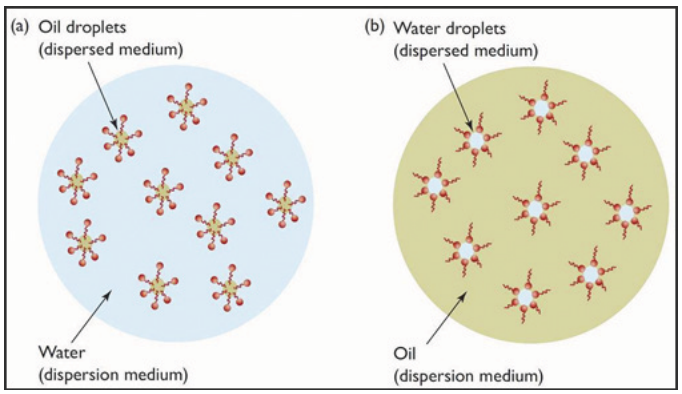


LYSOPLUS 50

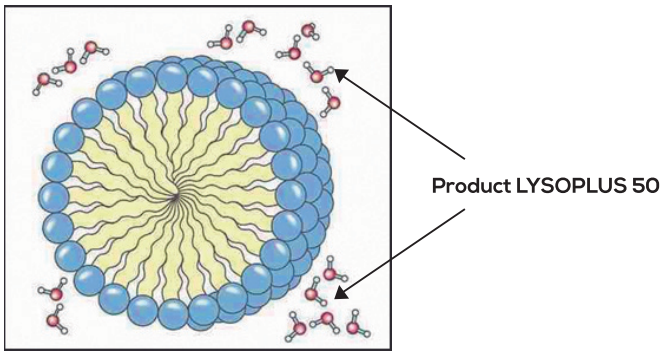
An emulsion is a thermodynamically unstable dispersion of two or more immiscible or partially miscible liquid.

Certain external agents have the ability to stabilize and homogenize modifying said dispersion absorption capacity.

The type of emulsion that tends to be formed depends on the balance between the hydrophilic and hydrophobic properties of the emulsifier agent.



LYSOPLUS 50 is based on this principle; to induce the formation of fat droplets (internal phase) which are dispersed in water which acts as external phase.



COMPOSITION:

The main ingredient of the product **LYSOPLUS 50** is the hydrolyzed lecithin; it has a high degree of hydrolysis and is also easily dispersible in water. This lecithin is especially standardized to maintain its properties and specifically designed for to be used in food, and especially when is required a lecithin with high polarity ratio.

The other ingredients present into the formula are different binder agents, which are mixed together with vegetable oil and precipitated silica as carriers.

The chart included bellow describes all ingredients and their amount into the formula:

INGREDIENTS

- HYDROLYZED LECITHIN (LPC, LPI, LPE and LPA)
- MONO & DIGLYCERIDES FROM FATTY ACIDS
- BINDER AGENTS
- BIO-SURFACTIN
- ANTIOXIDANT COMPOUND
- PRECIPITATED SILICA

* lysophosphatidylcholine (LPC), lysophosphatidylinositol (LPI), lysophosphatidylethanolamine (LPE), and lysophosphatidic acid (LPA).



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PROPIEDADES:

As follows are described the main properties of **LYSOPLUS 50** dfrom application prospective:

- Natural bio-surfactant based on triglycerides .
- Promotes micelle formation from free fatty acids by facilitating the transfer of the hydrophobic fatty acids through the water layer covering the surface of the membranes of intestinal micro-villi.
- The fatty acids and Lysolecitin diffuse through the intestinal membrane cells , inside the cells.
- Improve feed conversion and weight gain. Its emulsifier capacity increases performance of fats as a source of energy reaction.
- Create smaller micelles in emulsion, improving digestion of fats in aqueous media such as gastrointestinal.
- Improved lipid adsorption and their digestibility ratios compared to other lecithin and /or natural identical emulsifiers.
- Stable versus to thermal processes for feed manufacturing activities.
- Stable in acidic medium or containing high salt concentrations.
- Improve bioavailability of nutrients and fat soluble vitamins.
- Improve amino acids digestibility.
- Improve pigmentation ratio using fat-soluble pigments for yellow chicken as Zeaxanthin, Lutein, others.
- Optimizes the absorption of vitamin E and/or Selenium. For its preservative - antioxidant capacity, it exercises control of oxidative status of fats and oils.
- The amount of phosphorous should be considerated when formulating the feed compoung.
- Hepatic-protector effect.
- Enzymatically hydrolyzed lecithin (LPC, LPI, LPE, and LPA), allows to achieve higher emulsion capacities and acts as surfactant for its specific contribution of lysophosphatil-dil-cholyne, with different molecular structure from other phospholipids and with a higher ability hydrophilic.
- Phosphorus presence should be considered to balance the formulas.
- Produces a hepato – protective effect.

RECOMMENDED DOSAGE:

250 gr./Ton. of feed compound.



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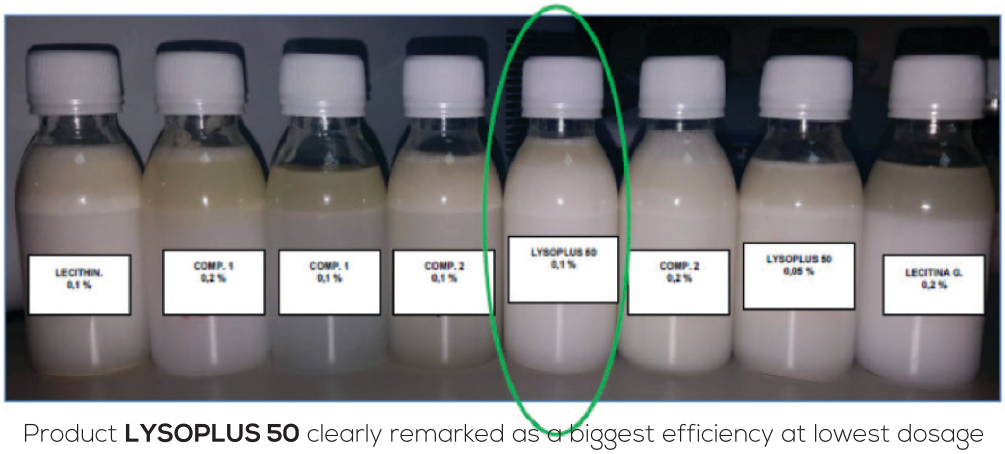
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Product **LYSOPLUS 50** clearly remarked as a biggest efficiency at lowest dosage

CONCLUSIONS:

Once compared the different proposed formulation options, applied on the same receptor matrix, these are the conclusions which permitted us to present **LYSOPLUS 50** as product to commercialize:

1. Ingredients combination presents a best homogeneity and a better viability for transferring the process at industrial scope.
2. Has been defined an optimal dosage which reinforce the product effectiveness and reduce cost in front of competitors formulation.
3. **LYSOPLUS 50** has high emulsifier qualities and is very stable compared to another competitor´ products present in the market and also tested individually.
4. Emulsifies effectively a mixture containing from 20 to 50% on fatty material.
5. Due to its stability and homogeneity between its 2 emulsion phases at long term, optimizes solubility and absorption of hydro and lipo-soluble compounds.
6. It´s a product 100% non GMO.
7. Optimal dosage is 0,025%.
8. Other commercial products, tested under same conditions, have a similar behavior added at 3 times more its dosage.
9. Not presents foam during stirring time and remains stable at least 4 hours at digestion process conditions regarding temperature and hydro-fatty composition.



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EFECTIVENESS:

Below, it is included a chart that shows nutritional profit indicators based on experiences of customers at a dosage rate of **250 Gr./Ton** with results proportionally indicated in ranges:

SPECIES	Weight gain (%)	Feed conversion rate (%)	Enhance of energy (Kcal) (*)	Enhance of digestibility (%) (**)	Improve on nutrients use (***)	Egg weight increases (%)
Broilers, hens and Turkeys	1 -3	1 -3	75 - 125	2 -4	++	16 - 22

(*) same result adding less 75-125 Kcal (fat) to the feed compound (it depends on the quality and type of oils, other raw materials, genetics...) Improve of digestibility (aminoacids and fat)

(**) aminoacids and fat

(***) Improve the use of nutrients in general, and especially vitamins, preventing them from being excreted, due to their duality in solubilizing both lipo and water-soluble

CONTRAINDICATIONS:

Unknown up to date.

TO BE USED IN:

All species. Specially indicated in poultry and aquaculture.

WAREHOUSING:

Keep in dry, fresh, apart from light area. Seal it after usage.

SHELL LIFE:

Two years as from manufacturing date.

PACKAGING:



25 Kgs.
Bags

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