

# Lipomod<sup>®</sup> 621MDP

## L621MDP

### Features/Benefits

- Mixed fungal esterase and protease
- Gives cheddar to slight Swiss cheese flavour
- Produces EMC with minimum bitterness
- Kosher, Halal and vegetarian status

Lipomod<sup>®</sup> 621MDP is a mixed fungal esterase and protease. It produces a full cheese flavour with fatty acid and protein notes. It can be used to make EMC with cheddar to slightly Swiss flavour. The exopeptidase activity prevents the production of excess bitter peptides. Since it is a non-animal product Lipomod<sup>®</sup> 621MDP is suitable for vegetarian and kosher products.

Lipases hydrolyse triglycerides to liberate free fatty acids (FFA). These enzymes are widespread throughout nature, and they possess different activities and specificities towards triacylglycerol substrates (fat). The free fatty acid profile (amount and type of FFA) contributes to the difference in flavour from one cheese to another. Proteases break down proteins to peptides of various sizes and amino acids, which contribute to the savoury and bitter notes of dairy-based products. For Enzyme Modified Cheese (EMC), lipases and proteases are added to immature cheese to produce specific concentrated flavours.

### Specification

Activity	5,500 U/g Esterase (Tributyryn substrate) 60 U/g Casein Protease
Biological Source	<i>Penicillium sp.</i> , <i>Aspergillus sp.</i> , <i>Candida sp.</i>
Form	Off white to brown powder
Optimum pH Range	5.0 - 7.0
Optimum Temperature Range	40 - 50°C

### Application & Dose

Lipomod<sup>®</sup> 621MDP has optimum activity at neutral to slightly acid pH, so no pH adjustments are required whether cheese, milk fat or milk is used. In EMC production, the shredded cheese is mixed with water and emulsifying agents to obtain an EMC slurry of 55-85% of cheese (40-55% of dry solids). The slurry is pasteurised and cooled to 40-50°C, prior to the addition of the enzymes. The recommended dosage for L621MDP is 0.05-0.15% w/w on cheese in the EMC slurry. The mixture can then be incubated for 8-36h, depending on the enzyme dose, incubation temperature and substrate. Trials will be required to determine the exact conditions in order to achieve the desired strength of flavour. The enzyme is deactivated above 80°C at the end of the incubation. Lipomod<sup>®</sup> 621MDP contains lipase, endopeptidase and exopeptidase activities so no other enzyme additions are required. If the resulting EMC is too bitter, Flavorpro<sup>®</sup> 937MDP can then be used to reduce the bitterness.

### Health & Safety

Always read the Material Safety Datasheet (MSDS) before use and retain. If you are in any doubt about recommended product handling and safety, please contact Biocatalysts before use. Generally, when using enzymes avoid contact with the skin and eyes and do not breathe dusts or aerosols containing them.

### Storage

Powders: Activity will remain within specification for at least 12 months from the date of manufacture when stored at 0 - 20°C.

### Allergens

Refer to allergen statement.

### Food Status

Material complies with the JECFA/FAO/WHO and FCC recommended specifications for enzymes used in food processing.

### GM Status

This product has been manufactured using a fermentation process of a microbial organism that has not been altered using modern biotechnology. This product does therefore not require labelling as GMO on food labels.

### Quality & Food Safety

Biocatalysts operates a preventative risk-based Food Safety System that ensures the environment and processes are designed to produce safe products every time. FSSC22000 and FSMA compliant.

Compliance - The Company's integrated management system encompasses Quality, Food Safety, Health and Safety and GMP.

Certificates are available on request from the Customer Services Department.

### Availability

Powders: standard 25kg net poly-lined, 100% recyclable cardboard box. Non-standard quantities are also available for some products, please enquire.