



G00002

Chocolate Products

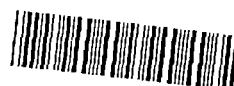
5 The present invention relates to new chocolate products, more particularly to chocolate bags, pouches or similar containers having one or more sealed edges which may or may not contain a filling.

10 It is difficult to close the ends of solid tubular chocolate to form a bag or container by squeezing together to form a crimp-seal because the tube breaks before obtaining a seal owing to the brittleness of the chocolate. Therefore chocolate bags, pouches or similar containers
15 having one or more crimp-sealed edges do not exist.

In our co-pending EP-A-0603467, the contents of which are hereby incorporated into the present specification, a method is described for the cold extrusion of chocolate or
20 a fat-containing confectionery material in a solid or semi-solid non-pourable form whereby the extruded product has a temporary flexibility or plasticity enabling it to be physically manipulated or plastically deformed, e.g. it can be bent, twisted or forced into a mould. The extruded
25 material is a solid or semi-solid product and may be a hollow profiled product such as a tube.

We have found that a chocolate bag, pouch or similar container having one or more sealed edges can be formed by
30 crimping a temporarily flexible hollow profiled product such as a tube produced by the process described in our co-pending EP-A-0603467.

Accordingly, the present invention provides a bag, pouch or
35 similar container having one or more sealed edges made from a temporarily flexible solid or semi-solid chocolate or a fat-containing confectionery material.



166166

5 The bag, pouch or similar container may, for instance, have the shape of a pillow or a polyhedron such as a tetrahedron. It may be completely enclosed or open at one or more parts of the edge. It may or may not contain a filling. The filling may be solid or liquid and may be edible or non-edible. Examples of edible fillings are
10 fondant, rice crispies, mousse, praline, marshmallow, gummy novelty shapes, or a chocolate or fat-containing confectionery material which may differ visually or texturally from the chocolate or fat-containing confectionery material of the bag, pouch or similar
15 container. An example of a non-edible filling is a novelty plastic toy.

The length of the bag, pouch or similar container may be from 10 to 1000mm, preferably from 20 to 250mm and more
20 usually from 25 to 100mm. The width of the bag, pouch or similar container may be from 5 to 100mm, preferably from 10 to 50mm and more usually from 15 to 35mm. The thickness of the wall of the bag, pouch or similar container may be from 0.25 to 10mm, preferably from 0.5 to 5mm and more
25 usually from 0.75 to 2.5mm.

The chocolate material may be dark, milk or white chocolate. Fat-containing confectionery materials may include sugar, milk derived components, and fat and solids
30 from vegetable or cocoa sources in differing proportions having a moisture content less than 10%, more usually less than 5% by weight. They may be chocolate substitutes containing direct cocoa butter replacements, stearines, coconut oil, palm oil, butter or any mixture thereof; nut
35 pastes such as peanut butter and fat; praline; confectioner's coatings used for covering cakes usually comprising chocolate analogues with cocoa butter replaces

by a cheaper non-tempering fat; or "Caramac" sold by Nestlé comprising non-cocoa butter fats, sugar and milk.

5

The present invention also provides a first process of producing a bag, pouch or similar container having one or more sealed edges made from chocolate or a fat-containing confectionery material which comprises crimping a temporarily flexible hollow profiled product made of chocolate or a fat-containing confectionery material.

10

15

The present invention also provides a second process of producing a bag, pouch or similar container having one or more sealed edges made from chocolate or a fat-containing confectionery material which comprises crimping the edges of two temporarily flexible substantially parallel sheets made of chocolate or a fat-containing confectionery material. For example, if the temporarily flexible substantially parallel sheets are square or rectangular, two, three or four edges may be crimped together. Advantageously, the two sheets may have different colours or flavours.

20

25

The present invention also provides a third process of producing a bag, pouch or similar container having one or more sealed edges made from chocolate or a fat-containing confectionery material which comprises folding a temporarily flexible sheet made of chocolate or a fat-containing confectionery material and crimping one or more edges of the folded sheet. The shape of such a product is analogous to ravioli.

30

35

Preferably, the temporarily flexible sheet or hollow profiled product made of chocolate or a fat-containing confectionery material is obtained by an extrusion process, especially by extruding the chocolate or fat-containing confectionery material through a suitable die at a

temperature at which the chocolate or fat-containing confectionery material is in a solid or semi-solid non-pourable or non-flowable form throughout the extrusion to produce a product having a temporary flexibility or plasticity, e.g. for up to 4 hours, e.g. from 1 minute to 2 hours. Full details of this process are described in our co-pending EP-A-0603467 where it is explained that the temporary flexibility is dependent on the extrusion conditions and the chocolate ingredients.

The crimping of the edges of the temporarily flexible sheet or hollow profiled product may be carried out by conventional means, e.g. by pinching or pressing the edges together to unite them. For pinching or pressing the edges together, one or more pairs of cooperating jaws or rotating wheels made of metal or plastics may be used. The jaws may be mounted on a pair of scissor arms which are shut by actuators to pinch the opposite sides of the tubing together to unite the edges. Alternatively, the jaws may be operated by cams which rotate and snap the opposing jaws together to unite the edges. Preferably, the temporarily flexible sheet or hollow profiled product is stationary relative to the jaws during the pinch using these methods. Another method for crimping the edges of the temporarily flexible sheet or hollow profiled product may be carried out by two jaws mounted on counter rotating wheels driven at the same speed such that the point of closest proximity of the jaws moves at the same speed as the chocolate extrusion to form the crimp. A further method for crimping the edges of the temporarily flexible hollow profiled product may be carried out by using, instead of two jaws pinching the tube, two small rollers which are pushed into opposite sides of the tube or by passing through the nip of a pair of counter-rotating wheels.

For making a pillow shaped container, one end of a temporarily flexible hollow profiled product may be crimped to unite the edges of that end, a filling may optionally be introduced and then the other end may optionally be crimped to unite the edges of that other end. The filling may be introduced by co-extrusion or by subsequent introduction.

For making a tetrahedron shaped container, one end of a temporarily flexible hollow profiled product may be crimped to unite the edges of that end, a filling may optionally be introduced and then the other end may optionally be crimped to unite the edges of that other end at an angle of 90° to the first crimped joint.

The filling may be introduced into the temporarily flexible hollow profiled product by the following methods:

i) an indexed feed method in which a measured amount of filling is injected via the open end of a small section of the temporarily flexible hollow profiled product. By this method, almost any type of filling may be introduced.

ii) A continuous co-extrusion method in which the temporarily flexible hollow profiled product is continuously filled as it is extruded. When this method is used, any crimping and cutting will be of a filled tube.

Desirably, the pinching action not only unites the edges of the finished product but also chops it off. This may be achieved by a guillotine method in which opposed blades pass in scissor fashion and hence cut through the product, or by a method where the opposed blades meet at a point, or by a closed crimp method in which two rollers are pushed into temporarily flexible hollow profiled product until they meet to cause separation.

If necessary, the united edges may be sealed with liquid chocolate.

5

The present invention will now be further illustrated by way of example only with reference to the accompanying drawings in which

10

Figure 1 represents the steps of an indexed manufacture,

Figure 2 represents the steps of a cam/crimp manufacture, and

15

Figure 3 represents the steps of a rotating wheel manufacture.

20

Referring to Figure 1, stage (1) shows a section of solid chocolate tubing 10 being extruded through the die 11. Stage (2) shows the tubing 10, as it approaches the desired length, sliding over a small bar 12 positioned on an indexed wheel 13. When the tube is exactly the right length stage (3) shows two jaws 14a, 14b, crimping and cutting the tube 10 in one action to give a seal 15. Stage (4) shows the indexed wheel 13 rotating through 90° causing the cut and crimped length of tubing 10 to fall off the bar 12 onto a conveyor 16. Stage (5) shows four cut and crimped lengths of tubing 10 being filled simultaneously with a praline filling 17 in the exact amount desired by four nozzle injectors 18. Stage (6) shows the final seal 19 being performed by a pair of rotating wheels 20 which crimp the top edge.

25

30

35

Referring to Figure 2, stage (1) shows two sets of opposed cams 21, 22 positioned to control the motion of two sets of jaws 23, 24, one set being at 90° to the other. A continuous tube of chocolate 25 is extruded through an extruder die 11 and a praline filling 26 is pumped into the

chocolate tube. In stage (2), the first set of jaws 23, operated by the first set of cams 21, is pushed into the side of the tube sealing the end 27 (shown in stage 3) where the cams 21 rotate causing the jaws 23 to retract and allow the required length of chocolate tubing 25 with its sealed end 27 to be extruded. Stage (4) shows the other set of jaws 24, operated by the other set of cams 22, pushing into the tube 25 to produce a second seal 28 at 90° to the first seal 27. Both sets of jaws contain a blade along their centres such that the pinching action not only seals the product but also chops it off and makes the first seal of the following product.

Referring to Figure 3, stage (1) shows two sets of jaws 29, 30 mounted on two sets of wheels 31, 32 and a length of chocolate tubing 25 with a fondant filling 26 already inside being extruded continuously through a die 11. The wheels rotate at the same peripheral speed as the moving extruded chocolate tubing. Stage (2) shows the first set of jaws 29 rotating on the first set of wheels 31 at such a speed that the end point of the jaws moves with the tubing and does not scuff the surface while pinching the tubing 25 to make the first seal 33 as in stage (3) where the tubing is allowed to extrude further to the required length. In stage (4) the second set of jaws 30 rotating on the second set of wheels 32 at such a speed that the end point of the jaws moves with the tubing and does not scuff the surface while pinching the tubing 25 to make the second seal 34 at 90° to the first seal 33. Both sets of jaws contain a blade along their centres such that the pinching action not only seals the product but also chops it off and makes the first seal of the following product.

CLAIMS

- 5 1. A bag, pouch or similar container having one or more sealed edges made from a temporarily flexible solid or semi-solid chocolate or a fat-containing confectionery material having a moisture content of less than 5%.
- 10 2. A bag, pouch or similar container according to claim 1 which has the shape of a pillow or a polyhedron.
- 15 3. A bag, pouch or similar container according to claim 1 which is completely enclosed or open at one or more parts of the edge.
4. A bag, pouch or similar container according to claim 1 which may or may not contain a filling.
- 20 5. A bag, pouch or similar container according to claim 1 wherein the length is from 10 to 1000mm, the width is from 5 to 100mm, and the thickness of the wall is from 0.25 to 10mm.
- 25 6. A process of producing a bag, pouch or similar container having one or more sealed edges made from chocolate or a fat-containing confectionery material which comprises crimping a temporarily flexible hollow profiled product made of chocolate or a fat-containing confectionery
- 30 material.
- 35 7. A process of producing a bag, pouch or similar container having one or more sealed edges made from chocolate or a fat-containing confectionery material which comprises crimping the edges of two temporarily flexible substantially parallel sheets made of chocolate or a fat-containing confectionery material.

8. A process of producing a bag, pouch or similar container having one or more sealed edges made from chocolate or a fat-containing confectionery material which comprises folding a temporarily flexible sheet made of chocolate or a fat-containing confectionery material and crimping one or more edges of the folded sheet.

9. A process according to any of claims 6 to 8 wherein the united edges of the temporarily flexible sheet or hollow profiled product may be sealed with liquid chocolate.

10. A bag, pouch or similar container according to claim 1 wherein the temporarily flexible chocolate or fat-containing confectionery material is obtained by extruding the chocolate or fat-containing confectionery material through a suitable die at a temperature at which the chocolate or fat-containing confectionery material is in a solid or semi-solid non-pourable or non-flowable form throughout the extrusion to produce a product having a temporary flexibility or plasticity.