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(54) **Package for heating in a microwave device**

(57) The present invention concerns a package comprising

- a rigid container (1) with a bottom (8), lateral wall (9) and a planar rim on the top of the lateral walls with a

pouring spout (12) and

- a flexible lid (2) sealed on the whole periphery of the rim

wherein the said lid has a low bonding strength lacquer at least on one area of the periphery of the rim.

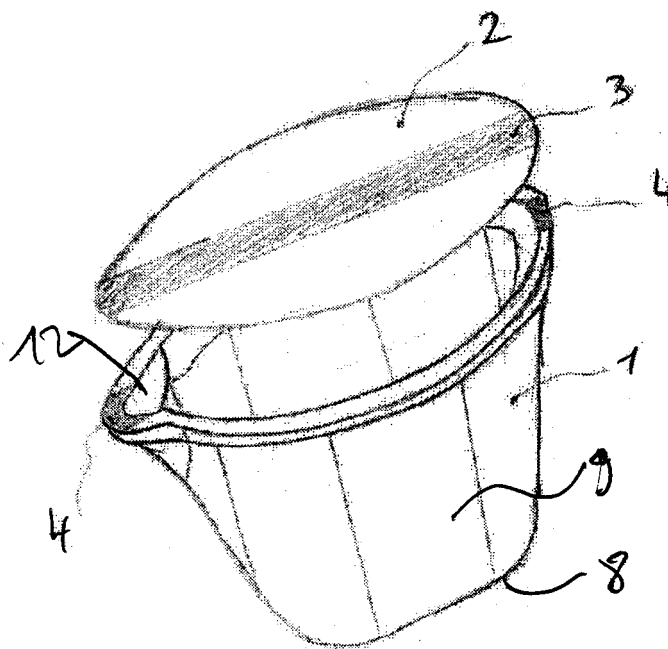


FIG. 2

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Description

[0001] The present invention concerns a package, which is to be heated in a microwave device.

[0002] A microwaveable package made of rigid plastics, is already known on the market. The EP 1'627'825 patent application concerns a sterilised package comprising sauce inside a sealed rigid plastic container, which sauce and container are heatable to serving temperature in a microwave device. The problem of the package according to this patent application is that when the consumer decides to heat the package, he has several steps: to remove the rigid lid, then delaminate & dispose of the flexible lid sealed on the open top side of the container, then re-close the container with the rigid lid and finally put the closed package into the microwave device for heating

Another problem is that in such a package different areas of product are heated irregularly in a microwave oven giving hot spots on the product surface and cold spots deeper in the product. Hot spots may lead to coagulation and burning in the product.

Another problem is that such a package is not well heat insulated. It may lead to burning fingers if the consumer takes it straight after heating in a microwave device, or to spend time on waiting until the package is cold enough. Other microwaveable rigid packages known in the market require the consumer to puncture holes in the flexible lid before placing the package into the microwave device for heating.

[0003] The objective of the present invention is to provide to the consumer a package, wherein the consumer, when deciding to heat the package in a microwave, has no more the obligation, to make holes in the flexible lid of the container or delaminate it. He has only to place the package into the microwave device.

[0004] The present invention concerns a package comprising

- a rigid container with a bottom, lateral wall and a planar rim on the top of the lateral walls with a pouring spout and
- a flexible lid sealed on the whole periphery of the rim

wherein the said lid has a low bonding strength lacquer at least on one area of the periphery of the rim.

[0005] According to the solution of the invention, the consumer can put directly the package into the microwave device and start the heating : taking into account the increase of pressure inside of the package, a force is created , which delaminates the area or areas of weakest sealing on the periphery of the lid. If the consumer decides to delaminate or puncture holes before starting the heating, he can do so, wherein the weaker sealing area or areas facilitate the delamination.

[0006] The consumer has therefore three ways of proceeding,

wherein he has to choose the most practical for him.

[0007] According to a feature of the invention, the lid has a low bonding strength lacquer in the area of the pouring spout.

[0008] The container is a rigid thermoformed or extrusion-blow molded plastic container. The material of the container has to have barrier properties concerning light, oxygen and water. The material of said container is taken from the group consisting of polypropylene, ethylevynylalcohol, polyamide. The container has a wall thickness comprised between 200 and 2000 μm . Preferably, the thickness of the container is comprised between 400 and 600 μm . It is important that the container remains rigid after heating.

[0009] The material of the lid has also to have barrier properties concerning light, oxygen and moisture. This material is taken from the group consisting of polyethyleneterephthalate, polyethyleneterephthalate with and without silicium oxide coating and metallisation, polypropylene with and without metallisation, polyamide, ethylenevinylalcohol with a low bonding strength lacquer partially on the periphery of said lid. Normally, there are two areas of low bonding strength : one in the area of the pouring spout and the other opposite to said pouring spout. Opposite to said pouring spout means at the place where the consumer takes the package for pouring the content, after the heating. The width of said area or areas of low bonding strength is comprised between 2 and 20 mm. Preferably, this width is around 7 to 15 mm. The lacquer which is applied on the side of the lid facing the rim of the container is a polymer based polymer. The lid has a thickness comprised between 40 and 250 μm .

[0010] Another important feature of the present invention is that the package ensure a better insulation for consumer's hands while using a hot container after microwave heating. For reaching this objective, the package has ribs on its walls and comprises further a label or sleeve secured on the walls of the container substantially covering the entire walls. This label or sleeve is made of paperboard having a grammage comprised between 200 and 500 grams per square meter.

[0011] According to another feature of the invention, the label or sleeve presents on its inner side a stripe of aluminium foil or metallized plastic film, near the top of the container walls. The reason of the presence of this inner stripe is a shielding that directs the microwaves in a way that the overheating of the product near the surface of the container walls and, therefore, product coagulation and burning on these areas is avoided. This stripe has a width comprised between 10 and 20 mm. This stripe is placed so that the filling level of the product inside the container is against the middle of said stripe.

[0012] Another way to have this shielding of the product near the surface of the top of the container is that the package comprises further a shrink or non-shrink label covering only the the top of the lateral walls covered by a label or sleeve substantially covering the entire wall. The shrink or non-shrink label is taken from the group

consisting of metallised polyvinylchloride, metallised polyethyleneterephthalate, metallised polypropylene. The label or sleeve substantially covering the entire wall is the same as mentioned above.

[0013] The package according to the invention is not sterilised, as it is the case for the EP patent application 1'627'825. On the contrary, the package is aseptically filled.

[0014] The way of manufacturing the package is following :

- the container is thermoformed or blow-molded,
- the product is ultra-high treated and aseptically filled in the container,
- the lid is sealed on the rim of the container and
- the label or sleeve is applied around the walls of the container.

[0015] The package contains a food product. This food product is not critical and can be any type of food, which is aseptically filled and has to be served or consumed after heating. The food product is taken from the group consisting of a sauce with or without pieces, food peices in a gravy, a ready to heat meal

[0016] The shape of the package is critical for the quality of microwave heating. Preferably, the package has the shape, wherein the cross section of said package is an ellipse with short inner diameter of maximum 60mm or circle with inner diameter of maximum 60mm. The package normally contains 100 to 300 ml of food product. The bigger the size the worse is the quality of microwave heating. Preferably, the package has a height of 60 to 85mm.

[0017] Taking into account that the package is aseptically filled, it has a shelf-life of above 9 months at ambient temperature. When the consumer decided to use the product contained in the package of the invention, he has only to put said package in the microwave device, start the heating and serve.

[0018] The following of the specification is made in relation with the drawings, wherein

Figure 1 is a perspective view of the container,

Figure 2 is a perspective view of the container together with the lid,

Figure 3 is a schematic view of the package of the invention and

Figure 4 is a schematic view of the sleeve to be applied on the walls of the container.

[0019] The container (1) is thermoformed with a wall thickness of 400-600 μm . It comprises a bottom (8), lateral walls (9), a rim (7) and a pouring spout (12). It is made of a multilayer barrier material PP/PP black /Tie/ EVOH/Tie/PP. This container has a height of 60 to 85 mm for its longer dimension at the rim. The lid (2) shown

on figure 2 presents a part (3) with low bonding strength lacquer : the width of this part is 10 mm.

[0020] The figure 3 shows the package according to the invention with the container (1) comprising the bottom (8), lateral walls (9) and the rim (7). The container is filled with a sauce arriving in the container at a level (10). The container is sealed with a lid (2) on the rim (7). Furthermore, a sleeve (5) is applied all around the lateral walls of the container, allowing a good insulation for the consumer when the package has been heated in a microwave.

[0021] Finally, figure 4 shows a sleeve (5) with a metallised plastic film (6) for the shielding of the microwave to prevent overheating of the food product near level (10). In this example, the metallised plastic film has a width of 15 mm. On the top, there is also a notch (11) applied against the pouring spout.

[0022] According to the invention, it is possible to provide to the consumer a more convenient package, wherein the consumer has an improved product quality after microwave heating. There is a better safety for the consumer by prevention of container distortion and melting during microwave heating caused by overheated product fractions, e.g. by vegetable oil, especially in case of misuse by the consumer.

Claims

1. A package comprising

- a rigid container with a bottom, lateral wall and a planar rim on the top of the lateral walls with a pouring spout and
- a flexible lid sealed on the whole periphery of the rim

wherein the said lid has a low bonding strength lacquer at least on one area of the periphery of the rim.

2. A package according to claim 1, wherein the lid has a low bonding strength lacquer in the area of the pouring spout and also opposite to said pouring spout.

3. A package according to any of claims 1 or 2, wherein the container is a rigid thermoformed or extrusion-blow molded plastic container.

4. A package according to claim 3, wherein the material of the container is taken from the group consisting of polypropylene, ethylevynylalcohol, polyamide

5. A package according to claims 3 or 4, wherein the container has a thickness comprised between 200 and 2000 μm .

6. A package according to any of claims 1 to 5, wherein

the material of the lid is taken from the group consisting of polyethyleneterephthalate, polyethylene-terephthalate with and without silicium oxide coating and metallisation, polypropylene with and without metallisation, polyamide, ethylenvynylalcohol with a low bonding strength lacquer partially on the periphery of said lid. 5

7. A package according to claim 6, wherein the lid has a thickness comprised between 40 and 250 μm . 10
8. A package according to any of claims 1 to 7, with ribs on its walls comprising further a label or sleeve secured on the wall of the container substantially covering the entire wall. 15
9. A package according to claim 8, wherein the label or sleeve is paperboard having a grammage comprised between 200 and 500 grams per square meter. 20
10. A package according to any of claims 8 or 9, wherein the label or sleeve presents on its inner side a stripe of aluminium foil or metallized plastic film, near the top of the container walls. 25
11. A package according to claim 10, wherein the stripe has a width comprised between 10 and 20 mm.
12. A package according to any of claims 1 to 7 comprising further a shrink or non-shrink label near the top of the lateral walls covered by a label or sleeve substantially covering the entire wall. 30
13. A package according to any of claims 1 to 12, wherein it is aseptically filled. 35
14. A package according to any of claims 1 to 13, wherein it contains a food product, taken from the group consisting of a sauce with or without pieces, food pieces in a gravy, a ready to heat meal 40

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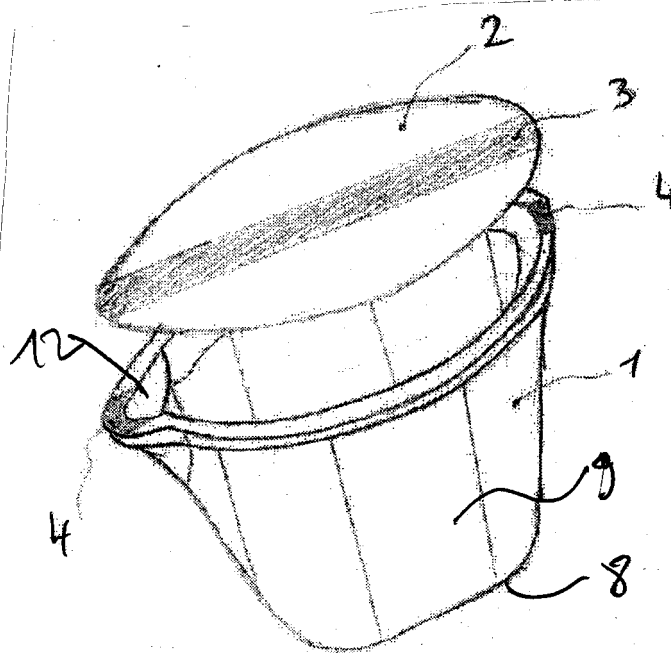
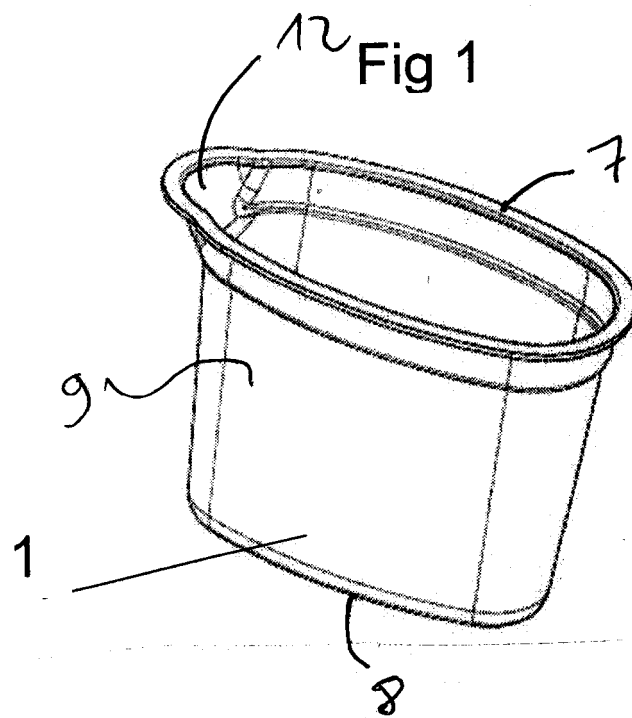


FIG. 2

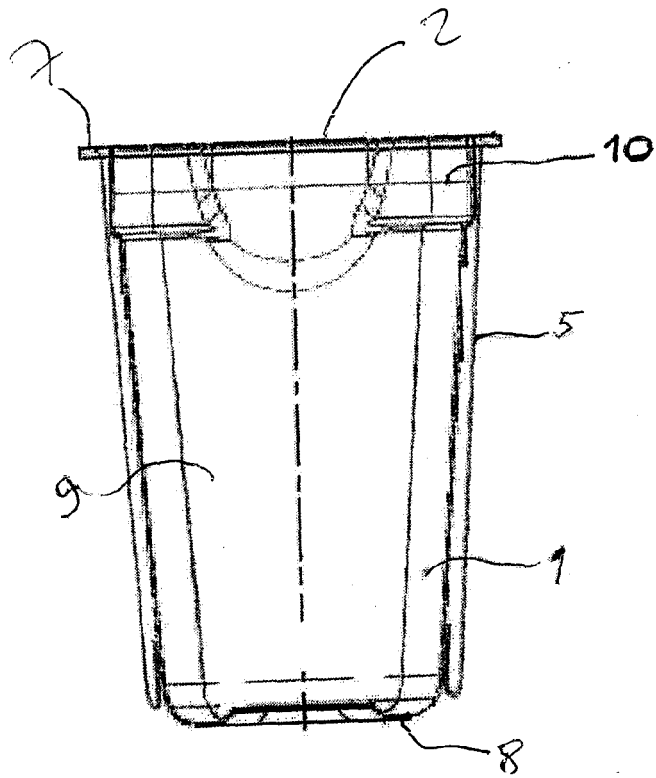


FIG. 3

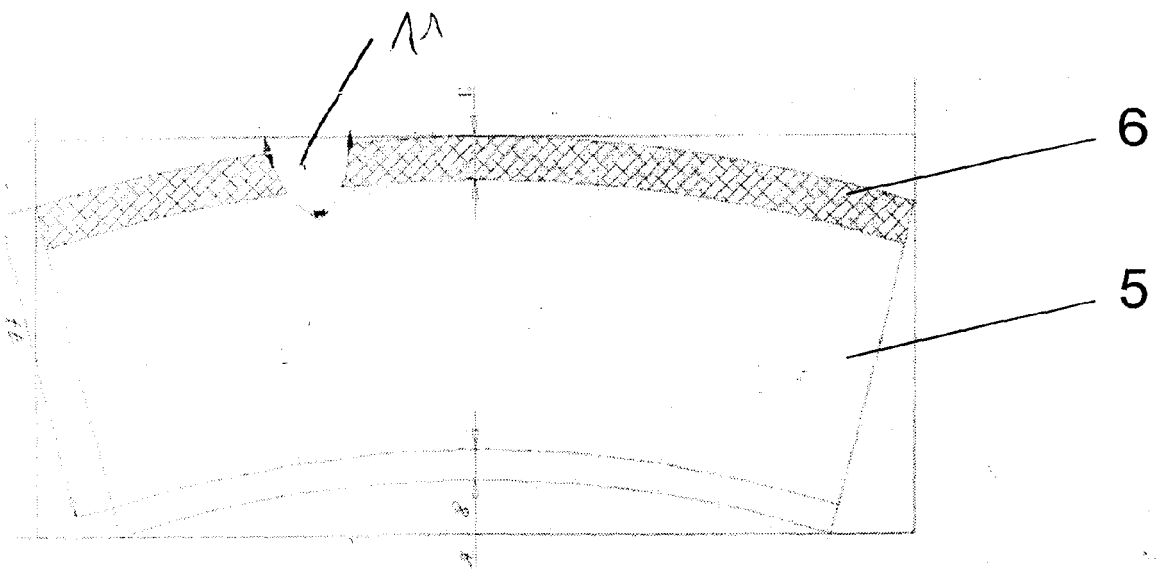


FIG. 4



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 06 12 3441

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| Place of search Munich | | Date of completion of the search 28 March 2007 | Examiner Jervelund, Niels |
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EPO FORM 1503 03/82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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