

Ice Cream

ICC-01

Control Melt -- Heat Shock Resistance -- Flexible Use Levels

Benefits of Protanal® alginate

- Controls melt
- Flexible usage levels
- Exhibits **light bodied** texture
- Provides heat shock resistance
- Smooth creamy textures
- Reduces the possibility of overstabilization

Model Formulation

<u>Ingredients</u>	<u>% by Weight</u>
Light cream	55.56
Skim milk	20.77
Sucrose	17.00
Skim milk powder	6.22
Emulsifier blend	0.25
Protanal alginate*	0.07 - 0.15
Guar	0.07
SeaKem® IC 518 carrageenan*	0.01
Flavor and color	<u>as required</u>
	100.00

* FMC BioPolymer

Product Selection

Product Name	Benefits
Protanal® IC 4037 alginate	<ul style="list-style-type: none"> • Controls melt • Light bodied textures • Flexible usage levels
Protanal IC 2053 alginate	<ul style="list-style-type: none"> • Short/chewy textures • Heat shock resistance • Overstabilization control

Procedure

- Dry blend powdered ingredinets.
- Add the dry ingredients into liquid ingredients and mix for 30 minutes.
- Prior to transport of mix, heat to 67°C (150°F) to melt emulsifier.
- Heat mix for 25 seconds at 80°C (175°F).
- Homogenize @ 175 bar (2500 psi). Cool mix to 4°C (40°F) and age over night.
- Add in flavor prior to freezing.
- Freeze and draw product @ -6°C (21°F) and immediately place in -20°C (-4°F) freezer.

Ice Cream Mix Composition

Butterfat	10.0 %
Milk solids content	12.0%
Sugar content	17.0%
Total solids	39.5%

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REGULATORY STATUS:

Carrageenan "chondrus extract" is generally recognized as safe [GRAS] (see 21 CFR 182.7255) by experts in accordance with FDA food and drug regulations. Carrageenan is approved as a food additive under 21 CFR-172.620. For European approvals refer to EEC number E407.

In the United States, alginic acid, sodium alginate, calcium alginate, potassium alginate, and ammonium alginate are affirmed as Generally Recognized as Safe when used as a stabilizer or thickener within the limitations specified in the regulations. Propylene glycol alginate is regulated as a food additive in 21 CFR 172.858.

Within the European Union, alginic acid (E 400), sodium alginate (E 401), potassium alginate (E 402), ammonium alginate (E 403), calcium alginate (E 404), and propane 1,2 diol alginate (E 405) are included in the Miscellaneous Additive Directives. Refer to the Miscellaneous Additives Directive for the specific conditions of use for these additives.

Alginic acid (INS 400), sodium alginate (INS 401), potassium alginate (INS 402), ammonium alginate (INS 403), calcium alginate (INS 404), and propane 1,2 diol alginate (INS 405) have been evaluated by the Joint FAO/WHO Expert Committee on Food Additives and are permitted for use in food, as specified in the evaluation(s).

PATENTS:

FMC Corporation does not warrant against infringement of patents of third parties by reason of any uses made of the product in combination with other material or in the operation of any process; purchasers assume all risks of patent infringement by reason of any such use, combination, or operation.

WARRANTY:

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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