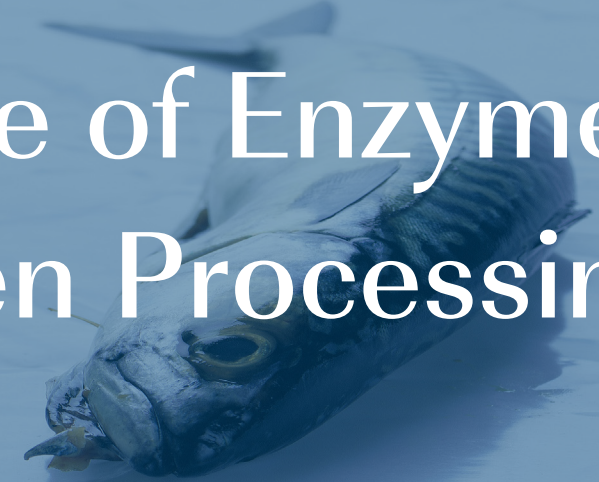


Biocatalysts' Range of Enzymes for Collagen Processing



The increasing demand for collagen is driven by the growing consumer awareness of the health, nutritional and functional benefits of collagen. Collagen is present in many ingredients, however as the major protein in connective tissues, collagen is mostly found in abundance in mammals. The key sources of collagen for use in industrial applications are bovine, porcine and marine/fish products. Extracted collagen requires further processing to enhance its functionality and improve its bioavailability and digestibility. Below are Biocatalysts' range of enzymes for processing extracted collagen to produce high-value collagen peptides.

| Product | Activity | Use | Optimum pH | Optimum Temperature |
|--------------|-------------------|---|------------|---------------------|
| Promod® 24L | 110 Caseinase U/g | A neutral microbial endopeptidase that can be used for gelatin hydrolysis. This enzyme has a broad spectrum specificity that can be used for achieving powerful solubilisation action in a range of collagenous material. P024L can also achieve good levels of hydrolysis whilst producing non-bitter tasting peptides. | 5.0 - 7.5 | 40 - 60°C |
| Promod® 90L | 154 Caseinase U/g | A microbial endopeptidase preparation designed specifically for processing collagen and gelatin. This enzyme can be used to solubilise and break down collagenous material. The unique combination of proteolytic activities in Promod® 90L allows the enzyme to achieve good hydrolysis of beef, pork and fish collagen whilst producing non-bitter collagen peptides. | 5.0 - 7.0 | 50 - 60°C |
| Promod® 128L | 154 Caseinase U/g | a microbial endopeptidase preparation with broad substrate specificity for processing extracted collagen and gelatin. This enzyme can be used to efficiently hydrolyse beef, pork and fish extracted collagen to increase solubility, reduce viscosity and produce lower molecular weight peptides. P128L can also be used for hydrolysis of animal waste streams and treated bovine and porcine hides. | 7.0 - 10.0 | 40 - 60°C |
| Promod® 324L | 215 Caseinase U/g | A microbial endopeptidase preparation with broad substrate specificity. P324L can be used to efficiently hydrolyse animal proteins including tendons and ligaments. P324L is also shown to be highly efficient in the extraction of chondroitin sulphate from collagenous material such as trachea. | 7.0 - 10.0 | 55 - 65°C |
| Promod® 439L | 220 Caseinase U/g | A microbial protease that is very effective in hydrolysing meat and fish proteins. It is an alkaline protease with a broad substrate specificity and can very effectively solubilise protein substrate materials. It can also hydrolyse gelatin. | 8.0 - 10.0 | 45 - 60°C |
| Promod® 671L | 80 Caseinase U/g | P671L can be used to hydrolyse chicken, pork, and fish proteins to produce a highly palatable hydrolysate. The enzyme can reduce the viscosity of meat hydrolysates and contains some collagenase activity. | 6.0 - 7.0 | 50 - 60°C |
| Promod® 950L | 154 Caseinase U/g | P950L efficiently hydrolyses animal, and fish proteins to increase solubility, reduce viscosity & produce specific flavours. The enzyme is a sulphite-free microbial protease and can be used to manufacture collagen peptides extracts with lower sulphite content. | 5.0 - 7.0 | 50 - 60°C |