# LIPOMOD® 833L2 IMPROVING EMULSIFYING PROPERTIES OF EGGS

Lipomod® 833L2 (L833L2) is a microbial phospholipase A2. Phospholipase A2 is an enzyme that modifies the phospholipids to lyso-phospholipids by cutting at the 2-position on the glycerol backbone, this produces molecules that are more hydrophilic giving them superior emulsifying priorities.

1 — Fatty Acid
2 — Fatty Acid
3 — Phosphate — Choline
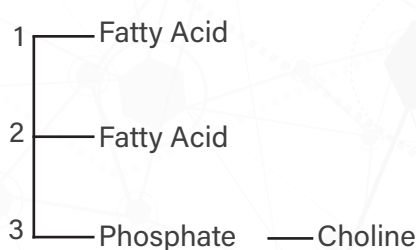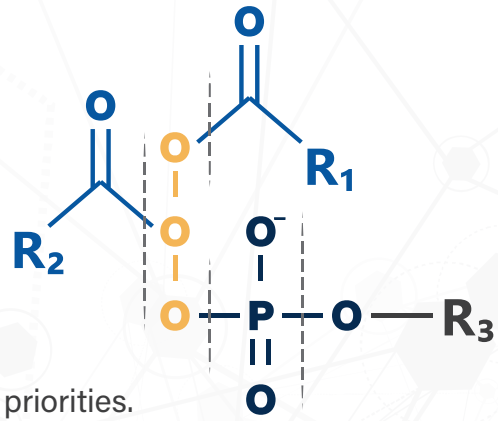
Phospholipid
(Lecithin, Phosphatidylcholine)

phospholipase A$_2$
Lipomod® 833L2

1 — Fatty Acid
2 — OH   + Fatty Acid
3 — Phosphate — Choline
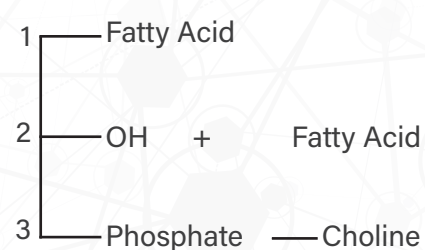
Lyso-phospholipids
(Lysolecithin, Lysophosphatidylcholine)

- oil droplet
- water
- emulsifier
  hydrophilic head
  hydrophobic tail
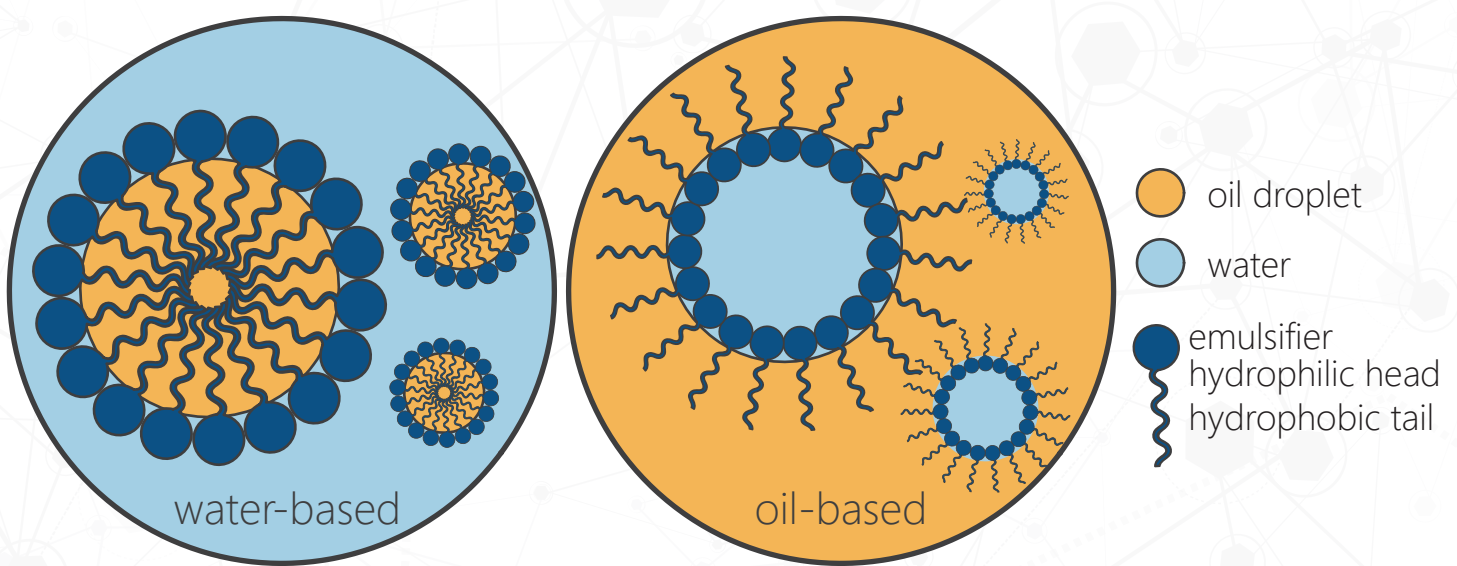
water-based   oil-based

Figure 1.0 shows the hydrophilic head and hydrophobic tail of phospholipids improving emulsification in oil- and water-based solutions.

IMPROVED EMULSIFICATION

Egg yolk is a complex oil water emulsion itself, composed of 50% water, 32% lipids and 16% protein, 28% of the lipids are phospholipids, they contain both a hydrophilic head (water loving) and hydrophobic (oil loving) tail making them perfect to act as an emulsifier. Modifying egg yolk with L833L2 converts the phospholipids to lyso-phospholipids increasing its emulsifying potential. Making modified egg yolk the ideal emulsifier for producing commercial emulsions such as mayonnaise, salad dressing, and sauces like hollandaise and ice cream.

THE USE OF ENZYMES IN THE PRODUCTION OF COMMERCIAL MAYONNAISE

Differentiate
Improves firmness giving better texture and mouth-feel to products.

Cost Efficiencies
Less enzyme modified egg yolk required to develop right viscosity of mayonnaise reducing manufacturing cost.

Nutrition
Less egg yolk required to make mayonnaise reduces saturated fat content.

Process Efficiencies
There is no need for additional thickening agents.

Stability
Lyso-phospholipids improve heat stability enabling pasteurisation to take place extending the shelf life.

STABILITY STUDY OF LIPOMOD® 833L2

The experiment below shows the effect L833L2 has on the stability and structure of mayonnaise compared to mayonnaise made with untreated egg yolk.

zero minutes   sixty minutes

no enzyme

zero minutes   sixty minutes

L833L2