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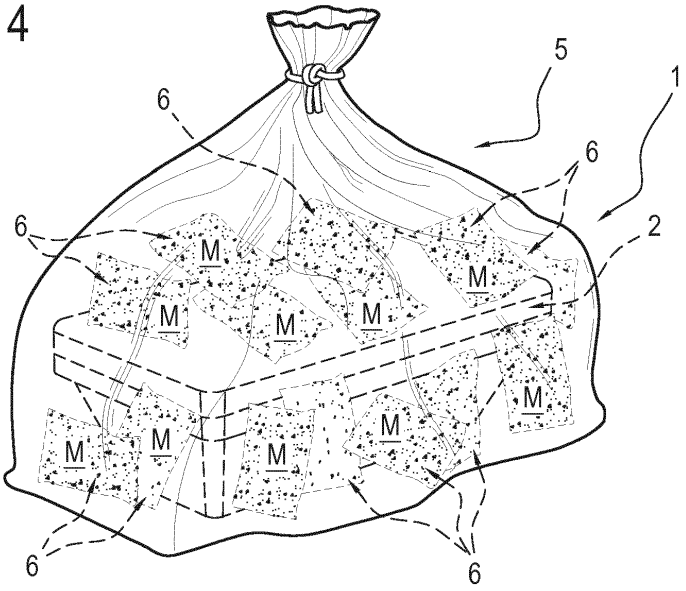
(54) STORAGE METHOD AND KIT FOR LIQUID OR SEMI-LIQUID PRODUCTS

(57) A storage method for a liquid and semi-liquid product, comprises the steps of:
- preparing a receptacle (2) for containment of said liquid or semi-liquid product, forming a containment seat (3), and a lid (4) for closing said containment seat (3);
- placing the liquid or semi-liquid product in said containment seat (3) and closing said containment seat (3) using said lid (4);
- preparing a housing container (5) for housing said containment receptacle (2) and inserting the containment receptacle (2) in the housing container (5);
- cooling a mixture to a predetermined temperature at which it at least partly freezes;
- placing said cooled mixture in the housing container (5).

FIG. 4



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Description

[0001] This invention relates to a storage method and a storage kit for liquid or semi-liquid products, in particular ice cream products (artisan gelato or soft ice cream).

[0002] As is known, takeaway artisan gelato (that is, gelato to be taken away from the place of production and eaten elsewhere) is usually sold in polystyrene tubs (illustrated in Figures 1 and 2).

[0003] When outside temperatures are very high and the time needed to travel from the place of production to the place of consumption is very long, the tub may be unable to keep the ice cream at the correct storage temperature for the entire journey from the point of purchase (producer) to the point of consumption (buyer) and may be unable to prevent the ice cream from melting partly or completely.

[0004] As may be inferred from this, both producers and buyers of ice cream feel that there is a need to be able to store ice cream under optimal temperature conditions during the entire journey in order to keep the organoleptic properties of the product most effectively until the time it is eaten.

[0005] This invention therefore has for an aim to meet this need, that is to say, to provide a storage method and a storage kit for liquid or semi-liquid products allowing the organoleptic properties of the product to be kept effectively until it is eaten.

[0006] According to the invention, this aim is achieved by a method and a kit for storing liquid or semi-liquid products comprising the technical features set out in one or more of the appended claims.

[0007] The technical features of the invention, with reference to the above aims, are clearly described in the claims below and its advantages are apparent from the detailed description which follows, with reference to the accompanying drawings which illustrate a non-limiting example embodiment of the invention and in which:

- Figure 1 schematically illustrates a storage tub for a liquid or semi-liquid product according to the prior art, in a disassembled configuration;
- Figure 2 schematically illustrates a storage tub for a liquid or semi-liquid product according to the prior art, in an assembled configuration;
- Figure 3 schematically illustrates a component of the storage kit according to the invention;
- Figure 4 schematically illustrates a first embodiment of the storage kit according to the invention;
- Figure 5 schematically illustrates a second embodiment of the storage kit according to the invention.

[0008] With reference to the accompanying drawings, the numeral 1 denotes a storage kit for liquid or semi-liquid products, in particular and preferably, ice cream products (artisan gelato).

[0009] The kit 1 allows storing the ice cream in optimal manner during the journey from the place of production (producer) to the place of consumption (buyer) and is ideal for ice cream shops which provide a home delivery service.

[0010] According to the invention there is a defined a storage method for a liquid and semi-liquid product, in particular for ice cream products (more preferably, artisan gelato).

[0011] The method comprises the following steps:

- preparing a receptacle 2 for containment of said liquid or semi-liquid product, forming a containment seat 3, and a lid 4 for closing the containment seat 3;
- placing the liquid or semi-liquid product P in the containment seat 3 and closing the containment seat 3 using the lid 4;
- preparing a housing container 5 for housing the containment receptacle 2 and inserting the containment receptacle 2 in the housing container 5;
- cooling a mixture M to a predetermined temperature at which the mixture (at least) partly freezes;
- placing the cooled mixture M in the housing container 5.

[0012] It should be noted that in the cooling step, the mixture M is cooled to a predetermined temperature at which the mixture partly freezes. With reference to the mixture M, it should be noted that the mixture M preferably comprises water.

[0013] In a first embodiment, the mixture M comprises water and a predetermined percentage of salt (preferably, but without limiting the invention, the percentage of salt in the mixture is less than 50% by weight).

[0014] In a second embodiment, the mixture M comprises water and a predetermined percentage of glycol (preferably, but without limiting the invention, the percentage of glycol in the mixture is less than 50% by volume).

[0015] It should be noted that the mixture is what is known as "ice slurry".

[0016] In more general terms, the mixture preferably comprises water and at least one substance which is capable of lowering the freezing point thereof (salt, glycol).

[0017] Preferably, the cooled mixture comprises microcrystals whose average size is, typically, less than a millimetre.

[0018] With reference to the cooling temperature, it should be noted that the mixture is cooled to temperatures below -15°C.

[0019] Still more preferably, the mixture is cooled to temperatures between-30°C and -15°C.

[0020] In a preferred embodiment, illustrated in Figure 4, (preferably before the step of placing the cooled mixture in the housing container 5), there is a step of placing the mixture in a plurality of impermeable bags 6 and a step of placing the impermeable bags 6 in the housing container 5.

[0021] It should be noted, therefore, that according to

this aspect, the cooled mixture is placed inside the impermeable bags 6.

[0022] According to one aspect, the step of cooling a mixture to a predetermined temperature at which the mixture at least partly freezes is carried out in an apparatus for making crushed ice drinks or in a mixing and cooling machine, and it comprises a step of simultaneously mixing the product and cooling.

[0023] According to yet another aspect, the step of cooling a mixture to a predetermined temperature at which the mixture at least partly freezes is carried out in an apparatus for rapidly lowering the temperature.

[0024] Also defined according to the invention is a storage kit for a liquid and semi-liquid product, comprising:

- a containment receptacle 2 forming a seat 3 for containing the liquid and semi-liquid product, and a lid 4 for closing the containment seat 3;
- a housing container 5, designed to house, in use, the containment receptacle 2 inside it;
- a plurality of impermeable bags 6 designed to house, in use, a cooled mixture inside them, the bags being placed, in use, inside the housing container 5.

[0025] Preferably, the containment receptacle 2 is made of a polymer.

[0026] Still more preferably, the containment receptacle 2 is made of polystyrene.

[0027] With reference to the housing container 5, it should be noted that this container may be rigid or deformable.

[0028] Preferably, the bags 6 are deformable.

[0029] Figure 5 shows a further embodiment of the storage kit 1. It should be noted that according to this aspect, the mixture M is placed in the container 5 in contact with the outside walls of the receptacle 2 and with the outside walls of the lid 3.

Claims

1. A storage method for a liquid and semi-liquid product, comprising the steps of:

- preparing a receptacle (2) for containment of said liquid or semi-liquid product, forming a containment seat (3), and a lid (4) for closing said containment seat (3);
- placing the liquid or semi-liquid product in said containment seat (3) and closing said containment seat (3) using said lid (4);
- preparing a housing container (5) for housing said containment receptacle (2) and inserting the containment receptacle (2) in the housing container (5);
- cooling a mixture to a predetermined temperature at which the mixture at least partly freezes;
- placing said cooled mixture in the housing container (5).

2. The method according to the preceding claim, wherein said liquid and semi-liquid product is ice cream.

3. The method according to the preceding claim, wherein said liquid and semi-liquid product is artisan gelato.

4. The method according to any one of the preceding claims, wherein the mixture comprises water.

5. The method according to any one of the preceding claims, wherein the mixture comprises a predetermined percentage of salt.

6. The method according to any one of the preceding claims, wherein the mixture comprises a predetermined percentage of glycol.

7. The method according to any one of the preceding claims, wherein the mixture is ice slurry.

8. The method according to any one of the preceding claims, wherein it comprises placing said mixture in impermeable bags (6) and a step of placing said impermeable bags (6) in the housing container (5).

9. The method according to any one of the preceding claims, wherein the mixture is cooled to temperatures below -15°C.

10. The method according to any one of the preceding claims, wherein the step of cooling a mixture to a predetermined temperature at which the mixture at least partly freezes is carried out in an apparatus for making crushed ice drinks or in a mixing and cooling machine, and it comprises a step of simultaneously mixing the product and cooling.

11. The method according to any one of the preceding claims, wherein the step of cooling a mixture to a predetermined temperature at which the mixture at least partly freezes is carried out in an apparatus for rapidly lowering the temperature.

12. A storage kit for a liquid and semi-liquid product, comprising:

- a containment receptacle (2) forming a seat (3) for containing the liquid and semi-liquid product, and a lid (4) for closing said containment seat (3);
- a housing container (5), designed to house, in use, the containment receptacle (2) inside it;
- a plurality of impermeable bags (6) designed to house, in use, a cooled mixture inside them, the bags being placed, in use, inside the housing

container (5).

13. The kit according to the preceding claim, wherein the containment receptacle (2) is made of a polymer.

FIG. 1

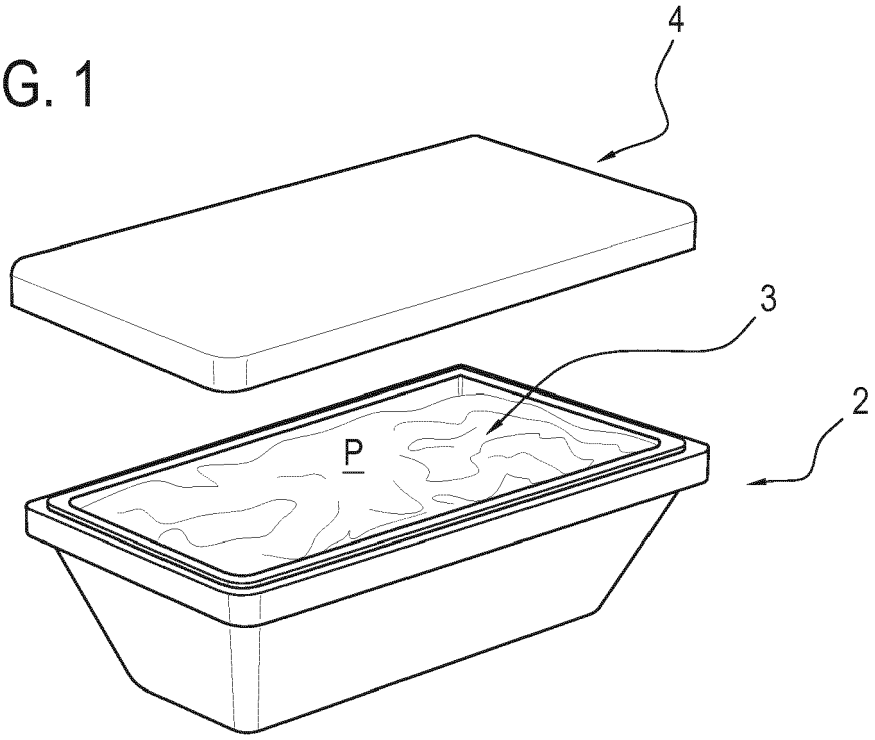


FIG. 2

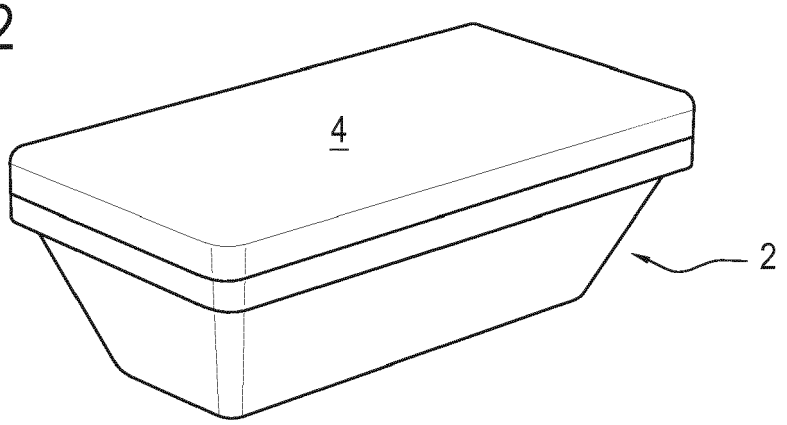


FIG. 3

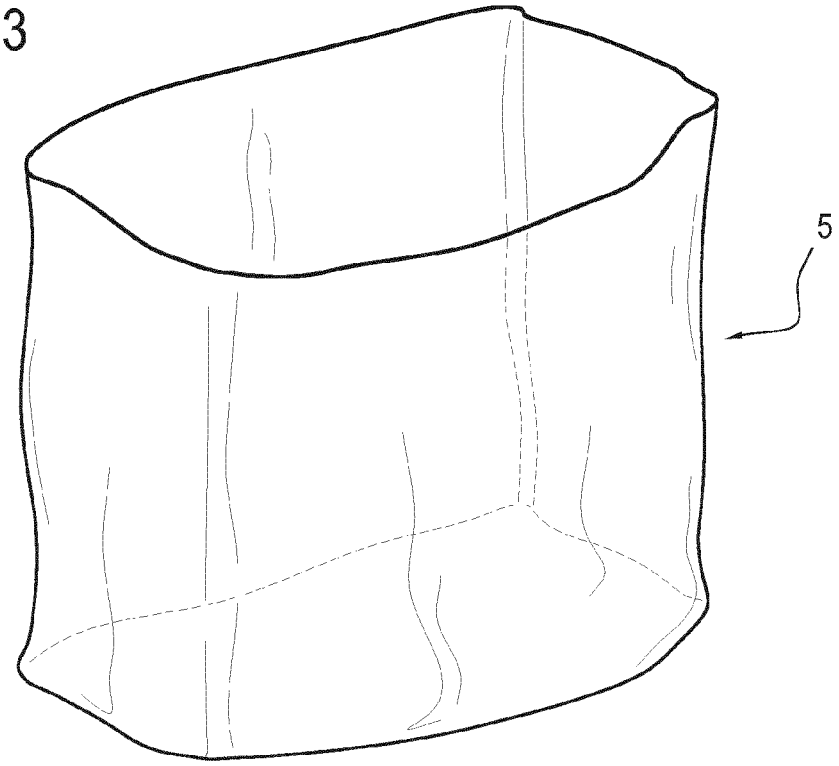


FIG. 4

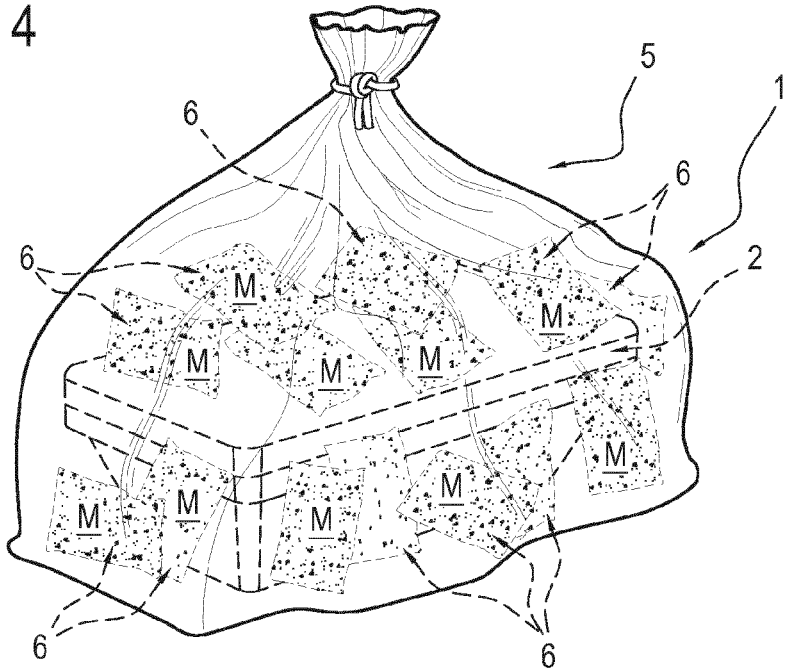
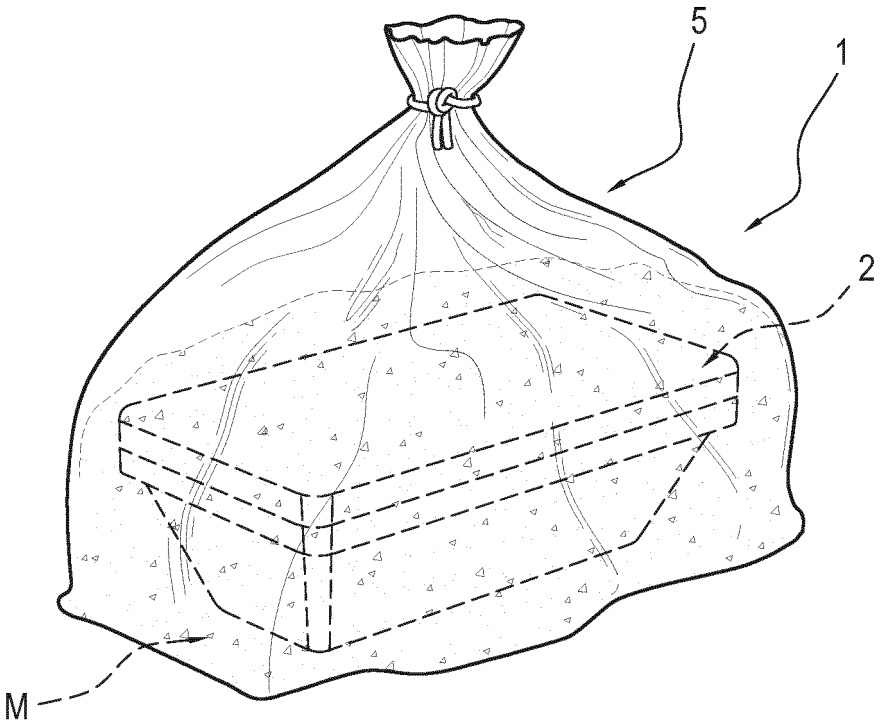


FIG. 5



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EUROPEAN SEARCH REPORT

Application Number
EP 15 17 2983

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2004/200232 A1 (GANO JOHN [US] ET AL GANO III JOHN [US] ET AL) 14 October 2004 (2004-10-14) * paragraphs [0003], [0004]; figures; example 7 *	1-4,6-13	INV. B65D81/38 B65D85/78 F25D3/08
X	US 4 481 792 A (GROEGER THEODORE C [US] ET AL) 13 November 1984 (1984-11-13) * column 2, line 13 - column 3, line 7; figures *	1,4,5,9, 11	

TECHNICAL FIELDS SEARCHED (IPC)
B65D
F25D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	2 November 2015	Vigilante, Marco

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 15 17 2983

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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02-11-2015

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US 2004200232 A1	14-10-2004	US 2004200232 A1	14-10-2004
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82