CLAIMS

1. A method of producing a frozen, microwaveable, coated food product, said method comprising the steps of:

providing a portion of a solid or solidified substrate;

coating the portion with an aqueous precoating liquid to form a precoated portion;

applying a coating of bonding crumb to the precoated portion to form a crumb coated portion;

applying a batter to the crumb coated portion to form a batter coated portion;

applying a coating of coating crumb to the batter coated portion to form a breaded portion;

frying the breaded portion by contacting said breaded portion for at least 100 seconds with hot oil having a temperature of at least 150°C, thereby producing a fried coated portion having a core temperature in excess of 70°C; and

freezing the fried coated portion by introducing said fried portion into a freezer;

wherein the core temperature of the fried coated portion is not less than 50°C, preferably not less than 60°C when said fried portion is introduced into the freezer and wherein said core temperature is reduced to less than -15°C, using cryogenic freezing.

2. The method according to claim 1, wherein the fried coated portion has a core temperature of not less than 65°C, preferably not less than 70°C when it is introduced into the freezer.

3. The method according to claim 1 or 2, wherein the fried coated portion has a core temperature not less than 50°C, more preferably not less than 60°C, even more preferably not less than 65°C and most preferably of at least 70°C when it is subjected to cryogenic freezing.

4. The method according to any preceding claim, wherein the fried coated portion is contacted with a cryogen until the core temperature of the portion is less than -15 °C, more preferably less than -20°C and most preferably less than -22°C.

5. The method according to any preceding claim, wherein the core temperature of the fried coated portion does not decrease by more than 25°C, preferably by not more than 20°C before the fried portion enters the freezer.

6. The method according to any preceding claim, wherein the aqueous precoating liquid has a minimum viscosity of 300 cP, measured using a Brookfield viscometer with a number 3 spindle at 60 rpm at 10.°C.

7. The method according to any preceding claim, wherein the bonding crumb contains at least 80 wt.% of a milled farinaceous dough extrudate containing 0.05-5 wt.% of added hydrocolloid.

8. The method according to claim 7, wherein the hydrocolloid is selected from the group consisting of guar gum, locust bean gum, gum Arabic, tragacanth, gum karaya, gum ghatti, xanthan gum, and mixtures thereof.

9. The method according to any preceding claim, wherein the batter comprises, calculated by weight of dry matter, 20-55 wt.% starch; 20-55 wt. % flour; 3-20 wt.% egg solids.

10. The method according to any preceding claim, wherein the batter, when it is applied to the crumb coated portion, has a viscosity of 200-1000 cP, more preferably of 500-600 cP, measured using a Brookfield viscometer with a number 3 spindle at 60 rpm.

11. The method according to any preceding claim, wherein the total amount of aqueous precoating liquid, batter and crumb that is applied to the portion is such that, after frying, the fried portion has a weight that exceeds the weight of the uncoated portion of solid substrate by 25-100%, preferably by 30-60%.

12. A microwaveable, coated food product obtained by a method according to any of claims 1-11.

13. Apparatus for producing a frozen coated food product using a method as claimed in preceding claim, the equipment comprising:

a substrate forming apparatus arranged for forming portions of a solid or solidified substrate;

a coating apparatus, arranged to receive the portions and to immerse the portions in a viscous aqueous coating composition to produce precoated portions;

a first crumb applicator, arranged to receive the precoated portions and to applya layer of crumb onto the precoated portions to form crumb coated portions;

a batter coating applicator, arranged to receive the crumb coated portions and to immerse the crumb coated portions in a batter to produce batter coated portions;

a second crumb applicator, arranged tp receive the batter coated portions and to apply a layer of crumb onto the batter coated portions to form multiple coated portions;

a fryer, arranged to receive the multiple coated portions and to immerse the multiple coated portions in hot oil to produce hot fried coated portions;

a cryogenic freezer, arranged to receive the hot fried coated portions and to cryogenically freeze the hot fried coated portions.

CLAIMS

1. A method of producing a frozen, microwaveable, coated food product, said method comprising the steps of:

providing a portion of a solid or solidified substrate;

coating the portion with an aqueous precoating liquid to form a precoated portion;

applying a coating of bonding crumb to the precoated portion to form a crumb coated portion;

applying a batter to the crumb coated portion to form a batter coated portion;

applying a coating of coating crumb to the batter coated portion to form a breaded portion;

frying the breaded portion by contacting said breaded portion for at least 100 seconds with hot oil having a temperature of at least 150°C, thereby producing a fried coated portion having a core temperature in excess of 70°C; and

freezing the fried coated portion by introducing said fried portion into a freezer;

wherein the core temperature of the fried coated portion is not less than 50°C, preferably not less than 60°C when said fried portion is introduced into the freezer and wherein said core temperature is reduced to less than -15°C, using cryogenic freezing.

2. The method according to claim 1, wherein the fried coated portion has a core temperature of not less than 65°C, preferably not less than 70°C when it is introduced into the freezer.

3. The method according to claim 2, wherein the fried coated portion has a core temperature not less than 70°C when it is introduced into the freezer.

4. The method according to any preceding claim, wherein the fried coated portion is contacted with a cryogen until the core temperature of the portion is less than -20°C.

5. The method according to claim 4, wherein the fried coated portion is contacted with a cryogen until the core temperature of the portion is less than -22°C.

6. The method according to any preceding claim, wherein the core temperature of the fried coated portion does not decrease by more than 25°C, before the fried portion enters the freezer.

7. The method according to claim 6, wherein the core temperature does not decrease by more than 20°C, before the fried product enters the freezer.

8. The method according to any preceding claim, wherein the aqueous precoating liquid has a minimum viscosity of 300 cP, measured using a Brookfield viscometer with a number 3 spindle at 60 rpm at 10.°C.

9. The method according to any preceding claim, wherein the bonding crumb contains at least 80 wt.% of a milled farinaceous dough extrudate containing 0.05-5 wt.% of added hydrocolloid.

10. The method according to claim 9, wherein the hydrocolloid is selected from the group consisting of guar gum, locust bean gum, gum Arabic, tragacanth, gum karaya, gum ghatti, xanthan gum, and mixtures thereof.

11. The method according to any preceding claim, wherein the batter comprises, calculated by weight of dry matter, 20-55 wt.% starch; 20-55 wt. % flour; 3-20 wt.% egg solids.

12. The method according to any preceding claim, wherein the batter, when it is applied to the crumb coated portion, has a viscosity of 200-1000 cP, measured using a Brookfield viscometer with a number 3 spindle at 60 rpm.

13. The method according to claim 12, wherein said viscosity is 500 – 600cP.

14. The method according to any preceding claim, wherein the total amount of aqueous precoating liquid, batter and crumb that is applied to the portion is such that, after frying, the fried portion has a weight that exceeds the weight of the uncoated portion of solid substrate by 25-100%.

15. The method according to claim 14, wherein the fried portion has a weight that exceeds the weight of the uncoated portion by 30-60%.