

Enhancing Enzyme Modified Dairy Ingredients with an Umami Boost

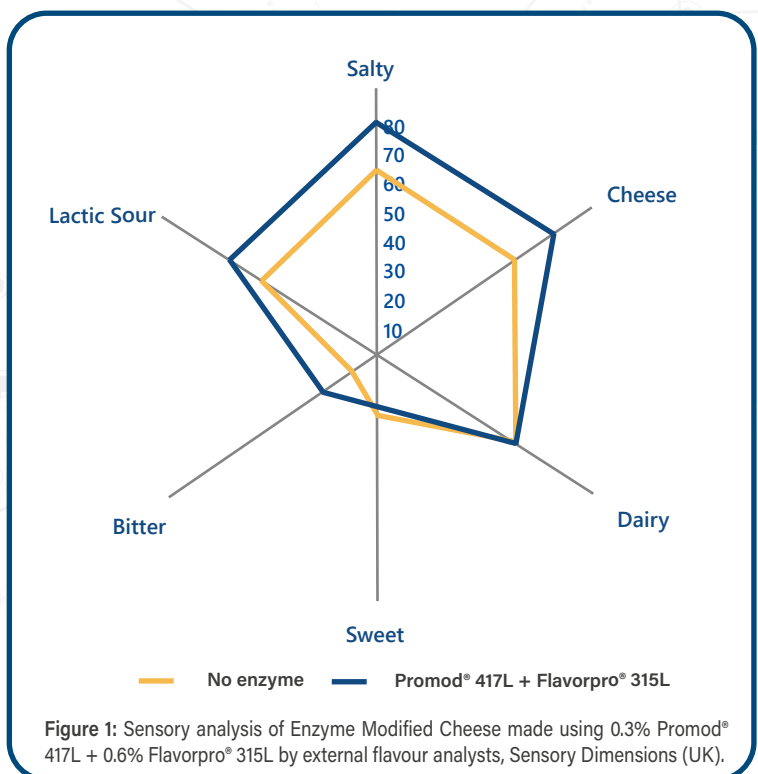
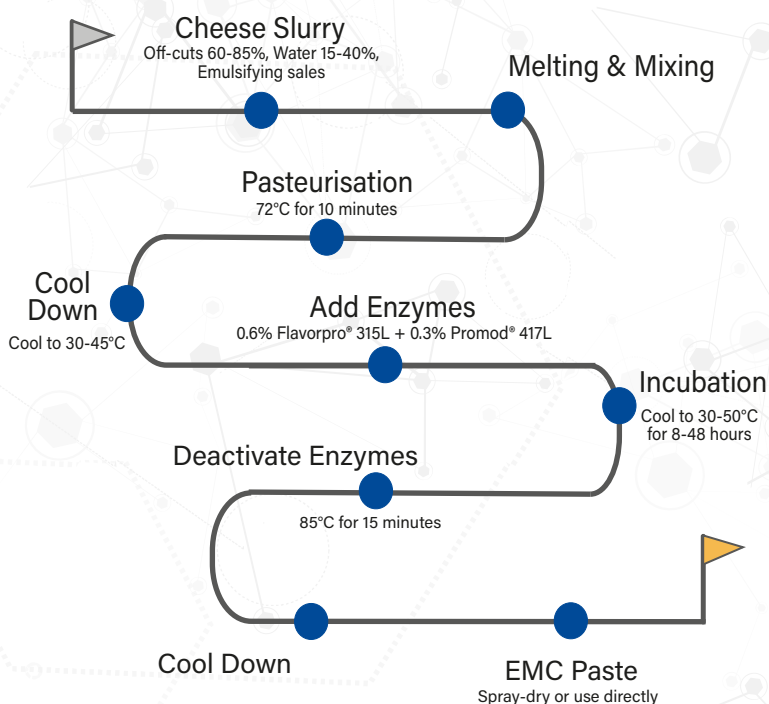
Umami Flavour Enhancement

Glutamine is an amino acid found in protein-containing foods. Glutamine can be converted into glutamate and is one of the key factors in contributing a savoury umami taste sensation. Enzymatic hydrolysis of proteins releases the linked amino acids, such as glutamine making it available for conversion into glutamate to develop unique and concentrated flavour notes. Umami flavour generation increases the apparent saltiness in Enzyme Modified Dairy Ingredients (EMDI) contributing to a strong, mature cheesy flavour whilst reducing salt content in processed cheese applications.



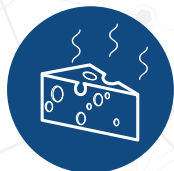
Optimised Enzymatic Solution for Unique Savoury Flavour Profiles

Biocatalysts Ltd has developed an optimised enzymatic solution for generating a strong umami flavour profile for Enzyme Modified Dairy Ingredients. The unique combination of **Promod® 417L** and **Flavorpro® 315L** is an extremely simple cost-effective one-step solution for maximising glutamate release from cheese and crafting a rich, mature and complex flavour profile for dairy ingredients. **Promod® 417L** (liquid endopeptidase) and **Flavorpro® 315L** (liquid exopeptidase with glutaminase side activity) are added together to hydrolyse proteins in dairy milk and cheese releasing the amino acids from the peptide bonds. The amount of glutamic acid released is maximised by the glutaminase side activity of **Flavorpro® 315L** to convert the glutamine amino acids released into glutamic acid. The one step use of **Promod® 417L** and **Flavorpro® 315L** has shown (by external sensory analysis) to increase the salty, cheesy and lactic sour notes of EMC (Figure 1), to develop strong mature savoury concentrated flavours for achieving flavours associated with Parmesan, Cheddar and Swiss flavour profiles. The strong umami flavour profile helps increase the apparent saltiness in EMDI's, therefore EMDI's made with **Promod® 417L** and **Flavorpro® 315L** can be used for salt reduction in processed cheese applications.



The Use of Enzymes for Flavour Development in EMDI

Why Enzyme Modified Dairy Ingredients?



Enhance

Reduce costs by using enzymes to produce cheese flavours up to 30 times stronger than regular cheese.



Efficiencies

Enzymes can accelerate the ripening of cheese to develop intense dairy flavours within 1-4 days.



Nutrition

A concentrated cheese flavour requires less cheese, thereby reducing fat and sodium content.



Differentiate

EMDIs deliver diverse and natural flavour profiles for the food industry allowing your recipes to have a clean label.

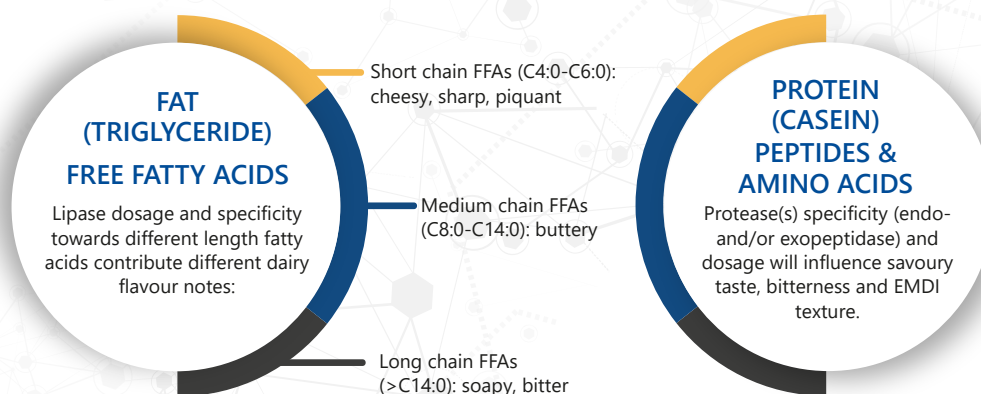


Extend

EMDI pastes can be dried into an EMDI powder to increase its shelf-life and stored at room temperature.

Enzymes Used to Modify Dairy Substrates for Flavour Generation

Dairy substrates contain fats and proteins that can be modified using enzymes to enhance dairy flavours. The distinct specificities of enzymes enable them to precisely target the fats and proteins in dairy to modify their characteristics to contribute different taste, flavours and textures to the ingredient.



Different combinations of lipases (**Lipomod**[®]) and proteases (**Promod**[®] and **Flavorpro**[®]) from Biocatalysts' range of products can be used to hydrolyse fats and proteins to develop unique flavour profiles to be used in the production of dairy ingredients. To learn more about Biocatalysts' range of speciality lipase and proteases for dairy flavour generation, or to create something bespoke for your application, reach out to our enzyme experts for further technical support.