

## Ice Cream - Hard Pack, Novelties

ICC-01

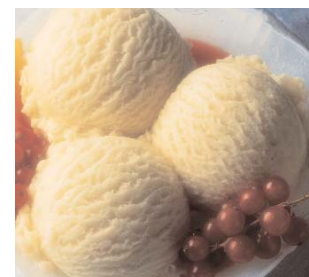
### GELSTAR® Stabilizer System: Providing Improved Heat Shock Protection and Body in Frozen Desserts

#### Benefits of GELSTAR® IC 3542 stabilizer:

- Provides a creamy mouthfeel and smooth texture
- Imparts added body and mouthfeel normally associated with higher fat products
- Offers significant protection against shrinkage in frozen desserts
- Enhances ice cream quality of novelties extruded at higher temperatures
- Interacts with casein for enhanced functionality
- Replaces 1% to 2% butterfat or milk solids non fat when used at recommended levels
- Provides protection against whey off in resale mix and under slow hardening condition

#### Discussion:

**Heat Shock Stability:** Fat content affects the melting rate of ice cream. Reducing the butterfat and/or milk solids non-fat content by 1 to 2% and replacing it with **GELSTAR IC 3542** stabilizer maintains or improves the stability of the ice cream over time and temperature. This is significant especially during the distribution the ice cream is subjected to freeze thaw cycles that promote the formation of ice crystals. Using **GELSTAR IC 3542** minimizes the amount of moisture that melts and reforms into ice crystals, thus maintaining a rich, creamy ice cream.



**Product Firmness:** **GELSTAR IC 3542** has proven to provide excellent support and firmness to ice cream by forming an insoluble matrix around the air cells. This adds stiffness during the extrusion of the ice cream, added body during hardening, and smoother melt down of the ice cream. This enhanced stability of the air cells or foam offers ice cream manufacturers new capabilities when ice cream is extruded in novelties.

**Reduced Sugar and No Sugar Added Formulas:** Using different polyols and non-sucrose ingredients to provide sweetness and added body create changes in the freezing point of the ice cream, requiring greater protection against heat shock. **GELSTAR IC 3542** offers F/T protection while imparting added creaminess to the ice cream. Differing from more traditional hydrocolloids, **GELSTAR IC 3542** imparts "solid-like" properties to the formulation, allowing for fuller body and less crumbly textures.



**Novelties:** **GELSTAR IC 3542** performs well in frozen dessert mix that are frozen into different novelty shapes. The mix can be extruded at slightly higher temperatures to fill the molds easily and yet not become icy or coarse in texture.

**Shrinkage Protection:** Protection against shrinkage is achieved with **GELSTAR IC 3542** when ice cream is subjected to changes in altitude or temperature fluctuations. The ability of **GELSTAR IC 3542** to form insoluble matrices around the air cells reduced the tendency for ice cream to experience shrinkage. In addition, **GELSTAR IC 3542** interacts strongly with protein to further strengthen or enhance the structure supporting the air cells.

### ICE CREAM FORMULATION GUIDELINES:

<b>Ingredients</b>	<b>Full Fat</b>	<b>Low Fat</b>
	<b>%</b>	<b>%</b>
Butterfat	10.00	4.00
Milk solids - nonfat	8.25	9.00
Cane sugar	12.00	12.00
Corn syrup solids, 36 DE	6.00	8.00
Whey solids	2.75	3.00
<b>GELSTAR IC 3542 stabilizer*</b>	0.45 - 0.55	0.55 - 0.65
<b>Total Solids</b>	<b>39.40</b>	<b>36.55</b>

\* **GELSTAR stabilizer system - FMC BioPolymer**

**Ingredient Statement:** Cellulose gel, mono & diglycerides, cellulose gum, maltodextrin\*, polysorbate 80, carrageenan, sodium chloride

\* standardized with maltodextrin.

**Packaging:** 25 kg poly-lined boxes

### Processing Guidelines:

- Disperse the **GELSTAR IC 3542** stabilizer into the mix at the point of greatest agitation to prevent clumping and promote better incorporation. To minimize processing viscosity, add **GELSTAR IC 3542** into the milk and cream.

*When preparing concentrated dispersion of Gelstar stabilizer in milk, do not exceed 2% concentration in order to minimize the dispersion viscosity.*

*Note: When preparing reconstituted formulations, add milk powder prior to adding **GELSTAR IC 3542**. For best results, add the **GELSTAR** stabilizer slowly into the milk while mixing with a high speed blender to avoid clumping and ensure optimum functionality of the stabilizer.*

- Pasteurize and homogenize according to established guidelines of 2,000/500 psi and HTST at 175°F [138/34.5 bar and HTST at 80°C]. Good homogenization is important to activate the stabilizer blend most effectively.
- Cool mix to 40°F [8°C] and age for a minimum of 4 hours for more effective freezing and crystallization of the butterfat.
- Freeze and package. (Note: Rapid hardening assures minimal ice crystal formation.)

## 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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