

# Lipomod<sup>®</sup> 122MDP

## L122MDP

### Features/Benefits

- Mixed fungal esterase and protease
- Gives cheddar to slight swiss cheese flavour
- Produces EMC with minimum bitterness

**Lipomod<sup>®</sup> 122MDP** 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 Enzyme Modified Cheese (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> 122MDP is suitable for vegetarian 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	Esterase 4,950-6,050 U/g (Tributyryn substrate) Leucine Aminopeptidase 63-77 U/g
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 – 8.0
Optimum Temperature Range	35 - 55°C

### Application & Dose

**Lipomod<sup>®</sup> 122MDP** has optimum activity at neutral 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 L122MDP 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> 122MDP contains lipase, endopeptidase and exopeptidase activities so no other enzyme additions are required. If the resulting EMC is too bitter, Flavorpro<sup>®</sup> 091MDP can then be used to reduce the bitterness. Please contact Biocatalysts for further technical support.

### 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.

### Availability

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

### 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 Hazard Analysis at Critical Control Points (HACCP) system. This ensures that ingredients and the production environment are regularly monitored for contamination and that the processes are designed to produce safe products every time.

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

Biocatalysts Ltd is certified to ISO9001, ISO14001, ISO45001 and FSSC 22000.

Certificates are available on request from the Customer Services Department.