GELATIN in dairy products

PB Gelatins

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Gelatin is particularly well suited for use in dairy products thanks to its compatibility with milk proteins and its functional properties.

It provides a positive contribution to the overall texture of dairy products in a variety of ways:

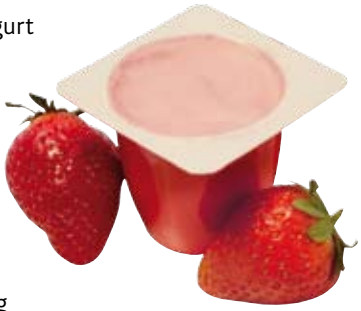
- Its water binding properties help prevent syneresis in yogurt and sour cream.
- Its whipping and foam stabilizing properties are used to create delicate aerated dairy desserts such as mousses.
- Its viscosity building properties and the synergistic relationship with carrageenan make gelatin a good thickener.
- Its gelling properties stabilize low fat (dairy) spreads, while its fat-like melting properties contribute to smoothness and a fat-mimicking effect in low-fat dairy-products.
- Its melt in the mouth properties and its ability to provide a smooth and creamy mouth-feel.

Due to market growth in recent years of low and non-fat dairy products, gelatin has become an essential ingredient. Its unique **fat-like melting characteristics** play an important role in simulating the mouth-feel of a full-fat product and its functional properties provide body and texture while preventing syneresis.

Advantages of gelatin in dairy products:

- Gelatin has a neutral flavour and odour
- Gelatin is easily dispersed and hydrated
- Gelatin is easy to use. It is not necessary to dissolve gelatin separately. It can be hydrated together with other dry ingredients while complete dissolving takes place during the pasteurization step.
- Gelatin is well suited for batch, HTST and UHT heat-processing methods.
- Gelatin's low viscosity at elevated temperatures makes pumping easier and improves heat transfer during pasteurization, thereby reducing energy requirements.
- Gelatin provides heat shock resistance thus minimizing the effects of thermal abuse during distribution.
- Gelatin is compatible with other hydrocolloids used in dairy products.
- Gelatin can be added before inoculation as it is not affected by the fermentation process in yogurt production.

Yogurts



In today's health-conscious society, low and non-fat yogurt products have become extremely popular and gelatin is well-suited for use as a stabilizer in these products. Gelatin provides body and mouth-feel to create a smooth, delicate, creamy texture while providing an attractive surface sheen.

In addition to texture enhancement, gelatin improves customer appeal by preventing syneresis and extending shelf life.

Gelatin usage levels depend on processing conditions and formula variables such as total solids, fat content, non-fat milk solids, and the desired product texture. In general the dosage is in between 0.2 – 1.0 % on finished product.

Concentrated cream / thickened cream

The stabilizing and water binding properties of gelatin, together with its ability to provide a delicate, smooth texture and creamy mouth-feel, have lead to its widespread use in concentrated cream products.

These products include full-fat, reduced-fat, low-fat and non-fat products. Depending on the fat level and desired texture, gelatin can be combined with other stabilizers including gums and modified starch.

Soft Cheese Products

In the manufacture of cream cheese, cottage cheese, and cheese spreads, gelatin is used to bind water and replace fat while maintaining body and texture of the full fat product. Gelatin's unique melting point, which is close to that of dairy fats, results in a smooth, creamy texture.

Milk based desserts and mousses

The use of gelatin in milk desserts provides a unique texture and great mouthfeel while preventing syneresis, thereby extending the product shelf-life.

Milk based desserts that utilize gelatin's stabilizing and texturizing properties include puddings, creams, and custards. Gelatin's whipping and gelling properties are also well suited for production of aerated desserts like mousses.

Frozen desserts

Gelatin's functional properties have value in a wide variety of frozen desserts from premium ice-cream to water-ices, milk-ices and novelties.

Gelatin provides body and texture, creating a unique mouth-feel in frozen desserts. Gelatin produces a slow melt-down giving a perception of thickness and creaminess. The gelling and stabilizing properties are also important in the manufacture of extruded frozen dessert products where firmness, shape retention, and good shape definition are required. Gelatin also assists in overrun development.

Gelatin improves heat-shock resistance by reducing water migration and preventing the formation of large ice crystals caused by temperature variations during distribution.

Sour cream

Gelatin is used in the manufacture of sour cream where its thickening properties increase cream viscosity. The cream viscosity can be varied as desired by altering the concentration and the grade of gelatin used. As the concentration of gelatin is increased, there is an exponential increase in cream viscosity.

Low fat butters and spreads

Gelatin is widely used as an emulsion stabilizer and texturizer in low fat butters and margarine products. Gelatin stabilizes the emulsion during storage and spreading. The unique fat-like melting properties of gelatin provide excellent sensory properties on consumption similar to full-fat products.

By using gelatin in a reduced fat formulation, it is possible to obtain a texture comparable to the full-fat product while lowering the calorie content.

Gelatin provides a wide range of texture possibilities. The texture and hardness of low-fat products can be altered by changing the gel strength or changing the concentration of gelatin in the liquid phase.

	Function	Bloom	Type	Viscosity	Dosage (on CP)
Dairy					
Yoghurt	• prevents syneresis • texture • thickening • gelling agent	200-250	A/B	medium-high	0.2 – 1 %
Aerated desserts (mousse types)	• stabilisation • texture • aeration	180-240	A/B	medium-high	0.3 - 2 %
Puddings and Creams	• texture • thickening / gelling agent	200-240	A/B	medium-high	0.2 – 2 %
Soft and melted cheese	• texture • stabilisation	180-240	A/B	medium-high	0.1 – 0.3 %
Ice Creams	• texture • stabilisation	100-200	A/B	low-medium	0.2 – 1.0 %
Icings	• thickening / gelling agent	220-280	A/B	medium-high	0.5 – 1.0 %
Low fat spreads					
	• stabilisation of emulsion • texture / feeling in the mouth	130-280	A/B	high	0.3 – 2.0 %

A = A type gelatin
B = B type gelatin
CP = commercial product

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PB Gelatins, division of TESSENDERLO GROUP
E-mail: info@pbgelatins.com • websites: www.pbgelatins.com - www.gelatin.com