

TABLE 10

Data from TABLE 9 Formulations Varying Intact OSA Starch Levels and Acetylated Monoglyceride Levels Mean Fat Globule Size (Microns)				
Sample Number	Starch Level (% w/w)	Acetylated Monoglyceride Level (% w/w)	Mean Fat Globule Size (microns)	Visual observation (ml cream)
1	2	0	0.527	0
2	2	5	0.468	0
3	1	0	0.508	1.5
4	1	5	0.400	1.5
5	0.5	0	0.477	2.0
6	0.5	5	0.457	2.0
7	0	5	— ^a	— ^a

^aThis sample contained significant free oil and was not analyzed.

The data of TABLE 10 demonstrated that although the acetylated monoglycerides were a poor emulsifier when used alone, the acetylated monoglycerides improved the emulsion (mean fat globule size) in each case where they were included with the intact OSA modified starch.

Example 7

A hypoallergenic infant formula was prepared in a powder form as described in TABLE 1 of Example 1 using intact OSA modified starch (National 6912, National Starch and Chemical Corporation, Bridgewater, N.J. 08807) and acetylated monoglycerides (MYVACET 9-08) as per the invention and compared to three lots of control product containing dextrinized OSA modified starch used as a sole emulsifier. The inventive products contained 60% as much starch as the control. Solids were maintained constant by adding 24 DE corn syrup solids. Acetylated monoglycerides were added at a level of 0.066% w/w, based on the total weight of reconstituted formula. The quantity of powder that did not disperse when shaken for 5 seconds or 15 seconds in a baby bottle was measured. The shaken product was poured through a fine screen and after blotting the quantity of insoluble material was weighed.

TABLE 11

Amount of Insoluble Material in Hypoallergenic Infant Formula Powder after Reconstitution of 27 g powder in 180 ml water		
	Five (5) Second Shake	Fifteen (15) Second Shake
Intact starch and acetylated monoglycerides powder INVENTION	3.39	1.04
Control powder, lot 1	4.43	2.46
Control powder, lot 2	6.45	3.48
Control powder, lot 3	4.16	2.06

Product prepared using the intact OSA modified starch and acetylated monoglycerides had less insoluble material after 5 and 15 second shakes and/or exhibited improved mixability. Free oil associated with a poor or unstable emulsion can contribute to poor wetting and/or mixability of fat containing powders. These results unexpectedly demonstrate that inventive product containing intact OSA modified starch and acetylated monoglycerides has a superior emulsion when compared to a product using OSA modified starch as a sole emulsifier.

That which is claimed is:

1. An elemental diet composition having a pH level of between about 5 to about 6 comprising: (a) a protein source

comprising an extensively hydrolyzed protein having at least about 75% of peptides with a molecular weight of less than 1000 Daltons; (b) a lipid source; (c) a carbohydrate comprising at least about 50 weight percent of glucose polymers having a degree of polymerization of from 3 to 7, said glucose polymer weight percent based on the total weight of the carbohydrate, and said glucose polymers being in the form of corn syrup solids comprising at least about 70 weight percent of the carbohydrate; and (d) an effective amount of an emulsifying system comprising intact OSA modified starch in an amount between about 0.1 to about 10 weight percent, and an acetylated monoglyceride emulsifier in an amount between about 0.01 to about 7.5 weight percent, said weight percentages of said starch and said emulsifier being based on the total weight of a ready to feed preparation of said composition.

2. A composition according to claim 1 wherein said pH level is less than 6 and greater than about 5 and said product has a mean fat globule diameter measurement of less than about 0.8 microns after said composition is subjected to post-sterilization testing.

3. A composition according to claim 2 wherein said composition is a liquid hypoallergenic formula; said protein source is present in an amount of from about 8 to about 20 percent of total calories, said lipid source is present in an amount of from about 35 to about 55 percent of total calories; said carbohydrate is present in an amount from about 35 percent to about 70 percent of total calories; said OSA modified starch is present in an amount from 0.5 to 2 weight percent, based on the total weight of a ready to feed preparation; and said acetylated monoglyceride emulsifier is present in an amount from 0.04 to 0.1 weight percent, based on the total weight of a ready to feed preparation.

4. A composition according to claim 3 wherein said OSA modified starch is present in an amount from 1 to 1.7 weight percent, based on the total weight of a ready to feed preparation.

5. A composition according to claim 4 wherein said OSA modified starch is present in an amount from 1.6 to 1.7 weight percent, based on the total weight of a ready to feed preparation; and said acetylated monoglyceride emulsifier is present in an amount from 0.05 to 0.07 weight percent, based on the total weight of a ready to feed preparation; and said pH level is about 5.5.

6. A composition according to claim 2 wherein said composition is a powder hypoallergenic formula; said protein source is present in an amount of from about 8 to about 20 percent of total calories, said lipid source is present in an amount of from about 35 to about 55 percent of total calories; said carbohydrate is present in an amount from about 35 percent to about 70 percent of total calories; said OSA modified starch is present in an amount from 0.5 to 2 weight percent, based on the total weight of a ready to feed preparation; and said acetylated monoglyceride emulsifier is present in an amount from 0.04 to 0.1 weight percent, based on the total weight of a ready to feed preparation.

7. A composition according to claim 6 wherein said OSA modified starch is present in an amount for 0.7 to 1.5 weight percent and said acetylated monoglyceride emulsifier is present in an amount from 0.04 to 0.1 weight percent.

8. A composition according to claim 7 wherein said OSA modified starch is present in an amount for 0.9 to 1.1 weight percent and said acetylated monoglyceride emulsifier is present in an amount from 0.05 to 0.07 weight percent.

9. A composition according to claim 8 wherein when reconstituted said composition will have less than about 14 g sediment per 100 g powder after reconstitution and a five second shake.