Title: SEAL PACK OF INGREDIENTS FOR AN INDIVIDUAL SMOOTHIE, AND ASSOCIATED METHODS AND APPARATUSES

Abstract: A sealed pack (440) contains quantities of ingredients to make an individual smoothie portion. The ingredients comprise a flavour ingredient (410) such as pieces of fruit (strawberries, raspberries, mango), a frozen portion of liquid (420) such as water, fruit juice, milk, coffee or tea; and a consistency ingredient (430) such as ice-cream, sorbet and yoghurt. The pack may be subjected to a temperature sufficiently low to maintain the frozen state of some of the ingredients in the pack (440). Also disclosed is a method of packaging the ingredients into the pack, or into first and second containers, or into a container with compartments for different ingredients in frozen and unfrozen states; and a method of preparing an individual smoothie using the sealed pack wherein the ingredients are blended with additional liquid; and an apparatus that uses the sealed pack for automatically serving an individual smoothie portion.
Published:

— with international search report
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.
SEAL PACK OF INGREDIENTS FOR AN INDIVIDUAL SMOOTHIE, AND ASSOCIATED METHODS AND APPARATUSES

Field of the Invention

The present invention relates to packaging of ingredients for preparing compositions and methods for preparing compositions using pre-packed ingredients.

Background

Five years ago, juice bars were the domain of grocers disposing of excess fruit, or health-food stores. However, juice bars have more recently become a significant part of the fast-food market and have begun to proliferate as franchises or independent enterprises. A key product of juice bars is the smoothie, which is a thick, smooth (in texture) drink generally comprising fruit pieces pureed or blended with ice-cream, sorbet or yoghurt and/or milk or juice. Non-fruit smoothies include alternative flavour ingredients to fruit such as chocolate, coffee, alcohol, etc. Other items may also be added such as energy-boosting supplements, muesli, proteins, raw eggs, etc.

Fig. 1 is a plan view of a layout of a conventional juice bar. Display counter 110 enables display of fresh fruit that is used in the preparation of smoothies and other juice bar products. A sink 120 is used to prepare the fresh fruit, which may be processed in the juicers 130. A freezer 140 is used to store items such as ice, ice-cream and yoghurt. A chiller/dispenser 150 is used to refrigerate liquid ingredients of smoothies and/or other juice bar products. A row of blenders 160 are used to blend the ingredients of smoothies and/or other juice bar products, which are subsequently dispensed into cups for delivery to customers. The customers pay at the till 170. Used blending containers are cleaned for reuse at the sink 180. Automatic dishwashing equipment may also be used, which may be installed under counter.

A juice bar such as that shown in Fig. 1 is typically operated by three to six operators. Preparation of a smoothie typically entails the steps of retrieving a clean container for blending, obtaining appropriate quantities of ingredients such as fruit, yoghurt and ice from respective storage areas in the juice bar, blending the smoothie, dispensing the smoothie into a cup and handing the smoothie to the respective customer. In preparing a smoothie, an operator is thus required to move around the juice bar. Although juice bars are generally laid out in accordance with workflow requirements, a substantial amount of movement by operators is unavoidable. This consumes time and
limits the number of operators that can simultaneously prepare products such as smoothies.

A need thus exists for improved methods of supplying and preparing compositions such as smoothies.

**Summary**

Aspects of the present invention provide apparatuses, methods and packaging for preparing compositions.

According to one aspect of the present invention, there is provided a method for packaging ingredients for preparing an individual portion of a composition. The method comprises the steps of storing at least one ingredient for the composition in a first container and storing the remaining ingredients for the composition in a second container. One or more of the remaining ingredients are frozen. The contents of the first container preferably remain unfrozen, even when the first and second containers are simultaneously subjected to a temperature sufficiently low to freeze the content of the second container. The contents of the first container may comprise a liquid base for the composition and may further comprise an agent that prevents freezing of the contents of the first container.

According to another aspect of the present invention, there is provided a method for packaging ingredients for preparing a composition. The method comprises the steps of storing at least one ingredient for the composition in a first container, storing other ingredients for the composition in a second container and simultaneously subjecting the first and second containers to a temperature sufficiently low to freeze the content of the second container. The composition may comprise a smoothie and the at least one ingredient may comprise a liquid base for the smoothie.

According to another aspect of the present invention, there is provided a pre-packed pack containing ingredients for preparing an individual portion of a composition. The pack comprises a plurality of compartments for storing different ones of the ingredients, wherein the content of at least one of the compartments is frozen and the content of at least another one of the compartments remains unfrozen. The pre-packed pack may be subjected to a temperature sufficiently low to freeze the content of at least one of the compartments. The contents of the at least one compartment that remains unfrozen may comprise a liquid base and an agent that prevents freezing of the liquid base.
According to a further aspect of the present invention, there is provided a method for preparing a composition comprising the steps of transferring contents of a pre-packed pack to a container and blending the contents in the container. The pack comprises a plurality of compartments containing different ingredients of the composition. The contents of at least one of the compartments are frozen and the contents of at least another one of the compartments are unfrozen. The contents of the at least one compartment that remains unfrozen may comprise an agent that prevents freezing of the contents of the at least one compartment. The content of the at least one compartment that remains unfrozen may comprise a liquid base for preparing the composition. The composition may comprise a smoothie and the pack may comprise ingredients for preparing a single smoothie portion.

Another aspect of the present invention provides a method for storing ingredients for preparing an individual portion of a smoothie. The method comprises the steps of placing a flavour ingredient into a pack, placing into the pack a frozen portion of liquid, placing into the pack at least one additional consistency ingredient and subjecting the pack to a temperature sufficiently low to maintain the frozen state of at least certain of the ingredients of the pack. The quantities of the ingredients in the sealed pack are based on a target quantity of an individual smoothie portion.

Yet another aspect of the present invention provides a sealed pack containing ingredients for preparing an individual portion of a smoothie. The pack comprises a flavour ingredient, a frozen portion of liquid and at least one additional consistency ingredient. The quantities of the ingredients in the sealed pack are determined based on a target quantity of an individual smoothie portion.

Still another aspect of the present invention provides a method for preparing an individual portion of a smoothie comprising the steps of transferring contents of a sealed pack to a container, adding a portion of liquid to the container and blending the contents of the container. The contents of the sealed pack comprise a flavour ingredient, a frozen portion of liquid and at least one additional consistency ingredient. The quantities of the contents of the sealed pack are based on a target quantity of an individual smoothie portion.

Another aspect of the present invention provides an apparatus for automatically vending individual smoothie portions. The apparatus comprises first dispensing means for
dispensing the contents of a sealed pack into a container, second dispensing means for
dispensing a portion of liquid into the container, blending means for blending the contents
of the container and vending means for vending the contents of the container as an
individual smoothie portion. The contents of the sealed pack comprise a flavour
ingredient, a frozen portion of liquid and at least one additional consistency ingredient.
The quantities of the contents of the sealed pack are based on a target quantity of an
individual smoothie portion.

Still another aspect of the present invention provides an apparatus for automatically
vending individual smoothie portions. The apparatus comprises first dispensing means for
dispensing ingredients for a smoothie into a container, second dispensing means for
dispensing a portion of liquid into the container, blending means for blending the contents
of the container and vending means for vending a portion of the contents of the container
as an individual smoothie portion. The ingredients comprise a flavour ingredient, a frozen
portion of liquid and at least one additional consistency ingredient.

**Brief Description of the Drawings**

A small number of embodiments are described hereinafter, by way of example only,
with reference to the accompanying drawings in which:

Fig. 1 is a plan view of a layout of a conventional juice bar;

Fig. 2 shows a flow diagram of a method for packaging ingredients for preparing a
composition such as a smoothie;

Fig. 3 shows a pre-mix pack for preparing an individual portion of a composition
such as a smoothie;

Fig. 4 shows a flow diagram of a method for storing ingredients for preparing an
individual portion of a smoothie;

Fig. 5 shows a sealed pack of ingredients for preparing an individual portion of a
smoothie; and

Fig. 6 shows a flow diagram of a method for preparing an individual portion of a
smoothie.
Detailed Description

Embodiments of methods and packaging for preparing compositions are described hereinafter. Although the embodiments are particularly described with reference to smoothies, it is not intended that the present invention be restricted in this way. Specifically, the present invention has application to other types of compositions and particularly to other compositions for human consumption, such as soups.

Use of the term 'smoothie' in the present document is intended to include fruit-based smoothies and non-fruit-based smoothies, which may include flavour ingredients such as coffee, chocolate and alcohol. Furthermore, smoothies may be dairy-based or non-dairy-based.

Use of the term 'unfrozen' in the present document is intended to mean 'not completely frozen' and to include 'partially frozen', 'slushy' and 'icy' within the scope of the intended meaning. Use of the term 'partially frozen' in the present document is intended to mean 'not completely frozen' and to include 'slushy' and 'icy' within the scope of the intended meaning.

Use of the phrase 'an individual portion', in the present document is intended to mean a portion suitable for consumption by one person or individual. However, such portions may vary in size or volume to cater for different individuals (e.g., adults and children or small, medium and large).

Fig. 2 shows a flow diagram of a method for packaging ingredients for preparing a composition such as a smoothie. At step 210, at least one ingredient for the composition is stored in a first container. At step 220, remaining ingredients for preparing the composition are stored in a second container. One or more of the remaining ingredients in the second container may be frozen at step 230. In some cases, already frozen ingredients are stored in the second container and step 230 may serve to maintain such in a frozen state.

For making a smoothie, the contents of the first container comprise a liquid base such as apple juice concentrate or mango nectar, which is maintained in an unfrozen state. Prevention of freezing of the liquid base advantageously yields an improved texture of the prepared smoothie in comparison to use of a frozen base. If two smoothies with identical
ingredients, apart from the one smoothie’s juice base being liquid and the other smoothie’s juice base being frozen, are blended in identical blenders, the smoothie with the liquid base will have a smoother or more liquid texture than the smoothie with the frozen base. The contents of the second container comprise the remaining ingredients for preparing the smoothie such as frozen yoghurt, individually quick frozen (IQF) fruit and ice flakes. The IQF fruit may, for example, comprise whole strawberries, raspberries, boysenberries and mango chunks.

In one embodiment, the first and second containers comprise separate compartments of a single package containing ingredients for preparing a single portion of a smoothie. In this instance, the entire package is subjected to a sufficiently low temperature to ensure that the contents of the second compartment are frozen. However, the liquid contents of the first compartment are prevented from freezing. One method used to prevent freezing is the addition of an ‘anti-freeze’ additive to the liquid base content. Another method of preventing freezing is use of a thermally insulating material for the first compartment. The methods may be employed separately or in combination.

In an alternative embodiment, the first and second containers comprise separate packs. Accordingly, a number of first containers may be packed in a larger container (for example, plastic bottles in a cardboard box or plastic crate) for ease of handling and delivery to juice bars. A number of the second containers may similarly be consolidated in a larger container, with the larger container being subjected to sufficiently low temperatures to freeze the contents of the number of second containers.

Three examples of ingredient lists for fruit smoothies that may be packaged and/or prepared according to the methods described herein are provided hereinafter:

**MIXED BERRY FRUIT SMOOTHIE**
1. Apple juice concentrate (liquid form): 200ml
2. Strawberry-flavoured frozen yoghurt: 180ml
3. Strawberries (IQF): 2 whole berries @ 11g each = 22g
4. Raspberries (IQF): 2 whole berries @ 2g each = 4g
5. Ice flakes: 0.75 cup

MANGO FRUIT SMOOTHIE
1. Mango nectar (liquid form): 150ml
2. Mango pieces (frozen): 3 pieces @ 6g each = 18g
3. Mango-flavoured frozen yoghurt: 180ml
4. Ice flakes: 0.75 cup

TROPICAL FRUIT SMOOTHIE
1. Tropical juice (liquid form): 200ml
2. Mango-flavoured frozen yoghurt: 180ml
3. Mango pieces (frozen): 1 piece @ 6g each = 6g
4. Strawberries (IQF): 1 whole berry @ 11g each = 11g
5. Raspberries (IQF): 2 whole berries @ 2g each = 4g
6. Ice flakes: 0.5 cup

Individually frozen fruit avoids the need for pre-blended fruit mix, which contributes to the texture and freshness of the smoothies.

Fig. 3 shows a pre-mix pack for preparing an individual smoothie. The pack 310 comprises two separate compartments 320 and 330 for storing frozen and non-frozen ingredients, respectively. The pre-mix pack may be constructed from flexible plastic material. Thermal insulation may be provided by a metallic deposition on the plastic material.

Fig. 4 shows a flow diagram of a method for storing ingredients for preparing an individual portion of a smoothie. At step 410, a flavour ingredient is placed in a pack. The flavour ingredient may, for example, comprise fruit, chocolate, coffee, alcohol, etc. For the case of fruit, individually frozen pieces of fruit may be used for ease of preparing the pack and/or to assist later blending of the contents of the pack. However, a portion of fruit in another form such as purée may alternatively be used. Fresh fruit may also be used, although this would disadvantageously have a relatively shorter lifespan. At step 420, a
frozen portion of liquid is placed in the pack. The frozen liquid portion may, for example, comprise multiple, small, individually frozen portions of water (ice), fruit juice, milk, tea and/or coffee. This contributes to improved consistency and texture of the smoothie and assists in preventing damage to or reducing wear of the blender while blending the contents of the pack. In certain embodiments, the frozen liquid portion comprises multiple hollow frozen portions (e.g., hollow ice cubes). If not hollow, it is preferable that the frozen liquid portions are of a smaller size to assist in preventing damage to the blender. At step 430, at least one additional consistency ingredient is placed in the pack. The at least one additional consistency ingredient contributes to the texture or runniness of the smoothie and may, for example, comprise ice-cream, sorbet and/or yoghurt. The quantities of the ingredients in the sealed pack are determined based on a target quantity of an individual smoothie portion. The pack is subjected to a temperature that is sufficiently low to maintain the frozen state of at least certain of the contents of the pack, at step 440. Other ingredients such as energy-boosting supplements, muesli, proteins, raw eggs, etc., may also be added to the smoothie.

Fig. 5 shows a sealed pack of ingredients for preparing an individual portion of a smoothie. The sealed pack 510 comprises portions of fruit 512, frozen portions of liquid 514 and at least one additional consistency ingredient 516. Individually frozen pieces of fruit may be used to assist later blending of the contents of the pack. However, a portion of fruit in another form such as purée may alternatively be used. Fresh fruit may also be used, although this would disadvantageously have a relatively shorter lifespan. Other flavour ingredients such as coffee, chocolate, alcohol, etc. may alternatively be used in place of fruit. The frozen liquid portions 514 preferably comprise multiple, small, individually frozen portions of water (ice), fruit juice, milk, tea and/or coffee. This contributes to improved consistency and texture of the smoothie and assists in preventing damage while blending the contents of the pack. In certain embodiments, the multiple frozen liquid portions 514 are hollow (e.g., hollow ice cubes). If not hollow, it is preferable that the frozen liquid portions 514 are of a smaller size to assist in preventing damage to or reducing wear of the blender. The at least one additional consistency ingredient 516 contributes to the texture or runniness of the smoothie and may, for example, comprise ice-cream, sorbet and/or yoghurt. The quantities of the ingredients in
the sealed pack are typically determined based on a target quantity of an individual smoothie portion. The pack 510 typically comprises a sealable or re-sealable disposable container such as a plastic bag or a plastic cup. Other ingredients such as energy-boosting supplements, muesli, proteins, raw eggs, etc., may also be added to the smoothie.

Fig. 6 shows a flow diagram of a method for preparing an individual portion of a smoothie. At step 610, the contents of a sealed pack are transferred to a container for blending. Contents of the pack comprise a flavour ingredient, a frozen portion of liquid and at least one additional consistency ingredient, which contributes to the texture or runniness of the smoothie and may, for example, comprise ice-cream, sorbet and/or yoghurt. The flavour ingredient may comprise a portion of fruit in the case of a fruit smoothie. The frozen liquid portions preferably comprise multiple, small, individually frozen portions of water (ice), fruit juice, milk, coffee and/or tea. This contributes to improved consistency and texture of the smoothie and assists in preventing damage while blending the contents of the pack. In certain embodiments, the multiple frozen liquid portions are hollow (e.g., hollow ice cubes). If not hollow, it is preferable that the frozen liquid portions are of a smaller size to assist in preventing damage to or reducing wear of the blender. Individually frozen pieces of fruit are preferably used to assist later blending of the contents of the pack. However, a portion of fruit in another form such as purée may alternatively be used. Fresh fruit may also be used, although this would disadvantageously have a relatively shorter [useful] lifespan. The quantities of the contents in the sealed pack are typically determined based on a target quantity of an individual smoothie portion. A portion of liquid is added to the container at step 620 and the contents of the container are blended at step 630. Presence of liquid is necessary for the blending process. The liquid may, for example, comprise water, fruit juice, milk, tea and/or coffee. Other ingredients such as energy-boosting supplements, muesli, proteins, raw eggs, etc., may also be added to the smoothie.

In certain embodiments, a vending machine is used to blend and vend single portions of smoothies, as described hereinbefore. Certain or all of the ingredients may be stored or pre-packed in individual portions or serves in the vending machine as described hereinbefore. Alternatively, certain or all of the ingredients may be stored in bulk in the vending machine and be dispensed in appropriate quantities for preparing single smoothie
portions. For example, a vending machine may store packs such as those described in
relation to and shown in Fig. 5 for blending with an amount of liquid dispensed from a
bulk tank, which may be located internally or externally to the vending machine. The
liquid may, for example, comprise water, fruit juice, milk, tea and/or coffee. Other
ingredients such as energy-boosting supplements, muesli, proteins, raw eggs, etc., may
also be added to the smoothies. The vending machine thus provides automatic blending
and dispensing of individual smoothie portions.

Methods and packaging for smoothies and other compositions have been described
hereinbefore. Such methods and packaging are advantageous in that they can ensure exact
portioning and thus provide improved consistency and quality control at the point of
manufacture and sale. Pre-packed ingredients for producing individual smoothie portions
are designed to suitably fill standard cup sizes used by a juice bar or vendor and wastage
can thus be reduced or eliminated. Packaging of individual smoothie portions also
advantageously results in less labour and real estate being required at the point of
manufacture and sale. This translates to less staff and smaller juice bars and,
consequently, lower operating costs. Moreover, purchase of all or most of the ingredients
in a single package will likely result in savings throughout the entire supply chain.
Packaging of individual smoothie portions also advantageously enables quicker
preparation of smoothies, thus permitting increased productivity and increased customer
satisfaction.

The foregoing detailed description provides exemplary embodiments only, and is
not intended to limit the scope, applicability or configurations of the invention. Rather,
the description of the exemplary embodiments provides those skilled in the art with
enabling descriptions for implementing an embodiment of the invention. Various changes
may be made in the function and arrangement of elements without departing from the
spirit and scope of the invention as set forth in the claims hereinafter.

Where specific features, elements and steps referred to herein have known
equivalents in the art to which the invention relates, such known equivalents are deemed
to be incorporated herein as if individually set forth. Furthermore, features, elements and
steps referred to in respect of particular embodiments may optionally form part of any of
the other embodiments unless stated to the contrary.

Embodiments of the invention have application beyond juice bars. For example,
methods and packaging for preparing compositions described hereinbefore may be used
in various retail outlets such as supermarkets, various food providers such as restaurants,
cafes, and coffee shops and private homes.

In the context of this specification, the word “comprising” means “including
principally but not necessarily solely” or “having” or “including”, and not “consisting
only of”. Variations of the word "comprising", such as “comprise” and “comprises” have
correspondingly varied meanings.
CLAIMS:

1. A method for storing ingredients for preparing an individual portion of a smoothie, said method comprising the steps of:
   - placing a flavour ingredient into a pack;
   - placing into said pack a frozen portion of liquid;
   - placing into said pack at least one additional consistency ingredient; and
   - subjecting said pack to a temperature sufficiently low to maintain the frozen state of at least certain of the ingredients in said pack;
   wherein the quantities of said ingredients in said pack are based on a target quantity of an individual smoothie portion.

2. A method according to claim 1, wherein said frozen portion of liquid comprises a plurality of frozen portions of at least one liquid selected from the group of liquids consisting of water, fruit juice, milk, coffee and tea.

3. A method according to claim 1, wherein said frozen portion of liquid comprises a plurality of hollow frozen portions of liquid.

4. A method according to claim 1, wherein said flavour ingredient comprises a portion of fruit.

5. A method according to claim 4, wherein said portion of fruit comprises a plurality of individually frozen pieces of fruit.

6. A method according to claim 1, wherein said at least one additional consistency ingredient is selected from the group of ingredients consisting of ice-cream, sorbet and yoghurt.

7. A sealed pack containing ingredients for preparing an individual portion of a smoothie, said pack comprising:
   - a flavour ingredient;
a frozen portion of liquid; and
at least one additional consistency ingredient;
wherein the quantities of said ingredients in said sealed pack are based on a target quantity of an individual smoothie portion.

8. A sealed pack according to claim 7, wherein said frozen portion of liquid comprises a plurality of frozen portions of at least one liquid selected from the group of liquids consisting of water, fruit juice, milk, coffee and tea.

9. A sealed pack according to claim 7, wherein said frozen portion of liquid comprises a plurality of hollow frozen portions of liquid.

10. A sealed pack according to claim 7, wherein said flavour ingredient comprises a portion of fruit.

11. A sealed pack according to claim 10, wherein said portion of fruit comprises a plurality of individually frozen pieces of fruit.

12. A sealed pack according to claim 7, wherein said sealed pack comprises a disposable container selected from the group of containers consisting of a plastic bag and a plastic cup.

13. A sealed pack according to claim 7, wherein at least one additional consistency ingredient is selected from the group of ingredients consisting of ice-cream, sorbet and yoghurt.

14. A method for preparing an individual portion of a smoothie, said method comprising the steps of:
    transferring contents of a sealed pack to a container;
    adding a portion of liquid to said container; and
    blending the contents of said container;
wherein the contents of said sealed pack comprise a flavour ingredient, a frozen portion of liquid and at least one additional consistency ingredient; and
wherein the quantities of the contents of said sealed pack are based on a target quantity of an individual smoothie portion.

15. A method according to claim 14, wherein said frozen portion of liquid comprises a plurality of frozen portions of at least one liquid selected from the group of liquids consisting of water, fruit juice, milk, coffee and tea.

16. A method according to claim 14, wherein said frozen portion of liquid comprises a plurality of hollow frozen portions of liquid.

17. A method according to claim 14, wherein said added portion of liquid comprises at least one liquid selected from the group of liquids consisting of water, fruit juice, milk, coffee and tea.

18. A method according to claim 14, wherein said at least one additional consistency ingredient is selected from the group of ingredients consisting of ice-cream, sorbet and yoghurt.

19. A method according to claim 14, wherein said flavour ingredient comprises a portion of fruit.

20. A method according to claim 14, wherein said portion of fruit comprises a plurality of individually frozen pieces of fruit.

21. An apparatus for automatically vending individual smoothie portions, said apparatus comprising:
first dispensing means for dispensing the contents of a sealed pack into a container;
second dispensing means for dispensing a portion of liquid into said container;
blending means for blending the contents of said container; and
vending means for vending the contents of said container as an individual smoothie portion;

wherein the contents of said sealed pack comprise a flavour ingredient, a frozen portion of liquid and at least one additional consistency ingredient; and

wherein the quantities of the contents of said sealed pack are based on a target quantity of an individual smoothie portion.

22. An apparatus according to claim 21, wherein said at least one additional consistency ingredient is selected from the group of ingredients consisting of ice-cream, sorbet and yoghurt.

23. An apparatus according to claim 21, wherein said flavour ingredient comprises a portion of fruit.

24. An apparatus for automatically vending individual smoothie portions, said apparatus comprising:

first dispensing means for dispensing ingredients for a smoothie into a container;
second dispensing means for dispensing a portion of liquid into said container;
blending means for blending the contents of said container; and
vending means for vending a portion of the contents of said container as an individual smoothie portion;

wherein said ingredients comprise a flavour ingredient, a frozen portion of liquid and at least one additional consistency ingredient.

25. An apparatus according to claim 24, wherein said at least one additional consistency ingredient is selected from the group of ingredients consisting of ice-cream, sorbet and yoghurt.

26. An apparatus according to claim 24, wherein said flavour ingredient comprises a portion of fruit.
27. A method for packaging ingredients for preparing an individual portion of a composition, said method comprising the steps of:

   storing at least one ingredient for said composition in a first container; and
   storing remaining ingredients for said composition in a second container;
   wherein one or more of said remaining ingredients are frozen.

28. A method according to claim 27, comprising the further step of freezing the contents of said second container.

29. A method according to claim 28, wherein the contents of said first container comprise a liquid base that remains unfrozen.

30. A method according to claim 28, wherein said step of freezing comprises the step of simultaneously subjecting said first and second containers to a temperature sufficiently low to freeze the contents of said second container.

31. A method according to claim 30, wherein the contents of said first container remain unfrozen.

32. A method according to claim 31, comprising the further step of inserting an agent that prevents freezing into the contents of said first container.

33. A method for packaging ingredients for preparing a composition, said method comprising the steps of:

   storing at least one ingredient for said composition in a first container;
   storing other ingredients for said composition in a second container; and
   simultaneously subjecting said first and second containers to a temperature sufficiently low to freeze the content of said second container.

34. A method according to claim 33, wherein the contents of said first container remain unfrozen.
35. A method according to claim 34, comprising the further step of inserting an agent that prevents freezing into the contents of said first container.

36. A method according to any one of claims 33 to 35, wherein said composition comprises a smoothie and said at least one ingredient comprises a liquid base for said smoothie.

37. A pre-packed pack containing ingredients for preparing a composition, said pack comprising a plurality of compartments for storing different ones of said ingredients, wherein the contents of at least one of said compartments are frozen and the contents of at least another one of said compartments are unfrozen.

38. A pre-packed pack according to claim 37, wherein said pack has been subjected to a temperature sufficiently low to freeze the contents of at least one of said compartments.

39. A pre-packed pack according to claim 38, wherein the contents of said at least one compartment that remains unfrozen further comprises an agent that prevents freezing of the contents of said at least one compartment.

40. A pre-packed pack according to claim 39, wherein the content of said at least one compartment that remains unfrozen comprises a liquid base.

41. A pre-packed pack according to any one of claims 37 to 40, wherein said pack contains ingredients for preparing a single portion of said composition.

42. A pre-packed pack according to any one of claims 37 to 40, wherein said pack comprises two compartments.

43. A pre-packed pack according to any one of claims 37 to 40, wherein said composition comprises a smoothie.

44. A method for preparing a composition, comprising the steps of:
transferring contents of a pre-packed pack to a container; and
blending said contents in said container;

wherein said pack comprises a plurality of compartments containing different
ingredients of said composition and wherein the contents of at least one of said
compartments are frozen and the contents of at least another one of said compartments are
unfrozen.

45. A method according to claim 44, wherein the contents of said at least one
compartment that remains unfrozen comprises an agent that prevents freezing of the
contents of said at least one compartment.

46. A method according to claim 44, wherein the content of said at least one
compartment that remains unfrozen comprises a liquid base for said composition.

47. A method according to any one of claims 44 to 46, wherein said pack contains
ingredients for preparing a single portion of said composition.

48. A method according to any one of claims 44 to 46, wherein said composition
comprises a smoothie.
Fig. 1
Fig. 2

1. Store at least one ingredient in first container
2. Store remaining ingredients in second container
3. Freeze one or more of remaining ingredients
Place portion of flavour ingredient in pack

Place frozen liquid portion/s in pack

Place at least one additional consistency ingredient in pack

Subject pack to sufficiently low temperature to maintain frozen state of certain ingredients in pack

Fig. 4
Transfer contents of pack to container

Add liquid to container

Blend contents of container

Fig. 6
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl.: B65D 81/32, 85/78, A23G 9/02, A23L 2/02, 3/36

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

DWPI and keywords: PACK, TRAY, CONTAINER, FRUIT, LIQUID, WATER, FROZEN, ICE, FREEZE, CREAM, SORBET and similar terms

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>GB 2381517 A (PÂTISSERIE ONE LIMITED) 7 May 2003</td>
<td>1-23</td>
</tr>
<tr>
<td></td>
<td>See whole document</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>US 4874618 A (SEABORNE et al.) 17 October 1989</td>
<td></td>
</tr>
<tr>
<td></td>
<td>See whole document – Two compartment food package.</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>US 4233325 A (SLANGAN et al.) 11 November 1980</td>
<td></td>
</tr>
<tr>
<td></td>
<td>See whole document – Two compartment food package.</td>
<td></td>
</tr>
</tbody>
</table>

[X] Further documents are listed in the continuation of Box C  [X] See patent family annex

* Special categories of cited documents:
  "A" document defining the general state of the art which is not considered to be of particular relevance
  "E" earlier application or patent but published on or after the international filing date
  "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
  "O" document referring to an oral disclosure, use, exhibition or other means
  "P" document published prior to the international filing date but later than the priority date claimed
  "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
  "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
  "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
  "&" document member of the same patent family

Date of the actual completion of the international search: 11 November 2005
Date of mailing of the international search report: 22 DEC 2005

Name and mailing address of the ISA/AU
AUSTRALIAN PATENT OFFICE
PO BOX 200, WODEN ACT 2606, AUSTRALIA
E-mail address: pct@ipaustralia.gov.au
Facsimile No. (02) 6285 3929

Authorized officer
ADRIANO GIACOBETTI
Telephone No: (02) 6283 2579
<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>US 4794008 A (SCHMIDT et al.) 27 December 1988&lt;br&gt;See whole document – Two compartment food package</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>US 6465034 B2 (FARRELL) 15 October 2002&lt;br&gt;See whole document – Making a Smoothie</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>US 4988529 A (NAKAYA et al.) 29 January 1991&lt;br&gt;See whole document – Container with milk shake ingredients</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>US 6273292 B1 (MILAN) 14 August 2001&lt;br&gt;See whole document – Smoothie dispensing machine</td>
<td></td>
</tr>
</tbody>
</table>
### INTERNATIONAL SEARCH REPORT

**Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. □ Claims Nos.:
   because they relate to subject matter not required to be searched by this Authority, namely:

2. □ Claims Nos.:
   because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. □ Claims Nos.:
   because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

**Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

See Supplemental Sheet

1. □ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. □ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. □ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.: .

4. □ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1 to 23

**Remark on Protest**

□ The additional search fees were accompanied by the applicant's protest.

□ No protest accompanied the payment of additional search fees.

---

Form PCT/ISA/210 (continuation of first sheet (2)) (January 2004)
INTERNATIONAL SEARCH REPORT

Supplemental Box:
(To be used when the space in any of Boxes I to VIII is not sufficient)

Continuation of Box No III:
The international application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked as to form a single general inventive concept. In coming to this conclusion the International Searching Authority has found that there are different inventions as follows:

1. Claims 1 to 23 relate to a method, and associated sealed pack, for preparing an individual portion of a smoothie having the features of a flavour ingredient, a frozen portion of liquid, at least one additional consistency ingredient and wherein the quantities of the ingredients in the pack are based on a target quantity of an individual smoothie portion. It is considered that the combination of features of the method, and associated sealed pack, having the components of a flavour ingredient; a frozen portion of liquid; and at least one additional consistency ingredient for an individual smoothie portion comprises a first “special technical feature”.

2. Claims 24 to 26 relate to an apparatus for automatically vending individual smoothie portions. The apparatus comprising a first dispensing means for dispensing ingredients for a smoothie into a container, a second dispensing means for dispensing a portion of liquid into the container, blending means for blending the contents of the container, and vending means for vending a portion of the contents of the container as an individual smoothie portion, wherein said ingredients comprise a flavour ingredient, a frozen portion of a liquid and at least on additional consistency ingredient. It is noted that the quantities of these ingredients is not limited to the quantities of an individual smoothie portion. As such the claim includes apparatuses holding bulk quantities of each ingredient. It is considered that features of the apparatus as defined in claim 24 comprise a second “special technical feature”.

3. Claims 27 to 48 relate to a method, or pre-packed pack, for packaging ingredients for preparing a composition. The method comprises the steps of storing at least one ingredient for the composition in a first container or compartment, storing remaining or other ingredients for said composition in a second container or compartment, and the contents of the second container or compartment is frozen. It is noted that features of the individual portion of a smoothie have been omitted. It is considered that the combination of steps defining the method as defined in claims 27, 33, 44; or the pre-packed pack as defined in claim 37, comprises a third “special technical feature”.

These groups are not so linked as to form a single general inventive concept, that is, they do not have any common inventive features, which define a contribution over the prior art. The common concept linking together all these groups of claims is a method or pack for containing ingredients for preparing a composition. The common concept linking together the groups of claims “1.” and “2.” above is the ingredients of a flavour ingredient, a frozen portion of liquid and an additional consistency ingredient. However these concepts are not novel in the light of one or more of the cited prior art documents in this search report such as GB 2381517 A (PATEISERIE ONE LIMITED) 7 May 2003.

For example, GB 2381517 A discloses a sealed container having a flavour ingredient of fruit pieces, a frozen portion of liquid being jelly, and an additional consistency ingredient in the form of yoghurt.
Therefore these claims lack unity a posteriori.
This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>GB 2381517</td>
<td>NONE</td>
</tr>
<tr>
<td>US 4874618</td>
<td>NONE</td>
</tr>
<tr>
<td>US 4233325</td>
<td>JP 56051956</td>
</tr>
<tr>
<td></td>
<td>JP 62016372</td>
</tr>
<tr>
<td>US 4794008</td>
<td>JP 63248680</td>
</tr>
<tr>
<td>US 6465034</td>
<td>AU 77236/98</td>
</tr>
<tr>
<td></td>
<td>BR 9809518</td>
</tr>
<tr>
<td></td>
<td>CA 2290962</td>
</tr>
<tr>
<td></td>
<td>EP 0987955</td>
</tr>
<tr>
<td></td>
<td>US 6326047</td>
</tr>
<tr>
<td></td>
<td>US 6474862</td>
</tr>
<tr>
<td></td>
<td>US 2002044997</td>
</tr>
<tr>
<td></td>
<td>US 2002131324</td>
</tr>
<tr>
<td></td>
<td>WO 9853701</td>
</tr>
<tr>
<td>US 6090426</td>
<td>US 5976588</td>
</tr>
<tr>
<td></td>
<td>US 6242037</td>
</tr>
<tr>
<td>US 4988529</td>
<td>NONE</td>
</tr>
<tr>
<td>US 6273292</td>
<td>NONE</td>
</tr>
</tbody>
</table>

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

END OF ANNEX