

Cream Cheese

CLT-04

Benefits of FMC BioPolymer Carrageenan

- Controls syneresis
- Improves textural characteristics
- Maintains structural integrity

Comments

Cream cheese is a soft unripened cheese related to cottage cheese in its common usage of lactic acid culture to form a smooth acid curd. Cream cheese production benefits from the use of stabilizers. Producers may use up to 0.50% total stabilizer concentration according to the Standards of Identity for cream cheese. Locust bean gum is generally used as the sole stabilizer at 0.15% - 0.25% of the total formulation for improving the body and texture of the cream cheese. SeaKem® or Gelcarin® type carrageenan can be used as a partial replacement for locust bean gum to reduce total gum solids without affecting the textural properties. Carrageenan with locust bean gum will enhance the textural properties and improve cream cheese spreadability.

Formulation

<u>Ingredients</u>	<u>% Weight</u>
Fresh cream	
Milk	
Rennet	
Stabilizer**	
** Locust bean gum	0.10%
SeaKem® CM 614 type carrageenan*	0.05 - 0.08%
or	
Locust bean gum	0.10%
Gelcarin® GP 379 type carrageenan*	0.05 - 0.08%

Mixes for cream cheese are calculated using condensed milk, milk powder and cream. The goal is to blend the lowest cost milk ingredients to an optimum FAT:MSNF ratio producing a good quality, high yield legal cheese. Standards of Identity require cream cheese to be greater than 33% fat and less than 55% moisture. A typical cream cheese would consist of the following:

Water	54.00%
Fat	33.50%
Protein	9.80%
Salt	0.75%
Gum	0.15-0.25%

Procedure

- Standardize fresh cream with milk to approximately 12.0% fat.

Hot Pack

- Pasteurize cream and milk ingredients at 65.5°C (150°F) for 30 mins. or HTST at 72-77°C (161-170°F) for 16 seconds.
- Homogenize at pasteurization temperature at a pressure of 2000-2500 psi.
- Cool to 21°C (70°F) (inoculation temperature).
- Add rennet (diluted with water), and starter culture; mix well.
- Hold at 21°C (70°F) until the acidity of the cream until the is 0.8% or the pH is less than 4.6.
- Centrifuge or drain the whey
- When sufficiently dry, heat the curd and mix in 0.7% salt, LBG and carrageenan.
- Heat to 77°C (170°F).
- Homogenize the system using a single stage homogenizer at 2500 pound pressure.
- Package while hot, then cool at room temperature or refrigerate.
- Shelf-life of the cream cheese is about 2 months.

Cold Pack

- Add LBG and carrageenan to cream
- Pasteurize at 65.5°C (150°F) for 30 mins. or HTST at 72-77°C (161-170°F) for 16 secs.
- Homogenize at 2000-2500 psi single stage at homogenization temperature.
- Cool to 22°C (72°F) inoculate and mix well.
- Ripen for 16-18 hours to obtain a pH of 4.6 or lower.
- Heat the coagulated mix to 54°C (130°F) or proper break is observed between the curd and whey.
- Cool to 32°C (90°F) and add 1.0% salt.
- Continue to cool to 40°F.
- Drain in bags with ice.
- Shelf-life of cream cheese is about 2 weeks.

Additional Factors That Affect the Body and Texture of Cream Cheese:

- Source of butterfat
- The percentage of fat and non-fat milk solids
- Pasteurizing temperature
- Homogenization pressure and temperature
- Whether salt is added before or after cooking the mix
- pH of mix at time of cooking
- Cooking temperature
- The degree of agitation during cooking
- The extent of cooling before homogenization
- The amount of water added after the mix is cooled
- The extent to which the acid is reduced after cooking
- The temperature at which the mix is drawn
- The amount of pressure to which the curd is subjected
- Amount of mechanical treatment given the finished curd

Since all of these factors play a role in the finished body and texture of the cream cheese, it is necessary that the processor manufacture the test cream cheese batches under actual commercial processing conditions.

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REGULATORY STATUS:

Carrageenan is approved as a food additive under 21 CFR 172.620. All products manufactured by FMC BioPolymer meet all standards of quality as defined by:

- Food Chemicals Codex III
- J.E.C.F.A. Specifications issued by FAO/WHO
- European Economic Community Directives

PATENTS:

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Because of the numerous factors affecting results, FMC BioPolymer ingredients are sold on the understanding that purchasers will make their own test to determine the suitability of these products for their particular purpose. The several uses suggested by FMC BioPolymer are presented only to assist our customers in exploring possible applications. All information and data presented are believed to be accurate and reliable, but are presented without the assumption of any liability by FMC BioPolymer.

TECHNICAL SERVICE:

The information contained in this bulletin is intended to be general in nature. Techniques and data pertaining to specific uses for FMC ingredients and new developments will be published periodically in the form of supplemental application bulletins.

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