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STABILIZER COMPOSITION AND METHOD OF INCORPORATING A STABILIZER GUM INTO A FOOD MIX

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ABSTRACT OF THE DISCLOSURE

Gum stabilizers are incorporated into food mixes, such as ice cream, by preparing a slurry of stabilizer in particulate form in a liquid carrier of water and oil to partially hydrate the stabilizer particles. The slurry is mixed into the food mix.

This invention relates to the making of food products containing fatty and nonfat constituents and particularly to the incorporation of a stabilizer in the food mix for the product.

A variety of stabilizers, known as such, are used as a constituent of many food products, particularly products which tend to change in physical character with time. Contemplated, for example, are salad dressings the aqueous and oily constituents of which tend to separate on standing, puddings which tend to become grainy on standing and a variety of frozen whipped foods, such as ice cream, ice milk, ice cream and ice milk custard, and sherbet, which contain ice crystals which tend to grow with time to cause graininess of the product. The stabilizers tend to inhibit such undesirable changes. In addition, important functions of stabilizers include the promotion of smoother, finer-grained food products and, in the case of the frozen whipped foods, the stabilizer tends to accelerate whipping to the desired overrun.

A wide variety of materials have been used as stabilizers. Although gelatin was used for many years, the present practice and the present invention contemplate the employment of one or a combination of several edible gums of vegetable origin, natural or synthetic. Those most commonly used include locust bean gum, guar gum, gum tragacanth, sodium alginate, carrageen and sodium carboxymethylcellulose. The gums used as stabilizers are hydrophilic, absorbing water readily and being completely dispersible in water, and they are organophobic, being insoluble in organic liquids such as edible oils and melted food fats.

The stabilizer gums are generally commercially available in the form of dry particles. Once incorporated in the food mix in the process of preparation of the food product, they absorb water and tend to increase the viscosity of the mix by thickening in some degree the aqueous constituent of the mix. However, it is difficult to properly incorporate the stabilizer material in the mix because of the tendency of the gum particles to agglomerate into lumps which are broken up and dispersed only with great difficulty. To meet this problem, and also to provide a pumpable liquid as required in the operation of modern automated manufacturing plants, stabilizer preparations have been suggested wherein the stabilizer material is suspended in a nonaqueous liquid in the form of a thin slurry which is added to the food mix and readily incorporated therein. With this technique, the stabilizer is introduced into the mix with substantially the same composition as the dry commercial stabilizer powder and the water absorption process begins only after the exposure of the stabilizer particles to the water in the food mix.

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The object of this invention is to provide a novel and highly useful method for the incorporation of stabilizer gums into food mixes. A further object is to pretreat the stabilizer, coincidentally with the carrying out of the procedure for the ready incorporation of the stabilizer into the food mix, whereby to accelerate the action of the stabilizer in the mix to thereby reduce the time necessary for mixing the ingredients. Another object is to provide a method whereby the stabilizer may be suspended in a pumpable slurry so that it can be metered and pumped into the mixing apparatus.

Other objects and the advantages of the invention will become apparent as the detailed description thereof proceeds.

Although the following disclosure offered for public dissemination is detailed to ensure adequacy and aid understanding, this is not intended to prejudice that purpose of a patent which is to cover each new inventive concept therein no matter how others may later disguise it by variations in form or additions or further improvements. The claims at the end hereof are intended as the chief aid toward this purpose; as it is these that meet the requirement of pointing out the parts, improvements, or combinations in which the inventive concepts are found.

Briefly, the invention contemplates the incorporation of the dry stabilizer material in a liquid carrier consisting of aqueous and nonaqueous constituents and thereafter introducing the slurry of partially hydrated stabilizer gum thus produced into the food mix. As an example of a specific aspect of the invention, it comprises the incorporation of the stabilizer in melted butter, which normally contains about 15% to about 20% of water, to form a slurry which may be pumped to, for example, an ice cream mix vat for incorporation into the mix and dispersal of the already partially hydrated stabilizer in the continuous aqueous phase of the mix emulsion.

The following are given as typical examples of the food stabilizer compositions and methods of incorporating the same in food mixes pursuant to the invention:

Example 1

	Parts
Carboxymethylcellulose -----	18
Carrageen -----	2
Melted butter -----	80

Example 2

	Parts
Locust bean gum -----	9
Guar gum -----	9
Carrageen -----	2
Emulsifier -----	5
Melted oleomargarine -----	75

Example 3

	Parts
Gum -----	20
Emulsifier -----	6
Plastic cream (about 80% butterfat cream) -----	74

The procedure in each instance is to mix the stabilizer and, if used, the emulsifier, into the liquid carrier. Mixing is easily accomplished because of the limited water content of the liquid carrier. Immediately upon exposure of the stabilizer gum particles to the water of the carrier, absorption of the water by the particles proceeds, first very slowly and then more rapidly with increasing hydration of the solid material until all of the water is thus absorbed. The result in each instance is a food stabilizer composition which is ready for introduction into the food mix in which it is to be used. In some instances, it may be desirable to maintain the temperature of the composition above the melting point of the fatty constituent of