



US 20020136803A1

(19) **United States**

(12) **Patent Application Publication**  
**Stefandl**

(10) **Pub. No.: US 2002/0136803 A1**

(43) **Pub. Date: Sep. 26, 2002**

(54) **NOVEL FREEZER-ADAPTED BEVERAGES  
AND FOOD PRODUCTS**

**Related U.S. Application Data**

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(60) Provisional application No. 60/236,723, filed on Oct. 2, 2000.

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**Publication Classification**

(51) **Int. Cl.<sup>7</sup> ..... B65D 85/00**  
(52) **U.S. Cl. .... 426/106**

(21) Appl. No.: **09/964,501**

(57) **ABSTRACT**

(22) Filed: **Sep. 28, 2001**

The invention comprises novel and highly useful and especially freezer adapted beverages for human, as well as animal consumption which can be stored as desired and/or needed under commercial or household freezer conditions and which will rapidly defrost for consumption under normal ambient temperature conditions.

## NOVEL FREEZER-ADAPTED BEVERAGES AND FOOD PRODUCTS

### BACKGROUND OF THE INVENTION

#### [0001] 1. Field of the Invention

[0002] This invention is generally related to the field of food and beverages for human as well as animal consumption and nutrition, and more particularly, to food and beverages which are intended for storage and/or shipment under refrigeration, especially in a frozen condition, followed by defrosting prior to consumption.

[0003] More specifically, the process of the invention and products prepared in accordance therewith are non-alcoholic, water-based beverages especially made for convenient and/or necessary freezing prior to use, followed by their removal from freezing temperature conditions and defrosting to a flowable consistency in reduced periods of time and thus made promptly available for appropriate use.

#### [0004] 2. Description of Related Art

[0005] In so far as is presently known, there are no commercial beverages on the market at the present time which have the advantages of those possessed by the products of the present invention. In particular, there are no commercial products and specifically no non-alcoholic beverages, which are subjected to refrigeration under freezing conditions prior to their human or animal consumption, which products can then be defrosted into a flowable condition suitable for easy consumption, ie, by drinking in the case of a beverage, in a very short time period.

[0006] No published articles or patents are known, or are believed to be generally and publicly available, which suggests, discloses, or claims, either the presence, or use of the combination of additive components (ingredients) of this invention, nor are the advantages for freezing and defrosting within the time limits to obtain the desired texture (consistency) suggested, or disclosed in the prior art

[0007] Although it is possible that one, or even some combination of two of these additive ingredients used in the beverage compositions of the present invention may be known for such use, or for similar uses, they have not been shown to have the unexpected advantages for freezer storage and rapid defrostability, or any subsequent advantages in the consumption of the products containing such compositions and/or mixtures of components and prepared in accordance with this invention.

[0008] U.S. Pat. No. 3,826,829 describes a slush-type beverage which has as an essential ingredient pectin, in combination with other gums, as a stabilizer in a fluid containing carbohydrates such as sugars, other edible materials such as buffering agents, food acids, preservatives, flavors and colors and freezing point depressant materials such as polypropylene glycol, sorbitol, glycerol and the like.

[0009] U.S. Pat. No. 4,479,974 describes the inclusion of certain 1-amino acids in a fruit-flavored dry beverage mix to enhance flavor and improve mouthfeel character of the constituted beverage.

[0010] U.S. Pat. No. 5,069,924 describes a low calorie semi-frozen beverage containing propylene glycol- (or glycerol-) wetted Xanthan gum and natural and artificial sweet-

eners which uses microcrystalline cellulose in sufficient quantity to lower the freezing point of said beverage and cause the formation of said small ice crystals upon freezing.

[0011] U.S. Pat. No. 5,114,723 describes a hypotonic beverage composition comprising an aqueous solution, either carbonated or non-carbonated, electrolytes, carbohydrates, low-caloric sweetener, and edible acid components.

[0012] U.S. Pat. No. 5,853,785 describes a dry mix for preparing a slush beverage containing at least 70% disaccharides, and higher saccharides, and less than 20% of monosaccharides (e.g., dextrose, fructose) and/or alcohols (e.g., mannitol, sorbitol, xylitol, glycerol, ethanol and the like). Control of the ice crystal size within the slush is enhanced by the presence of a water-soluble, low-viscosity, hydrocolloid, such as a hydrolyzed gum, in the dry mix formulation.

[0013] U.S. Pat. No. 6,066,345 describes a beverage composition containing erythritol.

[0014] It is an objective of this invention to utilize certain food ingredients and/or food grade additives, all of which are known and are appropriate and safe for human and animal consumption, in proper and novel combinations, concentrations and proportions to prepare a food, or beverage, which will allow, and permit the food, or beverage containing same to be placed in a refrigerator-freezer under conditions for freezing water, but not cause the food, or beverage completely to freeze into a solid mass and which, when thus prepared can be rapidly defrosted into a flowable consistency allowing the food, or beverage to be consumed in a normal manner at a later time, though much more quickly than normal ice-containing compositions, while remaining cool, or cold. It is another objective to be able to put the food, or beverage containing the said combinations of food ingredients and/or food grade additives in a refrigerator-freezer, or a freezer to allow the food, or beverage to freeze into a solid state, or semi-solid and thereafter to control the defrosting of the food, or beverage in such a manner as to maintain the food, or beverage at a cold temperature until and at the time of its consumption.

[0015] It is another objective of this invention to be able to put the food, or beverage containing the food ingredients and/or food grade additives into a refrigerator-freezer, or freezer, be allowed to only partially freeze and that thereafter the product so-treated can be consumed at a normal cold portable temperature.

[0016] It is a further objective to provide a beverage for human consumption which can be at freezing temperature conditions and thereafter be consumed as a cold liquid or slush after a short period of warming (defrosting) time.

[0017] Further objectives of the invention will be evident from the description of the invention and more specific examples thereof set forth in further detail herein below.

### DETAILED DESCRIPTION OF THE INVENTION

[0018] This invention is directed to a composition suitable for use as an freeze-altering additive for food, or beverage products and to the resulting food, or beverage products made therefrom. The composition was especially developed and tested in order that a consumer thereof who packs and/or

stores a refrigerated food, or beverage (preferably a frozen, non-alcoholic (non-ethanolic) beverage) for future consumption, can do so without destroying in any way the original qualities and characteristics of the product. In addition, the food, or beverage can be held at a temperature, the same as, or similar to that of the refrigerator.

[0019] As used throughout the specification and claims the term "non-alcoholic" means that the composition (beverage) is substantially free of ethanol, e.g., less than 1% by weight, preferably less than 0.5% by weight and most preferably completely free thereof.

[0020] It is known from research studies that the use and presence of various carbohydrates, especially those commonly referred to as sugars and including glucose and ribose, in mixtures with glycerine, propylene glycol, amino acids, proteins, various sugar alcohols, such as sorbitol and various portable salts show a decided effect for lowering the freezing point of water and the freezing point range of many foods and beverages containing water.

[0021] There is also evidence that the presence of many of the above additives in beverages disrupts and interferes with the formation of solid from the liquid phase as the temperature of the liquid is reduced. The resulting composition thereafter produces a food, or beverage product which either does not thereafter completely freeze into a unitary solid mass at all, or freezes and thereafter defrosts into a liquid in significantly less time than does a similar or identical food, or beverage not containing these ingredients or additives.

[0022] Foods and beverages which constitute products of this invention possess certain characteristic and unusual, as well as unexpected, properties which permit them to be stored under conditions suitable for freezing water, i.e., under freezing conditions, and can be so-maintained for a period of time and thereafter can be defrosted rapidly into an appropriate fluidity or consistency, i.e., into a slush state, or into a cold liquid, suitable for consumption as a liquid, i.e. sufficiently fluid such that it can be consumed through a straw. In the defrosted state, these foods and beverages can properly and similarly be consumed as they could have been originally before being frozen.

[0023] The food, or beverage products prepared according to the process and methods of this invention thus possess unique properties which permit them to be highly useful in modern society for both human and animal consumption. For example, a beverage of the present invention can be packed, as for example in a child's lunch, in the frozen state and thereafter transported to school, college, business meetings, travel, sports events, construction sites, and picnic trips, as well as, for animal travel and for many other occasions as they may be needed for practical and convenient use in the modern world society. The frozen beverage thereafter defrosts in a short period of time to a consistency suitable for consumption as a liquid, yet retains a low temperature making it desirable for consumption.

[0024] In general, foods and beverages appropriate and well adapted for frozen and defrosted products of this invention contain various kinds and forms of carbohydrates. These carbohydrates function similar to conventional and well-known anti-freeze agents which tend to interrupt the ice formation.

[0025] In accordance with the present invention, there are thus three basic ingredients which in various combinations

are necessary for producing the outstanding advantages and benefits of the invention (1) a carbohydrate component, such as glucose, (2) a glycerol, or glycol component, such as glycerine, or propylene glycol and (3) a sugar alcohol component, such as sorbitol.

[0026] The compositions of the present invention are exclusively directed to food and beverage products. As a result, it is necessary that all ingredients used in these compositions be fit for consumption, i.e., edible. That being the case, implicit in the identification of any and all materials for possible use in connection with the present invention, whether or not expressly stated, is that only edible ingredients are embraced by the specification and claims.

[0027] While glucose is likely to be one of the more widely used ingredients for the carbohydrate component, other possible ingredients include materials such as lactose, fructose, sucrose, dextrose, albose, altrose, mannose, gulose, galactose, ribose, arabinose, xylose, lyxos, erythrose, threose and maltodextose, carbohydrates having various degrees of polymerization such as polydextrose, invert sugar and vegetable sugars and syrups made from sugar cane, corn (e.g., high fructose corn syrup), beets, potatoes, magava, grains, honey and tapioca.

[0028] Compositions of the present invention may have an amount of the carbohydrate component, for example glucose, in the range of from about 3% to 85% by weight. It has been found by actual studies and tests and from the data (and results) obtained thereby that, based on only the proportions of the three basic ingredients, the carbohydrate component, for example glucose, may appropriately be used in the composition from about 35% to 85% by weight of the three component composition, and usually in the amount of about 50 to 80%. Aqueous compositions containing the freeze-altering composition of the invention, depending on the particular product, will typically have about 3% to 60% carbohydrate component, more preferably about 3% to 25% by weight, and is preferably present in at least about 8 percent by weight of an aqueous beverage composition.

[0029] The second component is preferably glycerine (glycerol), though propylene glycol also can be used alone, or in combination therewith. Compositions of the present invention may have an amount of the glycerol, or propylene glycol ingredient component in the range of from about 0.5% to 45% by weight. The glycerol, or propylene glycol ingredient may broadly be employed in an amount of from 3% by weight up to about 45% by weight of the three component composition, usually in the amount of 4% to 35% and preferably is present in an amount of at least about 4% by weight of the composition. Aqueous compositions containing the freeze-altering composition of the invention, depending on the particular product, will typically have about 0.5% to 20% of the glycerol, or propylene glycol ingredient component and more preferably about 1% to 10% by weight of an aqueous beverage composition.

[0030] The third component of the freeze-altering composition of the present invention is a sugar alcohol. Sorbitol is a preferred constituent for this component, but other possible ingredients include xylitol, erythritol, arabitol, threitol, mannitol, iditol, inositols, heptitol, octitol and alditols.

[0031] Compositions of the present invention may have an amount of the third ingredient, the sugar alcohol, such as

sorbitol, in the range of from about 0.25% to 45% by weight. The sugar alcohol ingredient may broadly be employed in an amount of from 5% by weight up to about 35% by weight of the three component composition, usually in the amount of 6% to 30% and preferably is present in an amount of at least about 7% by weight of the composition. Aqueous compositions containing the freeze-altering composition of the invention, depending on the particular product, will typically have about 0.25% to 20% of the sugar alcohol ingredient and more preferably about 0.5% to 15% by weight of an aqueous beverage composition, while in preferred practice the sugar alcohol is present in the aqueous beverage products of the invention in at least about 1% by weight.

**[0032]** Many known and currently used ingredients for beverages and foods commonly used in food and beverage products for humans, as well as animal consumption, also may be included and generally will be included in the products of the invention without any interference in the food result obtained from the presence of the added ingredients of this invention. In all instances, the advantages of the invention will be achieved and will be realized.

**[0033]** The preferred beverage products of the invention thus are ready-to-drink compositions which are flavored using one or more natural, or artificial flavors, such as citric acid, tea, orange, lemon, lemon-lime, cherry, strawberry, apple, raspberry, cola, peppermint, aniseed, liquorice, caramel, honey, cream soda, and combinations of these and other flavors. Such beverages may also contain other conventional additives and supplemental ingredients or adjuncts such as caffeine, vanilla and other flavoring agents, stabilizers, surfactants, preservatives, including sodium benzoate, potassium sorbate and TBHQ; other sweeteners, including intense artificial sweeteners such as aspartame, saccharin, and acesulphame K; flow conditioners and vitamins, such as ascorbic acid and other nutrients and added food colors.

**[0034]** With respect to the above specifically described ingredients, as well as other optional additives described and claimed herein, the amounts of each required to achieve desired results depend somewhat on the concentrations of each of the other ingredients which are present in any particular product. Suitable combinations of ingredients within the broad teachings of the present application can be selected following routine experimentation.

**[0035]** More particularly, one specific additional group of food grade additives which can be included in compositions of the present invention are amino acids and mixtures thereof. A specific example of a useful amino acid is L-arginine. A specific example of a mixture of amino acids is naturally occurring whey. Another group of food grade additives found useful for inclusion in the beverage of this invention is portable salts such as sodium, potassium, calcium and magnesium citrates as examples. Both of these types of food grade additives have been found to reduce further the defrost time required for a beverage made in accordance with the present invention.

**[0036]** The ingredients, glucose (carbohydrate), glycerine and sorbitol (sugar alcohol), as well as certain amino acids and portable salts which may furnish or enhance the advantages for the products, may each, or all be present at any time, or period during formulation and steps for the manufacture of products according to the invention. Thus, these

ingredients may be added either separately and individually or simultaneous by and in combination as a single additive and in any order prior to the point at which the product is frozen.

**[0037]** Complete and effective mixing of the added ingredients of this invention into the beverage products is very important and must be done in every instance before the food, or beverage product is frozen in order to obtain the advantages of the present invention.

**[0038]** Food products such as cottage cheese, yogurt, milk, cream, buttermilk, chocolate milk, and the like may also benefit from the use of this combination of ingredients as additives in order to produce a food product which can be frozen and defrosted prior to consumption.

**[0039]** There is no observable change in texture, taste, appearance or otherwise in the food products and beverages to which the ingredients of the invention are added in the proportions and concentrations disclosed and claimed herein except as would be normally expected from use of these ingredients in foods and beverages.

**[0040]** No changes, or other problems have been observed in the food and beverage storage periods or the shelf-life of products to which the ingredients of the invention have been added prior to said frozen storage or shelving.

**[0041]** The products and processes of the invention will more particularly illustrated and described by the following detailed examples thereof. It is not intended, however, in any way to limit the invention products or processes specifically thereto.

#### EXAMPLES

**[0042]** The apparatus employed in carrying out the examples set forth below comprised individual square clear plastic container bottles (16 ounce capacity), plastic cups for the container bottles and as commonly used a storage freezer for foods and beverages, used for testing the conditions and procedure for freezing and thawing the products.

#### Comparison Example 1

**[0043]** In order to evaluate the products of the invention, it was important to establish a standard for comparison and to be able to actually demonstrate the outstanding advantages of beverages made in accordance with the invention.

**[0044]** Fourteen ounces of filtered water were placed in a 16 ounce clear plastic test bottle and a cap tightly fastened thereto. Thus, the liquid in the container was water only. The capped plastic bottle of water was placed into the freezer for a 12 hour period. The thermostat of the freezer was set to provide a temperature of  $-25^{\circ}\text{C}$ . The resulting frozen bottle of water was then removed from the freezer and allowed to stand at a room temperature of approximately  $76^{\circ}\text{F}$ . The length of time it took for the thus-frozen bottle of water to defrost completely was carefully observed and recorded. Under this condition, the time period for the total amount of solid (ice) to change totally to a liquid was found to be four hours and forty-five minutes.

**[0045]** The phase change from solid to liquid was indicated by a gradual reduction in the size of a solid cube which resulted from the freezing of the liquid within the plastic container. During the time period for the defrosting of the

solid phase (ice), the solid phase became increasingly smaller and the volume of the liquid phase gradually increased in size and becomes larger.

[0046] It is of special interest and important to note that the solid phase was one continuous solid cube (block) of ice throughout the entire melt-down phase (defrost period of time).

#### Comparison Example 2

[0047] The outstanding advantages and highly important characteristics of the products of this invention are clearly evident when the behavior of these novel mixtures was compared with that of various commercial beverages, which are commercially marketed and widely available for public consumption

[0048] Three of the more commonly consumed beverages by children and young adults, i.e., Gatorade™, Powerade™ and Pedialyte™, were employed in freezing tests for developing additional comparison information. It is to be noted that these products each contain a relatively high percentage of salt(s) content, variously containing potassium, sodium, calcium, and magnesium salts, and also contain a relatively high percentage of sugar (carbohydrate, such as glucose).

[0049] Using the same procedures as described for water in Comparison Example 1 above, three clear plastic bottles were filled with each of these beverage products. The bottles were capped and placed in the same freezer and allowed to freeze completely to a solid as done in Comparison Example 1.

[0050] After the products had frozen completely, they were removed from the freezer to defrost. The time period needed for each of these frozen beverages to change phase from the solid frozen phase completely to the liquid phase was carefully observed. Thus, as done in Comparison Example 1, the frozen bottles were placed at a room temperature of approximately 76° F. and were allowed to defrost and to allow the contents of the containers to completely become liquid. The various time periods for this phase change to occur was carefully noted for each of the products.

[0051] It was observed that all three commercial beverage products behaved similarly in this phase change. They each required about four hours and thirty minutes to change completely from solid ice to a liquid. In addition, it was noted that each one of the three products behaved very similarly to the behavior observed for the water of Example 1 in that the products remained a solid cube or block of ice which progressively got smaller and the volume of the liquid phase gradually increased as the solid ice block became smaller over the time period at room temperature.

#### Example 3

[0052] The outstanding advantages of the invention herein disclosed and claimed were observed by using the same clear plastic bottles, caps and freezer apparatus as used in Comparison Examples 1 and 2, but in addition, various amounts of glucose, sorbitol and glycerine were included in the test compositions. The behavior of liquids containing these ingredients in varying combinations and amounts on freezing and melting (defrosting) was noted and comparisons made with the earlier comparison examples.

[0053] Four liquid samples were prepared as follows:

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Sample A	50 grams of glucose were dissolved into 14 fluid ounces of water;
Sample B	5 grams of sorbitol were dissolved into 14 fluid ounces of water;
Sample C	30 ml of glycerine was dissolved into 14 fluid ounces of water;
Sample D	98 grams of glucose, 5 grams of sorbitol, and 30 ml of glycerine were dissolved into 14 fluid ounces of water.

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[0054] All four of the Samples A, B, C, and D were placed in the clear plastic bottles and the filled bottles then were placed in the freezer for a period of 12 hours. They were then removed and each examined in turn- It was found that each of Samples A, B, and C were frozen to a solid block of ice. However, Sample D was not frozen to a solid block, but instead was slushy and exhibited the consistency of a snowball

[0055] After the samples were allowed to stand at room temperature (76° F.) for about 20 minutes, Samples A and B were found to still be solid, while Sample C had become somewhat slushy. Sample D had turned completely slush and contained a considerably greater percentage of liquid. The consistency of Sample D was such that it was then available to be consumed as a liquid.

[0056] After remaining at room temperature for an additional 30 minutes, Sample B remained a solid block of ice. Sample D had become mostly liquid with some floating slush. Samples A and C were both slushy, though Sample C had much more liquid than Sample A.

[0057] After the samples were allowed to be at room temperature for a total period of one and one-half hours, Sample D had become entirely liquid, while Samples A and C still remained as a combination of liquid and slush. Sample B had become mostly water and a smaller cube of solid ice.

[0058] Finally, after being allowed to remain at room temperature for two hours and thirty minutes, Samples A and C were all liquid.

[0059] Clearly, these results show that Sample D, which was made from a combination of all three ingredients, was capable of becoming a slushy and/or liquid beverage suitable for consumption as a liquid in a much shorter period of time than the other formulations. As a result, Sample D thus has a greater advantage for use as a beverage liquid to be stored in the freezer before removal for use.

#### Example 4

[0060] Using the same apparatus and experimental procedures as thus described in Example 3 and Comparison Examples 1 and 2, the following additional four samples were prepared and studied.

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Sample E	50 grams of glucose, 5 grams of sorbitol and 15 ml of glycerine dissolved into 14 fluid ounces of water;
Sample F	50 grams of glucose and 15 ml of glycerine dissolved into 14 fluid ounces of water;

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-continued

Sample G	50 grams of glucose and 5 grams of sorbitol dissolved into 14 fluid ounces of water.
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[0061] After carrying out the same procedures as those described above in Example 3, it was found that Sample E having present all three components of the invention completely became a liquid in one hour and thirty minutes. Sample F having two components of the invention completely became a liquid in two hours and five minutes, while Sample G, also having a different two of the three components completely became a liquid after a period of two hours and thirty minutes.

[0062] This study clearly indicates the advantages of the various ingredients of the invention and especially the outstanding and unexpected advantages of having all three of the components present.

[0063] To further demonstrate the advantages of the invention product the following ten samples (as presented in Table 1 below) were prepared and tested in accordance with Examples 3 and 4 for the time period to change (defrost) from a frozen solid to a liquid. the period of time necessary to change from solid to liquid (defrost time) were compared and shown to demonstrate the great advantages of the invention.

TABLE 1

Sample	Water (fluid oz.)	Glucose (gms.)	Glycerine (gms.)	Sorbitol (gms.)	Whey (gms.)	L-arginine (mg.)	Calcium Citrate (mg.)	Magnesium Citrate (mg.)	Defrost Time (Hrs)
1	14	50	0	0	0	0	0	0	2.50
2	14	0	0	5	0	0	0	0	3.0
3	14	0	30	0	0	0	0	0	2.50
4	14	0	0	0	0	0	0	0	4.75
5	14	37.5	5	2.5	11.6	0	0	0	2.50
6	14	50	15	5	0	0	0	0	2.0
7	14	50	30	5	0	0	0	0	1.50
8	28	90	60	30	0	0	0	0	1.25
9	14	37.5	5	2.5	11.6	500	0	0	2.50
10	14	50	30	5	18.5	0	250	250	1.50

[0064] Samples 1, 2, and 3, each have only one of the three basic additives described in the invention, that is glucose, sorbitol and glycerine- Sample 4 has no additives and is a water-only control. Sample 5 has all three of the additive ingredients described in the present invention and additionally contains a protein additive, whey. Samples 6, 7 and 8 each have only the three additive ingredients of the present invention (and no additional ones), the differences between the samples being the various amounts present. Sample 9 has as an additional additive to the three basic components, an amino acid, L-arginine. Finally, Sample 10 has as additional additives the salts, calcium citrate and magnesium citrate, as well as the protein additive, whey.

[0065] Thus, Examples 5 through 10 are examples of the various preferred three component combinations of the additives of the present invention. The defrost times for samples 5 to 10 vary but in general are less than those of the samples having only one of the three additive ingredients (glucose, sorbitol, or glycerine).

[0066] It will be understood that while the invention has been described in conjunction with specific embodiments thereof, the foregoing description and examples are intended to illustrate, but not limit the scope of the invention. Other aspects, advantages and modifications will be apparent to those skilled in the art to which the invention pertains, and these aspects and modifications are within the scope of the invention, which is limited only by the appended claims. Reasonable variation and modification are possible within the scope of the foregoing description and the appended claims to the invention the essence of which is that there has been set forth specific additives for preparing a food, or beverage composition having especially advantageous defrosting characteristics for making such products particularly convenient for use.

What is claimed is:

1. A freeze-altering additive for foods and beverages consisting essentially of (1) at least one carbohydrate, (2) glycerol, or propylene glycol and (3) a sugar alcohol.
2. A portable, packaged food product for consumption and especially adapted for freezing and defrosting prior to consumption which contains as added ingredients thereof, in addition to conventional ingredients, effective amounts of (1) at least one carbohydrate, (2) glycerol, or propylene glycol and (3) a sugar alcohol.

3. The food product of claim 3, which is an aqueous, non-alcoholic beverage adapted for human consumption and contains effective amounts of glucose, sorbitol and glycerol.

4. The beverage of claim 3, in which the glucose is present in at least 8% by weight of said beverage.

5. The beverage of claim 3, in which the sorbitol is present in at least 1% by weight of said beverage.

6. The beverage of claim 3, in which the glycerine is present in at least 1% by weight of said beverage.

7. The food product of claim 2, which is especially adapted for human consumption.

8. The food product of claim 2, which is especially adapted for animal consumption.

9. A freezer compatible non-alcoholic, aqueous beverage suitable for human consumption which contains in addition to conventional ingredients from 3% to 60% by weight, of glucose, from 0.25% to 20% by weight, of sorbitol and from 0.5% to 20% by volume of glycerol.

**10.** The freezer compatible beverage for human consumption of claim 9 which contains in addition, as an additive an effective amount of at least one portable amino acid.

**11.** The freezer compatible beverage for human consumption of claim 9 which contains in addition, as an additive or effective amount of at least one portable salt.

**12.** The freezer compatible beverage for human consumption of claim 11, in which the portable salt is a citrate.

**13.** The freezer compatible beverage for human consumption of claim 9 which contains, in addition, as additives an effective amount of at least one portable amino acid and an effective amount of at least one portable salt.

**14.** The freezer compatible beverage for human consumption of claim 13 in which the portable salt is a citrate.

**15.** A process for preparing a beverage of claim 9, which comprises the steps of adding glucose, sorbitol and glycerol to water-containing beverage composition prior to packaging said beverage in a container and prior to subjecting the thus packaged beverage to freezing condition.

**16.** A method of consuming a beverage comprising (1) providing a packaged beverage product containing a non-alcoholic, aqueous beverage for human consumption, said beverage consisting essentially of (a) at least one carbohydrate, (b) glycerol, or propylene glycol and (c) a sugar alcohol, (2) storing said packaged beverage product under freezing conditions and (3) defrosting said packaged beverage product prior to consumption.

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