

MAXAPAL[®] A2

A Phospholipase A2 for the stabilisation of egg yolk / fat based pre mix

PRODUCT DESCRIPTION

MAXAPAL[®] A2 is a liquid, purified phospholipase A2 enzyme (phosphatide-2-acyl-hydrolase E.C.3.1.1.4), produced by microbial fermentation of a selected strain of *Aspergillus niger*. MAXAPAL[®] A2 is Kosher and Halal certified and is the non-animal alternative to similar enzymes extracted from porcine pancreas.

PRODUCT BENEFITS IN APPLICATION

A trend within the egg processing industry is to develop added value egg derived products in order to offer tailor made solutions to its customers.

Sugared whole egg (50 % whole egg + 50 % sugar) is used for example in the Pound Cake recipe of the fine bakery industry. In this typical recipe two parts of the sugared whole egg are mixed with one part of liquid butter fat and one part of flour. A further step in the simplification of fine bakery processing is the pre-mixing of the sugared whole egg with the liquid butter fat fraction.

The use of MAXAPAL[®] A2 treated whole egg in this recipe makes it possible to compose a stable pre-mix blend of sugared whole egg and fat without segregation of the fat and the egg fraction during storage or transportation.

This very stable pre-mix is a joined development between DSM and **Frisian Egg B.V.**

Further benefits of this new pre-mix for the final application are the following:

- A more creamy mouth feel
- An increased volume and
- An increased softness.

The new pre-mix provides another option for the egg processor industry to differentiate their products, to enlarge logistic opportunities and to support their customers in fine bakery with more convenience in operation.

APPLICATION AND DOSE RATE

1) MAXAPAL[®] A2 general operating conditions

MAXAPAL[®] A2 converts egg yolk's phospholipids into lyso-phospholipids by cleaving off fatty acid from the C-2 position of the phospholipid glycerol backbone. Lyso-phospholipids are known to improve emulsifying properties.

Issued by DFS Food Processing Enzymes

Last update : March 1st 2010. Page 1 of 2

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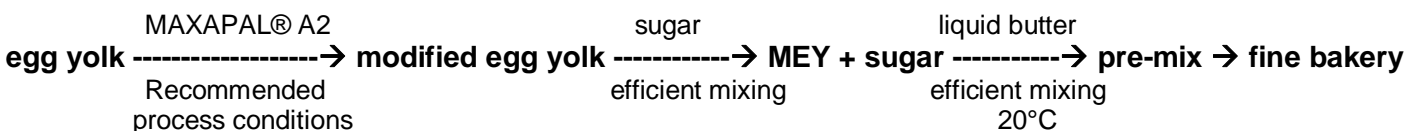
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The enzyme dose to be applied is a function of the phospholipid concentration as well as the process conditions such as temperature, pH and contact time. The use of the DSM Egg-strapolator is advised but will not replace full scale trials.

The objective of the enzyme treatment is to reach at least 85 % phospholipid conversion. Consult our general Application Data Sheet on MAXAPAL[®] A2 for further details.

2) pre-mix process scheme



The recommended MAXAPAL[®] A2 dosage for the whole egg to be used in the pre-mix application is 100 CPU per gram of phospholipids.

Egg fraction	Dosage	Temperature	Contact time
Whole egg	500 ml/ tonne	15-20°C (60 -70°F)	8 to 10 hours

A pH adjustment is not needed as the natural pH of whole egg is favourable to MAXAPAL[®] A2 activity. Although the enzyme needs some calcium for its activity, addition of calcium salts is not needed as egg contains sufficient calcium ions.

Although not very critical the mixing of the MAXAPAL[®] A2 treated egg yolk with sugar and fat needs sufficient stirring. Stirring speed, time and temperature combination depend on the equipment available. At ambient temperature (around 20 °C) the pre-mix is pourable and pumpable, but at lower temperatures the pre- mix becomes increasingly solid.

TECHNICAL SERVICE

Please contact your local DSM Food Specialties technical sales representative to receive additional information on meeting your needs.