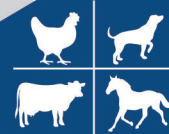


# LIPOLYSE-C

The Most Potent Hydrophilic Emulsifier



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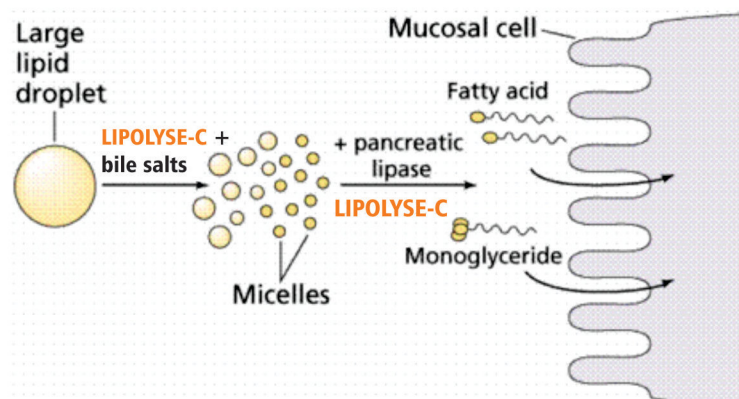
## The Most Potent Hydrophilic Emulsifier

Emulsifiers are used in poultry nutrition for improving poultry performance, digestibility of the nutrients, especially fats. The selection of various natural and synthetic sources of emulsifiers should be based on their hydrophilic-lipophilic balance (HLB).

### Description:

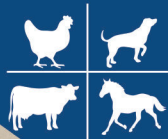
In poultry diets, animal fats and vegetable oils are mostly included in diets because of their high energy concentration to support growth & performance (*Blanch et al., 1996*). Enzymatic hydrolysis of lipids (oils and fats) produces fatty acids (FA) which are water insoluble. FA passes through the liquid phase of the small intestine and, after aggregating to form micelles, are absorbed as hydrophobic components.

Energy is a major cost component factor in diets of high performance animals, such as broilers. Emulsifiers can be used to improve fat digestibility and energy efficiency. As a result, lower energy diets can be formulated for birds whilst maintaining the same performance, leading to lower feed cost and more economical and sustainable production. Emulsifiers facilitate the formation of emulsion droplets, which lowers the surface tension (*Ashraf, 2007*), stimulates the formation of micelles, causes high levels of monoglycerides in the intestine and facilitates the nutrient transport through the membrane.



(Polyoxyethylene glycol mono- and dioleates are synthetic emulsifiers and have been used on animals, such as pigs. The demand of using exogenous emulsifiers in broiler diets must be looked into the use of nutrient dense diets containing supplied fat that is almost usual to take advantage of the full growth potential in fast growing broiler strains.)



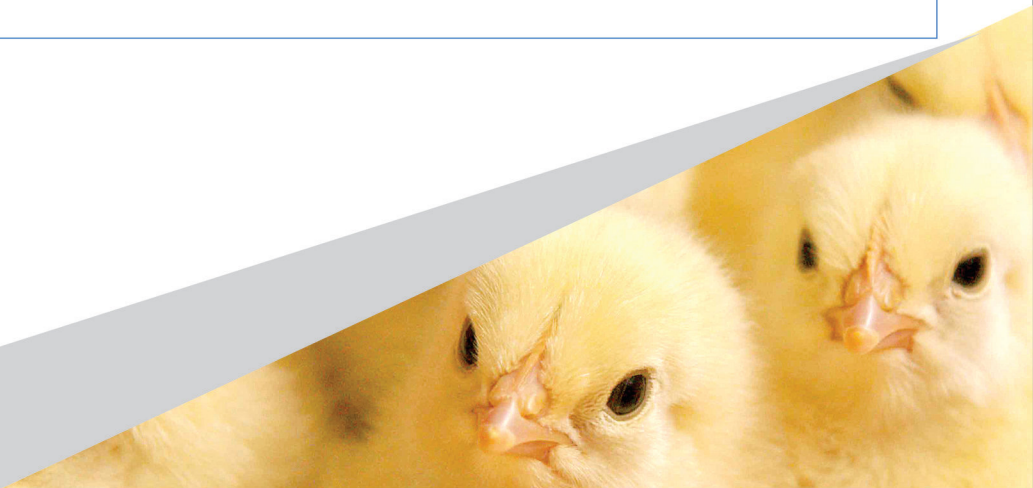


## About Emulsifiers:

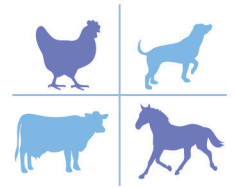
An emulsion is a mixture of two products such as oil and water that do not mix together i.e. that are immiscible. Adding an emulsifying agent (emulsifiers or emulgents) to the mixture causes the oil to be broken down into smaller pieces that can then be dispersed throughout the water. Fats are insoluble in water and cannot be solubilised in the gastrointestinal tract, and have to be emulsified before lipolytic enzymes can digest them.

*High amounts of free fatty acids cause poor monoglyceride formation and consequently have a poor emulsifying capacity. Long chain unsaturated fatty acids and monoglycerides form micelles rapidly, whereas saturated fatty acids such as Tallow have low ability to form micelles because of their weak polarity.*

Soluble Caseinates	Increased weight gain, FCR, pancreatic lipase, improved ether extract digestibility with no effect on carcass traits, serum cholesterol, HDL and triglycerides	Guerreiro <i>et al</i> , 2011
Lysophosphatidylcholine or Lysolecithin (lecithin)	Improved weight gain, FCR, co-efficient of total tract apparent digestibility(CTTAD) of C16:0, C18:2, and C18:3n3, C18:1n7 and C18:1n9 fatty acids, improved carcass quality and dressing percentage	Melegy <i>et al</i> ,2010 Zhang <i>et al</i> ,2011 Azman and ciftci, 2004 Ashraf,1995
Bile salt	Improved relative weight of organs Significantly improved bwg Decreased plasma cholesterol Increase metabolisable energy Enhance the broilers performance and the digestion Enzyme activeness of intestinal tract contents	Abd-Ef-Rauof, 1995 Alzawqari <i>et al</i> , 2010 Gomez and Polin, 1976 Kussaibati <i>et al</i> , 1982 Zhong and xiang, 2008
Synthetics emulsifiers Glycerol polyethylene glycol ricinoleate, e 484 Liprex poultry Sodium steary1-2-lactylate (SSL)	Improved performance, intake and utilisation efficiency of fat, CP, ME and Increased the body weight and liver weight Improved body weight and relative organs weight	Roy <i>et al</i> , 2010  Yordan <i>et al</i> , 2013 Flores <i>et al</i> , 2007 Chronakis <i>et al</i> , 2004



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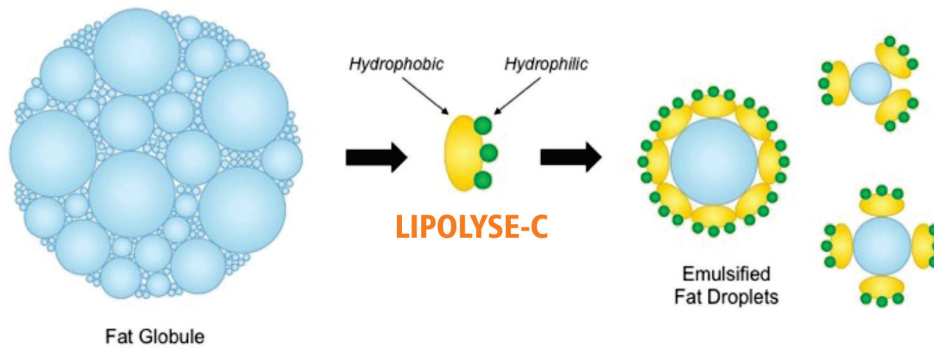


## Hydrophilic-lipophilic balance (HLB):

The key indicator for selecting an emulsifier is hydrophiliclipophilic balance (HLB), ranging from 0 to 20 which reveals the degree of fat or water solubility. Lower HLB indicates a more lipophilic or fat-soluble emulsifier. On the other hand, higher HLB indicates a more water soluble or hydrophilic emulsifier. Because of birds consume water 1.5-2 times more than feed; the diet should contain a small amount of fat and the water amount should exceed fat in digestive tract. In this situation, a high HLB is more appropriate.

The function of nutritional emulsifier is to enhance the digestibility of long chain fatty acids, especially saturated fatty acids (SFA) C16 and C18. Hence emulsifiers could have an important role in economic aspects in poultry industry since they increase efficiency in digestion of both animal and vegetable fats.

In addition, that no one has focused on the humidity and temperature; because both have a great impact on performance of broilers and the utilisation of concentrated energy forms such as fat and more attention is needed on the efficacy of emulsifiers when ambient temperature and humidity is high.



## Composition:

Lysophospholipid, Phospholipid, Soluble Caseinate , Glycerol Polyethylene Glycol Ricinoleate & Natural Carriers.

## Benefits:

- Increases the digestibility of fat & oil in feed.
- Facilitate Low cost formulation.
- Minimizes abdominal fat.
- Maximizes enzymatic digestion of feed.

## Inclusion Level:

Broiler/ Layer : 500gms/ton of feed.

## Presentation:

25kg bag.



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