

Ready-to-Eat, Hot-Filled Dairy Desserts

PFM-01

Introduction

One of today's trends in the ready-to-eat dairy dessert market is a shift from a gelled structure towards a more creamy and smooth texture. The flan type products, such as the "flan caramel," have traditionally been made with a gelled structure which gives a notable gel sensation when consumed. Today's trend for these type of desserts are to maintain the gelified look but to introduce a more creamy and smooth perception when consumed.

Innovative processing from FMC BioPolymer has made it possible to create a new family of products that enables formulators to achieve a wide range of textures and mouthfeel properties-- the Lactogel[™] FL product range. The **Lactogel FL family of products** offers a broad range of textures, where the gelled appearance can be maintained while the gel sensation can be controlled and adjusted to meet a specific targeted perception. The innovative processing technology utilized in producing Lactogel FL products maintains the high quality standards, allows for flexibility in creating a range of textural properties and has resulted in a very cost effective stabilizer solution.

As a result of intensive application development work by the FMC BioPolymer dairy application group, it has been possible to create a product and ingredient selection system which makes it easy to obtain a specific texture without going through a high number of fine-tuning trials. The "product" / "use level" selection system is based on a high number of UHT trials where all ingredients have been exposed to industrial processing conditions. The evaluation for the final desserts produced during the R&D project has resulted in a guide line system which is very reliable and easy to use. The combination of a gelled appearance and a creamy texture is normally difficult to obtain when filling the product at 70°C (158°F), then cooling to a storage temperature of 5°C (41°F). The new processing technology introduced by FMC BioPolymer widens the feasible texture range and brings the flan product group in line with the market trends and the consumer preferences.

The flexibility of the new product range makes it possible to utilize the new product for both existing flan type desserts and for new concepts within the flan area.

Benefits of using Lactogel[™] FL stabilizers:

- Impart creamy mouthfeel and body
- Wide range of textures possible
- Outstanding syneresis control.
- Excellent flavor release
- Shear stability during UHT processing.
- Low process viscosity
- Low use level due to high milk reactivity.

Formulation Guideline: % Use Levels

| <u>Ingredients</u> | <u>A</u> | <u>B</u> | <u>C</u> | <u>D</u> |
|---------------------------------------|-------------|-------------|-------------|-------------|
| Sugar | 10.00 | 10.00 | 10.00 | 10.00 |
| Native starch* | 1.00 | 1.00 | 1.00 | 1.00 |
| Cocoa/flavors** | 3.00 | 3.00 | 3.00 | 3.00 |
| Lactogel FL 6369 stabilizer*** | 0.35 | -- | -- | -- |
| Lactogel FL 2163 stabilizer*** | -- | 0.25 | -- | -- |
| Lactogel FL 4159 stabilizer*** | -- | -- | 0.30 | -- |
| Lactogel FL 2058 stabilizer*** | -- | -- | -- | 0.30 |
| Low/ full fat milk | to 100.00% | to 100.00% | to 100.00% | to 100.00% |

* Starch: Native corn starch.

** Cocoa: ADM Cocoa De Zaan D11A

*** FMC BioPolymer

Carrageenan Product Range -

Lactogel FL 6369 : Premium flan, firm and creamy texture

Lactogel FL 2163 : Standard flan, firm texture

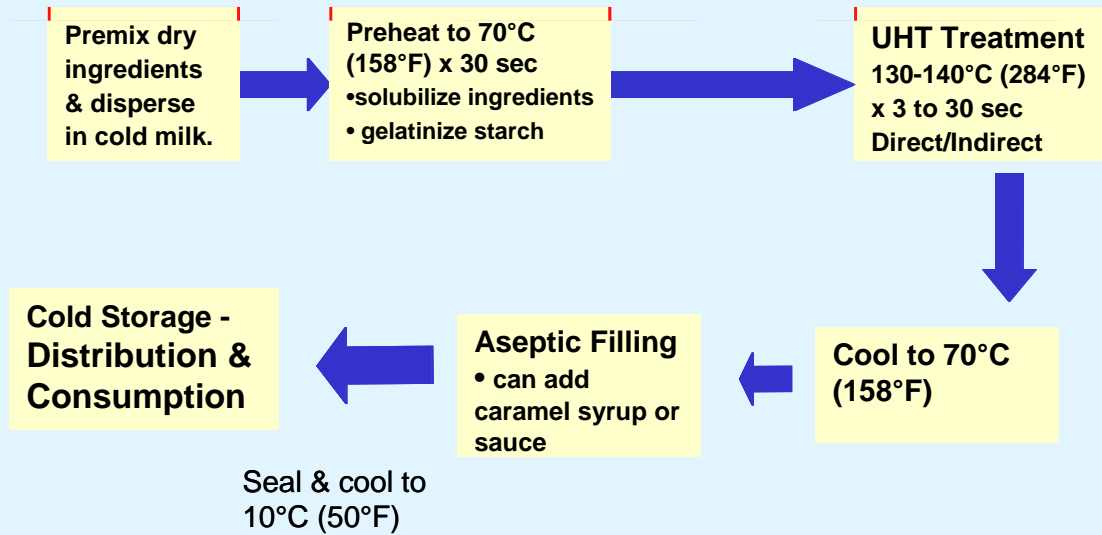
Lactogel FL 4159 : Cost effective formulation

Lactogel FL 2058 : Creamy texture, non gelled. Custard-style of dessert with a hot filled process

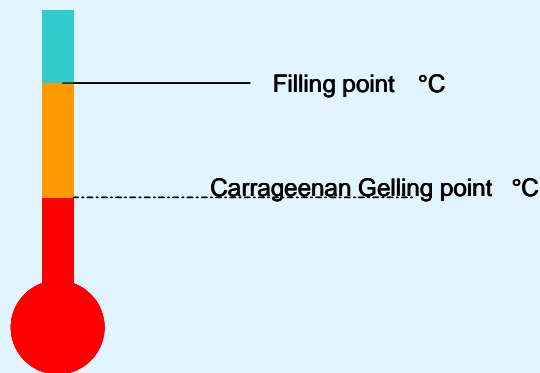
Processing Guidelines:

- Blend all dry ingredients.
- Disperse the dry ingredients in the milk/ cream using a propeller mixer.
- Preheat 75°C (167°F).
- UHT process at 135-140°C (275-284°F).
- Cool to 70°C (158°F); then fill the containers.
- Seal and cool to 4°C (39°F) before storage.

UHT Hot-Filled Dairy Dessert -- Processing Guidelines



Filling Temperature vs. Carrageenan Gelling Temperature



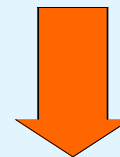
Hot Filled Dairy Desserts

- ⇒ Filling temperature about 70°C.
- ⇒ Above the gelling point of Cgn.

Hot Filled Dairy Desserts

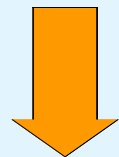
Filling above the gelling point of the CGN

The gel sets after the filling process



Set Gel textures

- Flan
- Pudding



Non-Gelled Creamy textures

- Crème Dessert

Regulatory Information

All products manufactured by FMC BioPolymer meet all standards of quality as defined by:

- US Code of Federal Regulations (21 CFR)
- Food Chemicals Codex
- J.E.C.F.A. Specifications issued by FAO/WHO
- European Economic Community Directives

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