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[54] **LOW CALORIE FAT-CONTAINING FROZEN DESSERT PRODUCTS HAVING SMOOTH, CREAMY, NONGRITTY MOUTHFEEL**

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Related U.S. Application Data

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[51] **Int. Cl.**[7] **A23G 9/00**; A23D 7/00; A23L 1/10

[52] **U.S. Cl.** **426/565**; 426/602; 426/611; 426/613; 426/567; 426/804

[58] **Field of Search** 426/602, 603, 426/604, 611, 613, 804, 565, 567

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,028,649	12/1962	Cobb .
3,345,185	10/1967	Pisani et al. .
3,928,649	12/1975	Cobb .
3,949,102	4/1976	Hellyer et al. .
4,244,977	1/1981	Kahn et al. .
4,346,120	8/1982	Morley et al. .
4,374,154	2/1983	Cole et al. .
4,376,791	3/1983	Holbrook et al. .
4,400,405	8/1983	Morley et al. .
4,400,406	8/1983	Morley et al. .
4,452,823	6/1984	Connolly et al. .
4,452,824	6/1984	Cole et al. .
4,492,714	1/1985	Cooper et al. .
4,497,841	2/1985	Wudel et al. .
4,626,441	12/1986	Wolkstein .
4,650,690	3/1987	Bams et al. .
4,725,445	2/1988	Ferrero .
4,770,892	9/1988	Grealy et al. .
4,789,664	12/1988	Seligson et al. .
4,874,627	10/1989	Greig et al. .
4,880,657	11/1989	Guffey et al. .
4,885,156	12/1989	Singer et al. .
5,064,677	11/1991	Caine et al. .

FOREIGN PATENT DOCUMENTS

233856	8/1987	European Pat. Off. .
236288	9/1987	European Pat. Off. .
290065	11/1988	European Pat. Off. .
290420	11/1988	European Pat. Off. .
1282502	7/1972	United Kingdom .

OTHER PUBLICATIONS

Haumann, "Getting the Fat Out: Researcher Seeks Substitutes for Full Fat Fat" J. Am. Oil Chem. Soc., vol. 63, No. 9 (1986), pp. 278–88.

W. S. Arbuckle, Ice Cream, 3rd Edition (AVI Publishing Company 1977).

Robinson, Modern Dairy Technology, Advances in Milk Products, vol. 1, (1986), pp. 229–31.

Paul et al., Food Theory and Applications (1972), p. 585.

Harper et al, Dairy Technology and Engineering (1976), pp. 422–27.

Webb et al, Fundamentals of Dairy Chemistry (2nd Ed., 1974), pp. 572–77.

Webster's II New Riverside University Dictionary, 1984, The Riverside Publishing Company, p. 589.

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[57] **ABSTRACT**

Low calorie frozen desserts, in particular ice cream-like products, having a smooth, creamy, nongritty mouthfeel are can be produced. These frozen desserts contain fat that contains from about 30 to 100% of certain edible, wholly or partially nondigestible intermediate melting polyol polyesters, milk solids other than fat, sweetener, oil-in-water emulsifier, a flavoring substance, and water. The fat is substantially homogeneously dispersed in the aqueous phase as emulsified fat particles having an average particle size of about 5 microns or less. These frozen desserts are obtained by a process which initially involves the formation of a preemulsion by homogenizing a mixture which consists essentially of these intermediate melting polyol polyesters and only a portion of the other dessert ingredients. This preemulsion is then combined with the remaining dessert ingredients, homogenized, pasteurized, and at least partially frozen to provide the frozen desserts.

27 Claims, No Drawings