

1

3,246,992

WHIPPING COMPOSITIONS AND PROCESS FOR PRODUCING SAME

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No Drawing. Filed Dec. 29, 1955, Ser. No. 556,062
20 Claims. (Cl. 99-139)

The present invention relates to a powder product which can be reconstituted with water and whipped by hand, or by a conventional beater such as a "Mixmaster," into a light foam in a few minutes, e.g., three to five minutes, the foam being stable for days, possessing desirable stiffness and being characterized by forming peaks as distinguished from having rounded or mound-like shapes.

The whipped product has a structure and properties which make it suitable for many of the same uses as whipped cream, as well as for icings or cream fillings.

An object of this invention is to provide a reconstitutable powder which, after adding the water, does not have to be aged overnight as customary but, on the contrary, may be immediately whipped and form the stable desirable whip in a matter of a few minutes. Furthermore, the reconstituted powder may be so whipped at normal room temperature and does not require the usual pre-chilling treatment associated with whipping of reconstituted cream.

The product comprises essentially a mixture of powders and is prepared as follows:

EXAMPLE 1

Spray dried product No. 1

	Percent
Fat being hydrogenated cottonseed oil containing 10% propylene glycol monostearate and 2.2% monoglyceride esters of hydrogenated cottonseed oil as emulsifiers -----	53.1
Cane sugar -----	30.80
Sodium caseinate -----	10.65
Gum acacia -----	5.31
Water in amount to form a spray drible, aqueous mixture having a pH of about 5.75 and containing about 45% solids.	

The mixture is pasteurized at 145° F. for thirty minutes and thereafter the mixture, at a temperature of about 145° F., is homogenized at about 500 pounds p.s.i. and spray dried at an inlet air temperature of about 300° F. and an outlet air temperature of about 180° F. It was found that the fat globules were coated with the other ingredients, the gum and caseinate being desirable coating agents to assure a water-reconstitutable mass of fat globules. The globules have a size of about 7 microns, which is highly suitable for whipping.

Spray dried product No. 2

83.4% gum acacia and 16.6% cream of tartar are mixed with sufficient water to form a 35% solids dispersion mixture which will be homogenizable and spray drible. The pH of the aqueous mix is about 3.55 and it is now pasteurized, as described above, in No. 1, and homogenized at about 1000 pounds p.s.i. and spray dried, as also indicated above in No. 1. The homogenizing here is preferable to break up any large masses present and better distribute the gum.

The final mix

The spray dried products, namely, 66.15% of No. 1 and 2.50% of No. 2, are mixed together with about 29.4% cane sugar and about 1.95% rice flour in a conventional batch mixer.

To this powder may be added a conventional powder flavor, e.g., vanilla, defatted cocoa, orange, lemon, cara-

2

mel, maple, raspberry, etc. Also, other flavor materials, such as cheese powders, notably, blue, roquefort, cheddar, cottage, etc., preferably about 23% by weight and normally in the range of about 10% to 30% by weight, depending on the flavor strength desired, together with traces of spices to make the cheese flavor in the final product, have enhanced palatability.

All percentages in the foregoing example are by weight.

The whip

About 5 ounces of the above mixture, either containing or without the flavor just mentioned above, are admixed with about 200 cc. (6 to 7 ounces) of water at normal temperature.

The water-reconstituted powder is now ready for whipping and is whipped at room temperature in a conventional beater, such as a "Mixmaster" and in about four minutes a stiff, light foam is produced having peaks and a lasting stability for at least twenty-four hours or more. This aerated product is suitable for the various uses of a whipped cream and also provides a desirable whipped icing or whipped cream filling, as well as frostings and serves other confectionery purposes, such as a filling between layers of cakes.

The above example was repeated with equivalent results with vanilla flavoring included.

The sugar in the above has the principal function of sweetening. Dextrose, as well as corn syrup solids, can also be used in the above example, in each instance together with or in place of cane sugar. The amount of such sweetenings or mixtures thereof in each of the dry mix powders of the examples herein may vary between about 10% to 60% by weight, preferably being 20% to 50% on a dry basis.

The rice flour is, in effect, a drying agent in that it decreases wetness in the powder. Other flours, such as soy, wheat, or rye flour, or wheat or corn starch, are successfully used in the foregoing example together with or in place of rice flour. The amount of such flours or mixtures thereof in each of the examples herein may vary between about 1% to 5% by weight.

Instead of all or a part of the fat used in the above example, namely, the cottonseed oil, hydrogenated vegetable oils, e.g., soy, peanut, sesame and hydrogenated animal oils, e.g., lard and butter, can be used. The fat or fat mixture in each of the examples herein may be used in amount of about 30% to 75% by weight, depending upon the type of product desired.

Likewise, instead of the emulsifier recited in the foregoing example, we use, either alone or admixed with the said emulsifier, glycerol esters, e.g., mono and di-glycerol esters of the above-mentioned vegetable fats; tartaric-glycerol esters of fatty acids of said above fats, and polyoxyethylene derivatives of sorbitan monostearate, and similar polyoxyethylene derivatives of sorbitan esters of other higher fatty acids, e.g., propylene glycol monostearate, as well as the hydrogenated fatty acids derived from the above-mentioned fats. The amount of the emulsifier will vary between 0.25% to 12.5% in each example herein.

Other water-soluble or water-dispersible proteinaceous materials can be used in place of all or a part of the caseinate in the amount and in the range equivalent to that just recited, e.g., soy protein obtained by water extraction of soy bean meal and called "NV Protein Special" by Gunther Products, Inc., of Galesburg, Illinois, and which has an analysis of substantially protein (NX 625) 86%, ash 7%, nitrogen-free extract 2%, moisture 5%, this analysis being made by The Laboratory of Vitamin Technology, Chicago, Illinois. In product No. 1 the caseinate, or the proteinaceous materials just described