

# MAXAPAL® A2

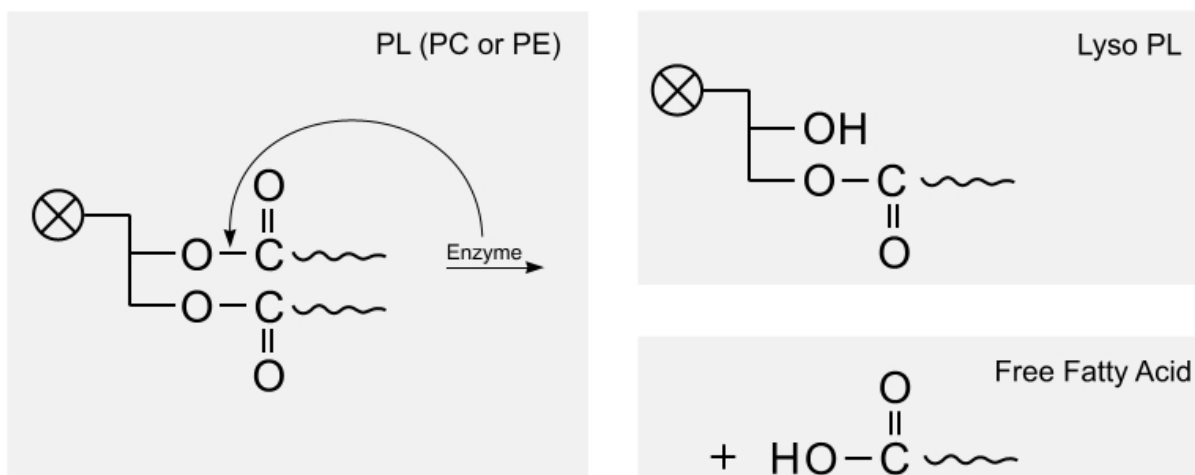
## A Phospholipase A2 from *Aspergillus niger*

### ENZYME FUNCTIONALITY

MAXAPAL® A2 is a liquid phospholipase A2 obtained by submerged culture of a selected strain of *Aspergillus niger*.

The main activity of MAXAPAL® A2 is **phosphatide-2-acyl-hydrolase** (EC.3.1.1.4).

MAXAPAL® A2 hydrolyzes phospholipids, by specifically cleaving fatty acids from the 2nd position on the glycerol moiety of the phospholipid (PL), resulting a lyso-phospholipid plus a fatty acid.



### APPLICATION

MAXAPAL® A2 is used in different products and processes for the conversion of phospholipids (phosphatidyl-choline, phosphatidyl-ethanolamine, phosphatidyl-inositol, phosphatidic acid) into the corresponding lysophospholipids.

Lysophospholipids have improved emulsifying properties. This results in better heat stability of emulsified food products (mayonnaise, dressings, desserts, confectionaries, ...). Other quality benefits include higher creaminess and mouthfeel, and a possible reduction of thickeners in food applications.

The enzyme dose to be applied is described in the MAXAPAL® A2 application data sheet as well as the general recommendations of use. Adequate trials should be performed prior to any industrial use to determine the enzyme dose and optimal conditions.

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MAXAPAL® A2 can be used to modify egg yolk or whole egg. A conversion of 80% of phospholipids is considered as sufficient to give full improvement of emulsifying properties. An alternative application of the enzyme is the modification of vegetable lecithin.

Although the enzyme needs the presence of calcium for its activity, generally no addition of calcium salts is needed as most food products contain sufficient calcium ions. The presence of added salt or sugar in products to be converted has a negligible impact on the conversion rate.

### EFFECT OF TEMPERATURE AND PH ON ACTIVITY

Under conditions of optimal activity, MAXAPAL® A2 is active in the pH range 5.0 – 9.5 with a maximum at pH 8.0.

Under conditions of optimal activity, MAXAPAL® A2 is active in the temperature range 4– 80°C (39– 176°F) with an optimum at 45°C (113°F).

The enzyme is resistant to high temperatures conditions. After sufficient conversion MAXAPAL® A2 does not need to be inactivated due to the absence of substrate or enzyme side activities.

### PRODUCT CHARACTERISTICS

MAXAPAL® A2 is a liquid enzyme solution standardized on phospholipase activity (CPU/g). CPU stands for Chromogenic Phospholipase Unit and is the amount of enzyme that liberates 1µmol of fatty acid per minute from egg yolk at 40°C (104°F) and pH 8.0.

MAXAPAL® A2 has very low amylase, lipase, galactomannanase and protease side-activities.

Modern genetic technology has been used for the development of MAXAPAL® A2 as functional genes have been introduced and multiplied in the producing micro-organism.

This product is used as processing aid in food processes and its use will therefore not lead to any labelling of the final consumer product.