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SUPERINDUSTRIA Y COMERCIO
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Señor Jefe

DIVISION DE NUEVAS CREACIONES

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

Santafé de Bogotá, D.C.

RE.: Expediente No. 00 1.785
Solicitud de patente a nombre de
KRAFT FOODS, INC.
Código 02 - 01 - 08

En relación con la solicitud contenida en el expediente de la referencia y en particular para dar cumplimiento a lo establecido en el Artículo 4, D.- (3) del Convenio de París, con el presente escrito acompaño:

- La Copia certificada de la solicitud de patente estadounidense No. 09/232,141, de la cual se reivindica prioridad, debidamente traducida en su capítulo reivindicatorio.

Le solicito se sirva agregar este escrito y sus anexos al expediente.

De Usted atentamente,

GERMAN CASTILLO GRAU

T.P. No. 2978

PA 226277

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

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March 24, 2000

THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A FILING DATE UNDER 35 USC 111.

APPLICATION NUMBER: *09/232,141*

FILING DATE: *January 15, 1999*

By Authority of the
COMMISSIONER OF PATENTS AND TRADEMARKS

N. WOODSON
Certifying Officer

38

ESTADOS UNIDOS DE AMÉRICA

A TODOS A QUIENES LLEGUE EL PRESENTE:

DEPARTAMENTO DE COMERCIO DE LOS ESTADOS UNIDOS

Oficina de Marcas y Patentes

24 de marzo de 2000..

LA PRESENTE CERTIFICA QUE LA ADJUNTA ES UNA COPIA TOMADA DE LOS REGISTROS DE LA OFICINA DE MARCAS Y PATENTES DE LOS ESTADOS UNIDOS, DE LOS DOCUMENTOS DE LA SOLICITUD DE PATENTE ABAJO IDENTIFICADA Y LA CUAL CUMPLE CON LOS REQUISITOS PARA QUE LE SEA CONFERIDA UNA FECHA DE RADICACIÓN SEGÚN 35 USC 111.

NÚMERO DE SOLICITUD *09/232,141*

FECHA DE RADICACIÓN: *15 de enero de 1999*

Por Autoridad del

COMISIONADO DE MARCAS Y PATENTES

(FIRMA) N. WOODSON

Oficial de Certificaciones

(SELLO DORADO DE OBLEA)

* * * *

COMPOSICION INSTANTÁNEA DE MEZCLA SECA EN PARTÍCULAS PARA PRODUCIR UNA BEBIDA DE CAPUCCINO QUE TIENE UNA ESPUMA MARMOREA Y UN MÉTODO PARA FABRICAR LA MISMA

REIVNDICACIONES:

1. Una composición de bebida de café instantáneo en partículas de mezcla seca para producir una bebida de capuccino que tiene una espuma en la superficie de apariencia marmórea, la composición comprende:

un cremero de espuma en partículas, y

gránulos de café secados en congelador que tienen una capa de superficie exterior la cual es rápidamente soluble, y una capa central interior que es lentamente soluble.

2. Una composición de bebida de café instantáneo de mezcla seca según la reivindicación 1, en donde la capa de superficie exterior comprende espacios alargados que se extienden generalmente de manera perpendicular a la superficie del gránulo de café.

3. Una composición de bebida de café instantáneo de mezcla seca según la reivindicación 1, en donde dicha capa central interior comprende una estructura vítrea.

4. Una composición de bebida de café instantáneo de mezcla seca según la reivindicación 1, que además comprende un endulcorante y un saboreante.

5. Una composición de bebida de café instantáneo de mezcla seca según la reivindicación 1, en donde los gránulos de café secados congelados tienen una densidad de al menos 0,3 g/cc.

6. Una composición de bebida de café instantáneo de mezcla seca según la reivindicación 5, en donde los gránulos de café secados congelados tienen una densidad de 0,3 a 0,45 g/cc.

7. Una composición de bebida de café instantáneo de mezcla seca según la reivindicación 1, que comprende de 10 - 40% por peso de dicho cremero de espuma y 90 a 60% por peso de dichos gránulos de café.

8.. Una composición de bebida de café instantáneo de mezcla seca según la reivindicación 7, que además comprende un endulcorante de azúcar en una cantidad de entre 100 a 300% por peso basado en el peso de dichos gránulos de café.

9. Una composición de bebida de café instantáneo de mezcla seca según la reivindicación 7, que además comprende un endulcorante artificial en una cantidad de entre 1 a 3% por peso basado en el peso de dichos gránulos de café.

10. Un método para preparar una composición de bebida de café instantáneo de mezcla seca que consiste mezclar en seco un cremero de espuma en partículas y gránulos de café secados congelados, que tiene una capa exterior que es rápidamente soluble, y una parte central más grande que es lentamente soluble.

11. Un método según la reivindicación 10, en donde dichos gránulos de café secados en congelador son preparados mediante

la provisión de un extracto acuoso de café que contenga al menos 55% de sólidos de café por peso;

la desoxigenación del extracto de café;

el congelamiento del extracto de café desoxigenado;

la conversión del extracto de café congelado en gránulos de café congelados; y

el secado de los gránulos para producir gránulos de café secados congelados que tienen una capa e superficie exterior que es soluble rápidamente, y una capa central interior que es soluble lentamente.

12. Un método según la reivindicación 11, en donde dicho extracto de café acuoso tiene una concentración de café entre 55 y 70% por peso.

13. Un método según la reivindicación 11, en donde dicho congelamiento es efectuado a una temperatura entre –40 y –50°C a una tasa de 0,5 a 5° C por minuto.

14. Un método según la reivindicación 11, en donde dichos gránulos de café secos congelados tienen un tamaño de partícula de 0,5 a 5 mm.

15. Un método según la reivindicación 11, en donde dicho secado es realizado a una temperatura entre 50° y –90°C.

16. Un método según la reivindicación 11, en donde dicho secado es realizado aproximadamente a 60°C durante 7 a 8 horas.

17. Un método según la reivindicación 11, en donde dichos gránulos de café tienen una densidad de al menos 0,3 g/cc.

18. Un método según la reivindicación 17, en donde dichos gránulos de café tienen una densidad entre 0,3 y 0,45 g/cc.

19. Un método según la reivindicación 11 que además consiste en mezclar un endulcorante en partículas con dicho cremero de espuma y dichos gránulos de café.

20. Un método según la reivindicación 11, en donde dicha capa de superficie exterior comprende espacios alargados que se extienden generalmente, de manera perpendicular a la superficie del gránulo de café y dicha capa centra interior comprende una estructura vidriosa.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE PATENT

ASSISTANT COMMISSIONER OF PATENTS
Washington, D.C. 20231
SIR:

Docket No. 21673

Transmitted herewith for filing is a **NEW PATENT APPLICATION** under 37 CFR 1.53(b)

of: GAMEZ-RUMPF, Alexandra G. and PANESAR, Satwinder S.

for: INSTANT PARTICULATE DRY MIX COMPOSITION FOR PRODUCING A CAPPUCCINO BEVERAGE HAVING A MARBLED FOAM AND A METHOD OF MANUFACTURE THEREOF

Enclosed are the following:

[X] Specification, abstract and claims of 17 pages

[X] 3 sheets of [X] formal drawings

[ ] Declaration signed by the inventor(s)

[ ] Small Entity Statement

[ ] Assignment Papers

[ ] Other:

Note: [X] Address all correspondence to Thomas A. Marcoux, Esq.
KRAFT FOODS INC.
Corporate Law Department
800 Westchester Avenue
Ryebrook, New York 10580

The filing fee is calculated below (after reduction for preliminary amendment if noted above).

[X] Total claims:	20	-	20	=	*	x	$ 18.00	= $
[X] Independent claims:	02	-	3	=	*	x	$ 78.00	= $
[ ] Multiple dependent claim(s)						+	$260.00	= $
							BASIC FEE	= $ 760.00
TOTAL OF ABOVE CALCULATIONS								= $
[ ] Reduction by 1/2 for filing by small entity								- $[ ]
							SUBTOTAL	= $
[ ] Fee for recording of assignment								+ $
TOTAL OF FILING AND ASSIGNMENT RECORDING FEES								= $ * **Deferred** *

[X] No check is enclosed, and no charge should be made to our account.

Respectfully submitted,

Linda R. Poteate

By: Linda R. Poteate
Registration No.: 36255

Date: January 15, 1999

Filed by: **LARSON & TAYLOR** • 1199 North Fairfax St. • Suite 900 • Alexandria, VA 22314

INSTANT PARTICULATE DRY MIX COMPOSITION FOR PRODUCING A CAPPUCCINO BEVERAGE HAVING A MARBLED FOAM AND A METHOD OF MANUFACTURE THEREOF

Field of the Invention

The present invention relates to an instant particulate dry mix composition which, upon addition of water, produces a cappuccino beverage having a foamed upper surface which is marbled in appearance, and to a method of producing the dry mix composition.

Background of the Invention

Authentic cappuccino from a machine is made by adding foamed milk to black coffee thereby creating a white foam on the surface of the coffee. The foam becomes brown as sugar is stirred into the beverage. The degree of browness of the foam may depend on how the drink is stirred and may range from a streaky marbled appearance to completely brown.

In contrast to the appearance of an authentic cappuccino, cappuccinos prepared from instant powders as presently marketed typically do not form a white foam. Rather, a uniformly colored brown foam forms immediately upon reconstitution due not only to stirring, but also as a result of the fine coffee powder dissolving in the liquid between the foam bubbles.

In contrast to most instant cappuccino powders, U.K. Patent No. GB 2,301,015 discloses an instant cappuccino powder in which the foam remains substantially white. Maintaining the white foam color is achieved by delaying solubility of the coffee powder for about 5 to 10 seconds after addition of water. In order to create such delayed solubility, the coffee particles are coated with a coating which reduces solubility in water, such as coatings based on carbohydrates, proteins and fats.

The substantially white foam which results upon reconstitution of the soluble coffee beverage of G.B. 2,301,015 is not necessarily desirable since consumer research shows that, with respect to instant cappuccino powders, consumers significantly prefer a powder which, when reconstituted in water, forms a beverage having a foam with a non-uniform color, i.e., a marbled appearance, rather than a uniform brown or uniform white color.

It is an object of the present invention to provide an instant particulate dry mix beverage composition for producing a cappuccino beverage having surface foam with a marbled appearance which simulates the marbled appearance of authentic cappuccino, and to provide a method of preparation of the composition. The term "marbled" as used herein to describe the surface foam produced on cappuccino beverages prepared from the present dry mix compositions means that the foam includes brown streaks, swirls or points at the surface of a yellowish brown to white foam background.

Summary of Invention

The foregoing and other objects which will be apparent to those of ordinary skill in the art, are achieved in accordance with the invention by providing an instant dry mix particulate coffee beverage composition for producing a cappuccino beverage having a surface foam having a marbled appearance, the composition comprising a particulate foaming creamer, and freeze-dried coffee granules having an outer surface layer which is rapidly soluble and a larger inner core layer which is slowly soluble, and by providing a method of preparing the instant dry mix particulate coffee beverage composition comprising dry mixing the particulate foaming creamer and the

freeze-dried coffee granules. Preferably the freeze-dried coffee granules are prepared by deaerating and then freezing a coffee extract containing at least 55% coffee solids. The frozen comminuted granules are then dried using a relatively slow drying process which holds water in the granules for a longer period of time than conventional freeze-drying methods to obtain granules having a density from 0.3 to 0.45 g/cc.

Brief Description of the Drawings

Figure 1 is a magnified perspective view of a coffee granule manufactured using conventional freeze drying techniques;

Figure 2 is a view of the surface of the granule shown in Figure 1 at higher magnification;

Figure 3 is a magnified perspective view of a cross-section of a freeze-dried coffee granule prepared in accordance with the method of the invention;

Figure 4 is a cross-sectional view showing the outer surface layer and inner core layer of the granule shown in Figure 3 at higher magnification; and

Figure 5 is a cross-sectional view showing the outer surface layer of the granule shown in Figure 4 at higher magnification.

Description of Preferred Embodiments

The freeze-dried granular soluble coffee component of the dry mix composition includes granules having a density of at least 0.3 g/cc and preferably from 0.3 to 0.45 g/cc. The freeze dried granules are prepared by freeze drying a coffee extract concentrate containing at least 55% coffee solids. Freeze drying may be carried out using equipment suitable for conventional freeze drying of coffee but under conditions which differ from conditions employed in conventional

preparation of freeze-dried coffee, and which result in a dense product having an outer surface layer characterized by elongate voids extending generally perpendicularly to the surface of the granule and a larger inner core layer characterized by a glassy structure with a few large voids. This structure, which creates a "localized dissolution" of the coffee granules, is believed to be responsible for the marbled and non-uniform color effect which is characteristic of the surface foam of cappuccino beverages prepared from the present dry mix compositions. Specifically, when heated water is added to the present dry mix cappuccino formulation, the outer surface layer dissolves rapidly, i.e., within seconds, resulting in the formation of brown streaks, swirls, etc. in the foam which create the marbled appearance. The inner core layer dissolves slowly into the liquid, rather than the foam, the entire dissolution process requiring at least 20 seconds.

According to the method of the invention, a freeze-dried coffee powder is obtained by first de-aerating an aqueous coffee extract, then freezing the de-aerated coffee extract to produce slabs of frozen coffee extract. The frozen coffee extract is then ground into granules and the granules are freeze dried to produce freeze-dried coffee granules having a density of at least 0.3 g/cc.

The aqueous coffee extract utilized in the method of the invention preferably contains at least 55% and up to about 70% of coffee, and preferably 60 to 70%. These percentages, and all percentages herein, are percentages by dry weight of the relevant component, unless stated to the contrary. The extract may be obtained in any convenient manner such as by conventional extraction of roasted and ground coffee,

by reconstituting coffee powder, such as spray dried or freeze-dried coffee, in warm water (40-100°C), or by adding coffee powder to a coffee extract having a lower concentration, such as an extract from a coffee extraction battery used for making instant coffee and having a concentration of 42-48%. The coffee component can be derived from any type of coffee beans such as Robustas and Arabicas. The coffee may be decaffeinated or caffeine-containing and may be obtained by a single extraction or from a plurality of separate extractions of roasted and ground coffee or from combinations of the foregoing.

The coffee extract is first passed through an aerator to devoid it of entrapped air. This may be accomplished, for example, by pumping the extract through a Versator (manufactured by Cornell) at a pressure of about 6 bar. After de-aeration, the temperature of the extract which is typically at about 20-80°C is reduced to -5°C, by passing it through a scrapped surface heat exchanger or the like. The de-aerated extract is then frozen into slabs, preferably to a temperature of about -40 to -50°C.

Freezing is preferably effected by depositing the de-aerated coffee extract on a freezing belt and then air blasting the belt from top and bottom or by brine freezing from the bottom. Preferred freezing rates vary between 0.5 to 5°C/minute at 0.5 mbar pressure. The frozen extract is comminuted into granules and then sieved into a particle size ranging from about 0.5 to 3 mm in diameter, preferably 1-2 mm in diameter. Conventional grinders, such as a Fitzmill grinder, are suitable.

The frozen granules are placed in trays in a freeze drier where they are then freeze-dried. Freeze-drying may be carried out in conventional

equipment for freeze-drying of coffee, such as an Atlas or Leybold drier.

Drying conditions to achieve the present high density granules require a generally lower drying temperature and a longer drying time than for conventional freeze drying of coffee. Pressure is suitably 0.1 to 0.8 millibars and more preferably about 0.5 millibars. These pressures, and other pressures referred to herein, are absolute pressures unless stated to the contrary. Drying time is also dependent on the solids concentration of the initial extract, with generally more time required for drying frozen granules prepared in accordance with the invention from extracts with a lower coffee solids content. In a typical process, drying of frozen granules prepared from a 60% coffee solids extract may be effected at 50-90°C, preferably at 60°C from 7-8 hours at 0.1 to 0.8 millibars.

The resultant coffee powder comprises granules each having a density of 0.3 to 0.45 g/cc and having an outer surface layer with elongate voids running perpendicular to the surface of the granule and an inner core layer with a glassy structure. In contrast, freeze-dried coffee granules prepared in accordance with conventional freeze drying methods typically will have a density of about 0.18 to 0.3 g/cc and will not have the two layer structure characteristic of the present product. These conventional freeze-dried coffees when combined with a coffee whitener and then reconstituted in water, create a uniformly colored brown foam.

As is apparent from a comparison of Figures 1 and 2 with Figures 3, 4 and 5, the structure of the granules of the invention is completely different from the conventional freeze dried product. The

conventional freeze dried product structure is elucidated by scanning electron micrographs ("SEM") as shown in Figures 1 and 2. Specifically, Figure 1 shows a whole coffee granule prepared in accordance with conventional freeze-drying methods while Figure 2 shows the surface of the same granule at higher magnification. The granule contains voids due to gas bubbles of size range between 20-150 microns and due to ice crystals of size range between 5-50 microns, with both types of voids being consistent throughout the granule. These voids provide a network for water absorption to enhance coffee dissolution in water.

The structure of granules of the invention is shown in Figures 3, 4 and 5. Specifically, Figure 3 shows a magnified cross-section of a freeze-dried coffee granule prepared in accordance with the method of the invention and Figure 4 shows a view of the granule at higher magnification. The large void in the center, sized 1 mm x 0.5 mm vs. 3 mm x 2 mm for the whole granule, results from the accumulation of the water vapor phase in the center during the relatively slow drying process which holds water in the granule for a longer time period. Conventional drying conditions for drying of frozen gas-injected coffee extracts at 0.1 to 0.8 millibars are generally 105 to 120°C for up to 3 hours, then 90°C for 3 to 4.5 hours and finally 60°C for 4.5 to 5.5 hours. The initial high temperature forces water out of the granule quickly. If drying of the frozen coffee granules of the invention is carried out under these conditions, frozen coffee granules may become puffed up, resulting in a very friable product with a relatively low density, generally less than about 0.3 g/cc and typical of conventional freeze-dried coffee.

The present freeze-dried granules show two distinct features. As best shown in Figure 5, the outer surface layer of 100-200 micron thickness has elongate pores of 2-10 microns in diameter and 5-50 microns in length which extend perpendicular to the surface of the granule. These pores are much smaller and thinner than those in conventional freeze-dried coffee. The inner core layer is glassy coffee matrix, which has pores of less than 0.1 micron present and also has a few large voids. These two distinct layers decrease and localize the solubility of the product relative to conventional freeze-dried coffee. The outer surface layer solubilizes rapidly, in a matter of a few seconds, while the inner core layer dissolves relatively slowly, i.e., typically the entire dissolution takes at least 20 seconds.

After preparation of the freeze-dried coffee granules, they are then combined with a particulate foaming creamer by dry-blending. Other techniques, such as agglomeration may also be utilized. Such foaming creamers may be dairy-based or non-dairy based or both, and the term "creamer" is used herein in its broad sense of whitener and not in a narrow sense of being a dairy product or even dairy based. Foaming creamers include protein, lipid and filler as essential components. In addition, foaming creamers include either an incorporated gas or carbonation system, or both, for generating a gas when the creamer is dispersed in the hot beverage liquid. Suitable gas-injected foaming creamers are disclosed in U.S. Patent No. 4,438,147, U.S. Patent No. 4,736,527 and U.S. Patent No. 4,798,040, the disclosures of which are incorporated herein by reference. Suitable foaming creamers containing a carbonation system are disclosed in U.S. Patent Nos. 5,721,003 and 5,780,092, the

disclosures of which are incorporated herein by reference and in published German Patent Application No. 4,407,361 A1 published on September 7, 1995.

The particulate dry mix composition may include other components such as a sweetener which may be a natural or artificial sweetener, one or more flavor components, fillers and bulking agents. Suitable natural sweeteners include corn syrup solids or other sugar sweeteners such as sucrose, fructose, lactose, and maltose. Suitable fillers or bulking agents include carbohydrates such as maltodextrins, polydextrine, lactose, and the like.

The resultant instant particulate dry mix composition, upon reconstitution in water, forms a cappuccino beverage with surface foam having a marbled appearance which simulates the marbled appearance of authentic cappuccino foam. Such marbled appearance may be defined as a foam which is at least 50% brown streaks, spots or swirls, in a yellowish brown to white foam matrix.

The instant particulate dry mix composition formed in accordance with the present invention typically includes 10 to 25% freeze-dried coffee prepared according to the method of the invention, 10 to 70% of a foaming creamer, a natural sugar type sweetener in an amount of about 100 to 500% based on the weight of the coffee or 1 to 3% of an artificial sweetener based on the weight of the coffee. The instant particulate dry mix beverage composition may further include a bulking or filler agent in an amount of 100 to 300% based on the weight of the coffee and one or more flavors in an amount of 1 to 3% based on the weight of the coffee.

A typical cappuccino beverage prepared using the instant particulate dry mix beverage composition of the invention is prepared by adding 12 grams of the

composition to 150 milliliters of water at about 85°C. The beverage is then stirred for about 1 minute. The resulting beverage has a surface foam having a marbled appearance.

The table below shows a comparison of the foam layer of reconstituted cappuccino beverages prepared using the method of the invention with three different commercially available instant cappuccino beverages. Samples were prepared by dissolving the instant cappuccino powders in hot water in individual cups and stirring. Photographs of the foam layers were then taken using an Olympus Camedia digital camera C-1400L placed on a tripod at a distance of 9-10 centimeters above each sample cup. A close-up lens 4x was utilized. The resultant photographs were then evaluated using a histogram to determine the percentage of marbling of the foam layer.

Sample	Marbling (%)
No. 1 - Freeze dried coffee prepared in accordance with the invention, creamer comprising skim milk and coconut oil	86.2
No. 2 - Freeze dried coffee prepared in accordance with the invention, creamer comprising skim milk and coconut oil	79.3
No. 3 - Commercially available German product - Nestle Zart	0.0
No. 4 - Commercially available German product - Nestle Kräftig	0.0
No. 5 - Commercially available German product - Jacobs Cafe Zauber	96.5

Test samples 1 and 2, which are cappuccino beverages prepared in accordance with the invention, produced beverages having brown foam swirls throughout 86 and 79 percent, respectively, of the upper foam layers. In contrast, samples 3 and 4, which were

beverages prepared using currently marketed instant cappuccino powders exhibited a foamed upper surface which was substantially white and substantially uniform in color. Sample 5, prepared using yet another commercially available instant cappuccino powder, yielded a beverage in which nearly 100% of the foam layer was uniformly brown.

The invention is further illustrated in the examples which follow.

Example 1

A coffee extract of 60% concentration is made by adding warm (40°C) water to spray-dried coffee powder. The extract is then passed through a de-aerator to devoid it of entrapped air and frozen into slabs of -40 to -50°C temperature by pouring the de-aerated extract on a freezing belt. Freezing is conducted by air blasting the belt from top and bottom at freezing rates of about 2.5°C/minute. The frozen granules are ground into frozen granules with particle size of about 2 mm and are placed into trays which are transferred into a freeze drier for drying.

The granules are then dried in a pilot scale Atlas freeze drier for 7-8 hours at 60°C and at an absolute pressure of about 0.1-0.8 millibars. The resulting freeze dried coffee granules have a density of about 0.38 and are characterized by a two-layer structure as described above.

Example 2

An instant dry mix coffee beverage composition is prepared with the high density freeze dried coffee product of Example 1 according to the following formulation:

Ingredient	Parts by Weight
Coffee	16
Foaming Creamer*	50
Sucrose	33.5
Flavors	0.5

* The foaming creamer is 68% skim milk, 30% coconut oil, silicon dioxide flow agent and sodium dihydrogen orthophosphate for stabilization of the protein structure during dissolution.

The composition is prepared by weighing each of the particulate dry ingredients into a mixer and dry mixing for 10 minutes in a Loedigge Blender.

Example 3

To twelve grams of the dry mix composition of Example 2 in a beaker is added 150 ml water at 85°C. The beverage is stirred gently with a spoon for 1 minute. The resulting beverage has foam at its surface, and the upper surface is marbled and non-uniform in color with mixed colors comprising brown streaks, spots and swirls in a yellowish to white matrix.

Example 4

Example 3 is repeated except that the dry mix product is formulated from the following ingredients:

Ingredient	Parts by Weight
Coffee Product of Example 2	13
Foaming Creamer*	53
Sucrose	25.5
Lactose	8
Flavors	0.5

* Same as Example 2.

The resulting beverage has a foam having generally the same marbled appearance as the foam of the beverage of Example 3.

Although the invention has been described in considerable detail with respect to preferred embodiments thereof, variations and modifications will be apparent to those skilled in the art without departing from the spirit and scope of the invention as set forth in the claims.

What is claimed is:

1. An instant dry mix particulate coffee beverage composition for producing a cappuccino beverage having surface foam having a marbled appearance, the composition comprising:

a particulate foaming creamer, and

freeze-dried coffee granules having an outer surface layer which is rapidly soluble and an inner core layer which is slowly soluble.

2. An instant dry mix coffee beverage composition according to claim 1 wherein the outer surface layer comprises elongate voids extending generally perpendicularly to the surface of the coffee granule.

3. An instant dry mix coffee beverage composition according to claim 1 wherein said inner core layer comprises a glassy structure.

4. An instant dry mix coffee beverage composition according to claim 1 further comprising a sweetener and flavoring.

5. An instant dry mix coffee beverage composition according to claim 1 wherein the freeze-dried coffee granules have a density of at least 0.3 g/cc.

6. An instant dry mix coffee beverage composition according to claim 5 wherein the freeze dried coffee granules have a density of 0.3 to 0.45 g/cc.

7. An instant dry mix coffee beverage composition according to claim 1 comprising from 10-40% by weight of said foaming creamer and 90-60% by weight of said coffee granules.

8. An instant dry mix coffee beverage composition according to claim 7 further comprising a sugar sweetener in an amount of from 100 to 300% by weight based on the weight of said coffee granules.

9. An instant dry mix coffee beverage composition according to claim 7 further comprising an artificial sweetener in an amount of from 1 to 3% by weight based on the weight of said coffee granules.

10. A method of preparing an instant dry mix particulate coffee beverage composition comprising dry mixing a particulate foaming creamer and freeze-dried coffee granules having an outer layer which is rapidly soluble and a larger core which is slowly soluble.

11. A method according to claim 10 wherein said freeze dried coffee granules are prepared by:

providing an aqueous coffee extract containing at least 55% coffee solids by weight;

de-aerating the coffee extract;

freezing the de-aerated coffee extract;

comminuting the frozen coffee extract into frozen coffee granules; and

drying the granules to produce freeze-dried coffee granules having an outer surface layer which is rapidly soluble and an inner core layer which is slowly soluble.

12. A method according to claim 11 wherein said aqueous coffee extract has a coffee concentration of from 55 to 70% by weight.

13. A method according to claim 11 wherein said freezing is effected at a temperature of -40 to -50°C at a rate of 0.5 to 5°C/minute.

14. A method according to claim 11 wherein said freeze-dried coffee granules have a particle size of 0.5 to 5 mm.

15. A method according to claim 11 wherein said drying is performed at a temperature of 50°-90°C.

16. A method according to claim 11 wherein said drying is performed at about 60°C for 7-8 hours.

17. A method according to claim 11 wherein said coffee granules have a density of at least 0.3 g/cc.

18. A method according to claim 17 wherein said coffee granules have a density of 0.3 to 0.45 g/cc.

19. A method according to claim 11 further comprising dry mixing a particulate sweetener with said foaming creamer and coffee granules.

20. A method according to claim 11 wherein said outer surface layer comprises elongate voids extending generally perpendicularly to the surface of the coffee granule and said inner core layer comprises a glassy structure.

Abstract of the Disclosure

An instant particulate dry mix composition produces a cappuccino beverage having surface foam with a marbled appearance upon reconstitution in water. The dry mix composition is made by freeze drying the coffee extract to produce granules having an outer surface layer which is rapidly soluble and a larger inner core layer which is slowly soluble.

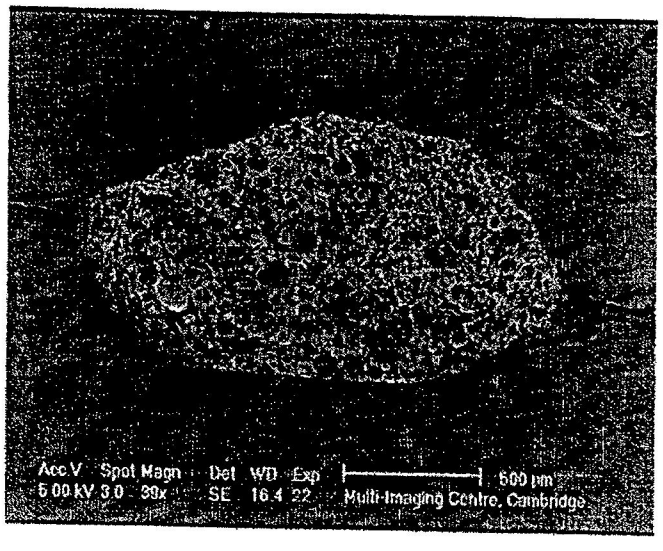


Figure 1
[PRIOR ART]

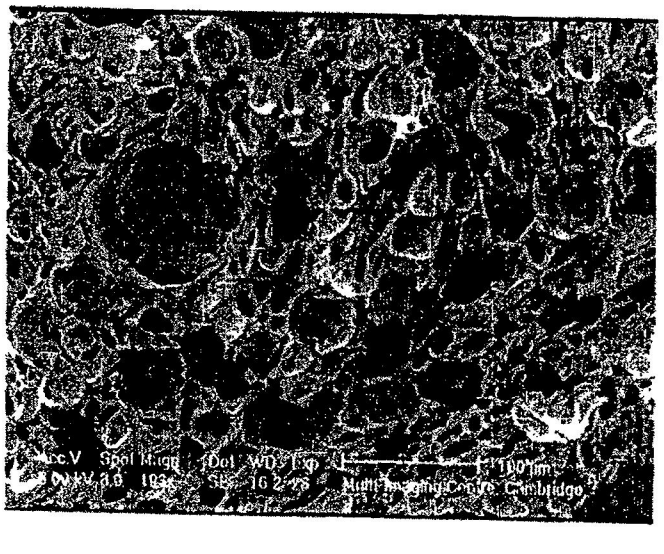


Figure 2
[PRIOR ART]

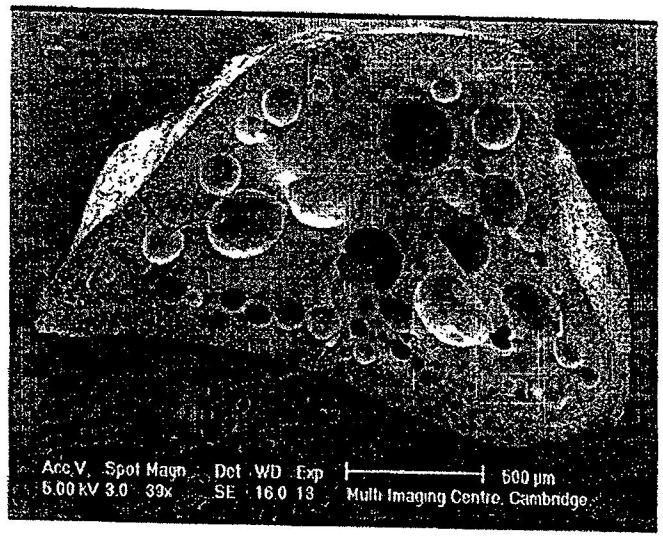


Figure 3

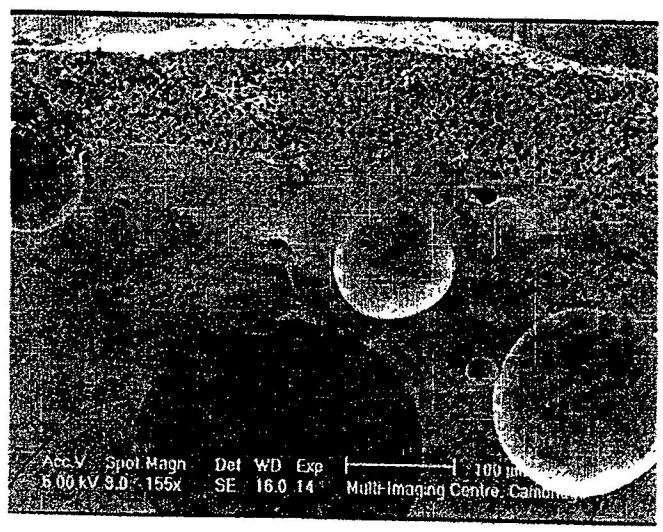


Figure 4

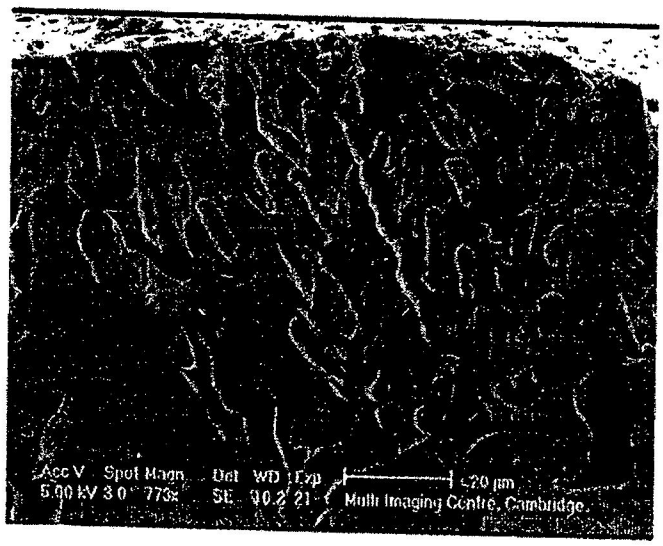

Acc.V Spot Magn Det WD Exp
5.00 kV 3.0 773x SE 30.2 21
20 µm
Multi Imaging Centre, Cambridge.

Figure 5

A COVERBIND® COVER 1-800-965-6060
1/16"Classic PTO 1683-01 for 1 to 15 sheets



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83

C stillo Gra & Asociados
ABOGADOS

SUPERINDUSTRIA Y COMERCIO
Radicacion : 00001785 00000002 Folios: 29
Fecha (AMD): 2000-04-11 10:21:10
Tramite : 002 PATENTES D 1 REGISTRO/ 329 COMPLEMEN
Dependencia: 2020 DIVISION DE NUEVAS CREACIONES

Señor Jefe

DIVISION DE NUEVAS CREACIONES

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

Santafé de Bogotá, D.C.

RE.: Expediente No. 00 1.785
Solicitud de patente a nombre de
KRAFT FOODS, INC.
Código 02 - 01 - 01

En relación con la solicitud contenida en el expediente de la referencia y en particular para dar cumplimiento a lo establecido en el Artículo 4, D.- (3) del Convenio de París, con el presente escrito acompaño:

- La Copia certificada de la solicitud de patente estadounidense No. 09/232,141, de la cual se reivindica prioridad, debidamente traducida en su capítulo reivindicatorio.

Le solicito se sirva agregar este escrito y sus anexos al expediente.

De Usted atentamente,

GERMAN CASTILLO GRAU

T.P. No. 2978

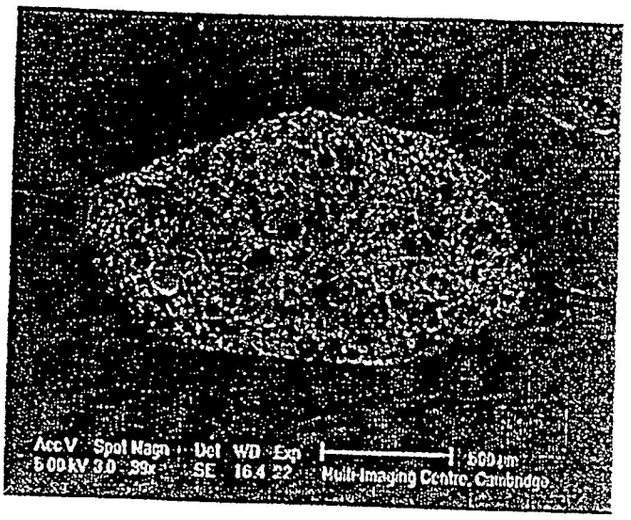


Figura 1

(TECNICA ANTERIOR)

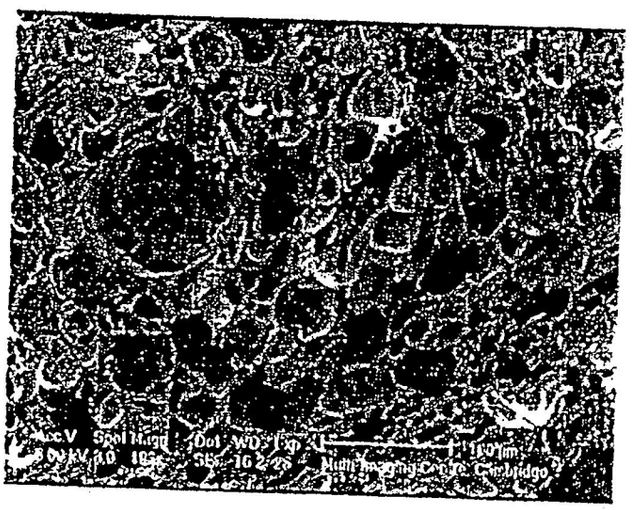


Figura 2

(TECNICA ANTERIOR)

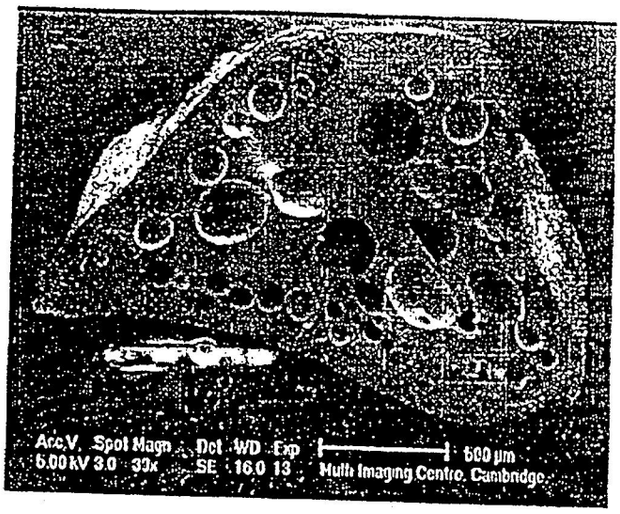


Figura 3

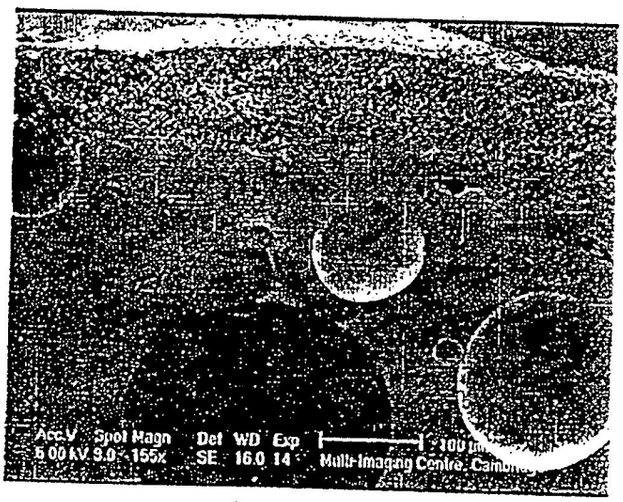


Figura 4

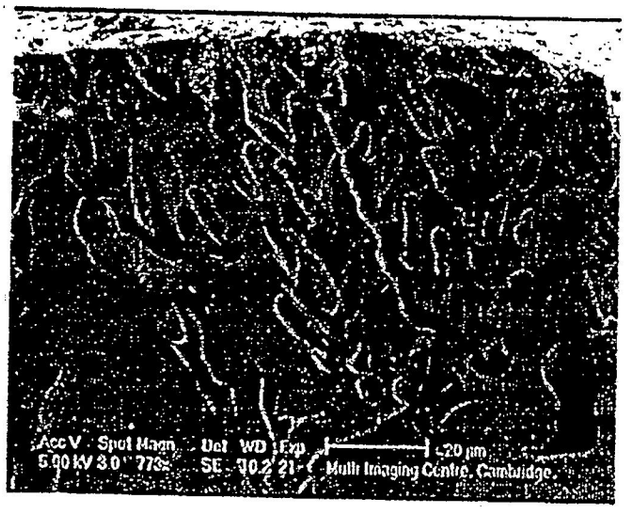

Acc.V Spot Magn Det WD Exp
5.00 kV 3.0 773x SE 10.2 21
20 µm
Multi Imaging Centre, Cambridge

Figura 5

EXTRACTO PARA PUBLICACIÓN
SOLICITUD DE PATENTE DE INVENCIÓN

DELEGATURA PROPIEDAD INDUSTRIAL

(21) No. SOLICITUD:

(22) FECHA DE PRESENTACIÓN:

(30) PRIORIDAD:

(31) No. DE SOLICITUD: 09/232,141

(32) FECHA DE PRESENTACIÓN: Enero 15, 1999

(33) PAÍS: E.U.A.

(51) INT. CL.:

(71) SOLICITANTE:

KRAFT FOODS, INC.

(72) INVENTOR/ES:

Alexandra G. Gamez-Rumpf

Satwinder Singh Penasar

(74) APODERADO:

GERMAN CASTILLO GRAU

(54) TÍTULO: COMPOSICION MIXTA SECA EN PARTICULAS INSTANTANEA PARA PRODUCIR UNA BEBIDA CAPUCCINO CON ESPUMA DE ASPECTO DE UN MARMOL Y UN METODO DE MANUFACTURA DE LA MISMA

(57) RESUMEN:

1.- Una composición mixta seca de partículas instantáneas para bebida de café para producir una bebida capuchico que tiene una espuma en la superficie de aspecto de mármol, composición que comprende:

- entre 90 y 60% en peso de gránulos de café,
- entre 10 a 40% en peso de un formador de espuma cremosa.

10.- Un método para preparar una composición mixta seca en partículas instantánea para bebida de café que comprende mezclar en seco un formador de espuma cremosa y gránulos de café liofilizados que tienen una capa externa que es rápidamente soluble y un núcleo mayor que es lentamente soluble.