

CLAIMS

1. A heat stable chocolate comprising a fat phase, the fat phase of the heat stable chocolate comprising:

60.0 – 99.9 % by weight of triglycerides,

5 40.0 – 95.0 % by weight of triglycerides having C16 – C24 saturated fatty acids in the *sn-1* and *sn-3* positions of the triglyceride and oleic acid in the *sn-2* position of the triglyceride,

0.01 – 5% by weight of an emulsifier not being lecithin,

0.1 - 15% by weight of crystalline seed,

10 in which the crystalline seed comprises SatOSat-triglycerides in an amount of 40-99.9%, in which Sat stands for a saturated fatty acid and O stands for oleic acid,

in which an endotherm melt peak position of the crystalline seed is about 40 degrees Celsius or higher when measured by Differential Scanning Calorimetry by heating samples of 40 +/- 4 mg of crystalline seed from 30 degrees Celsius to 65 degrees Celsius at a rate of 3 degrees Celsius per minute to produce a melting thermogram defining the endotherm melt peak position,

in which the fat phase comprises triglycerides from non-vegetable sources, and

in which the emulsifier not being lecithin is selected from the group consisting of polysorbates, mono-glycerides, di-glycerides, poly-glycerol esters, propylene glycol esters, sorbitan esters and any combination thereof.

2. A heat stable chocolate according to Claim 1, in which the fat phase has a weight-ratio between

triglycerides having C18 – C24 saturated fatty acids in the *sn-1* and *sn-3* positions of the triglyceride and oleic acid in the *sn-2* position of the triglyceride, and

25 triglycerides having C16 – C24 saturated fatty acids in the *sn-1* and *sn-3* positions of the triglyceride and oleic acid in the *sn-2* position of the triglyceride,

which is between 0.40 and 0.99, such as between 0.40 and 0.95, such as between 0.40 and 0.90, such as between 0.40 and 0.80, such as between 0.40 and 0.70, such as between 0.40 and 0.60, such as between 0.40 and 0.50.

3. A heat stable chocolate according to Claim 1 or 2, in which the fat phase has a weight-ratio between

triglycerides having C18 saturated fatty acids in the sn-1 and sn-3 positions of the triglyceride and oleic acid in the sn-2 position of the triglyceride, and

5 triglycerides having C16 – C18 saturated fatty acids in the sn-1 and sn-3 positions of the triglyceride and oleic acid in the sn-2 position of the triglyceride,

which is between 0.40 and 0.99, such as between 0.40 and 0.95, such as between 0.40 and 0.90, such as between 0.40 and 0.80, such as between 0.40 and 0.70, such as between 0.40 and 0.60, such as between 0.40 and 0.50.

10 4. A heat stable chocolate according to Claim 1, 2 or 3, in which an endotherm melt peak position of the heat stable chocolate is about 37 degrees Celsius or higher, such as about 38 degrees Celsius or higher, when measured by Differential Scanning Calorimetry by heating samples of 40 +/- 4 mg of heat stable chocolate from 30 degrees Celsius to 65 degrees Celsius at a rate of 3 degrees Celsius per minute to produce a melting thermogram defining the
15 endotherm melt peak position.

5. A heat stable chocolate according to any preceding claim, in which the crystalline seed comprises SatOSat-triglycerides in an amount of 40 - 99% by weight of the crystalline seed, such as 50 – 99%, such as 60 – 99, such as 70-98%.

6. A heat stable chocolate according to any preceding claim, in which the crystalline seed
20 comprises 40 – 99 % by weight of StOSt-triglycerides, such as 50 - 99 % by weight, such as 70 – 99 % by weight, such as 80 – 99 % by weight, and in which St stands for stearic acid.

7. A heat stable chocolate according to any preceding claim, in which the crystalline seed has a weight-ratio between

25 triglycerides having C18 – C24 saturated fatty acids in the sn-1 and sn-3 positions of the triglyceride and oleic acid in the sn-2 position of the triglyceride, and

triglycerides having C16 – C24 saturated fatty acids in the sn-1 and sn-3 positions of the triglyceride and oleic acid in the sn-2 position of the triglyceride,

which is between 0.40 and 0.99, such as between 0.45 and 0.99, such as between 0.50 and 0.99, such as between 0.55 and 0.99, such as between 0.60 and 0.99, such as between 0.65 and 0.99, such as between 0.70 and 0.99.

8. A heat stable chocolate according to any preceding claim, in which the crystalline seed
5 has a weight-ratio between

triglycerides having C18 saturated fatty acids in the sn-1 and sn-3 positions of the triglyceride and oleic acid in the sn-2 position of the triglyceride, and

triglycerides having C16 – C18 saturated fatty acids in the sn-1 and sn-3 positions of the triglyceride and oleic acid in the sn-2 position of the triglyceride,

- 10 which is between 0.40 and 0.99, such as between 0.45 and 0.99, such as between 0.50 and 0.99, such as between 0.55 and 0.99, such as between 0.60 and 0.99, such as between 0.65 and 0.99, such as between 0.70 and 0.99.

9. A heat stable chocolate according to any preceding claim, in which the fat phase comprises triglycerides obtained by transesterification in an amount of 0.1-99.9% by weight
15 of the fat phase, such as 1-20%, such as 2-15%, such as 3-10%.

10. A heat stable chocolate according to any preceding claim, in which the crystalline seed comprises SatOSat-triglycerides obtained by transesterification in an amount of 0.01-99.9% by weight, such as 20-99%, such as 40-99%, such as 70-99%.

11. A heat stable chocolate according Claim 9 or 10, in which the triglycerides obtained by
20 transesterification are produced from an edible fat and a saturated fatty acid source under the influence of enzymes having 1,3-specific transesterification activity.

12. A heat stable chocolate according to Claim 10 or 11, in which the edible fat used for transesterification comprises a vegetable fat selected from a group consisting of fats obtained from shea, sunflower, soy, rapeseed, sal, safflower, palm, soy, kokum, illipe, mango, mowra,
25 cupuacu and any fraction and any combination thereof, such as in which the edible fat used for transesterification comprises or consists of high oleic sunflower, high oleic safflower oil, high oleic rapeseed oil or any combination thereof.

13. A heat stable chocolate according to any of Claims 8 to 12, in which the edible fat used for transesterification comprises or consists of a shea olein or a shea olein fraction.

14. A heat stable chocolate according to any preceding claim, in which the fat phase comprises triglycerides obtained from unicellular organisms in an amount of 0.1-99.9% by weight of the fat phase, such as 1-20%, such as 1-15%, such as 2-10%, such as 5-10%.
15. A heat stable chocolate according to any preceding claim, in which the emulsifier not
5 being lecithin comprises or is sorbitan-tri-stearate.
16. A heat stable chocolate according to any preceding claim, in which the heat stable chocolate comprises lecithin.
17. A heat stable chocolate according to any preceding claim, in which the fat phase comprises fat obtained from shea, sal, kokum, illipe, mango, mowra, cupuacu, allanblackia,
10 pentadesma, any fraction or any combination thereof.
18. A heat stable chocolate according to any preceding claim, in which the fat phase further comprises 0.1% – 42.9% by weight of fat components being selected from the group comprising milk fat, triglycerides in which at least one of the *sn*-1 and *sn*-3 positions of the triglyceride is occupied by a fatty acid different from C16 – C24 saturated fatty acid,
15 triglycerides in which the *sn*-2 position is occupied by a fatty acid different from oleic acid, asymmetrical triglycerides, and any combination thereof, such as 1 - 20% by weight, such as 2 - 15% by weight, such as 3 - 10% by weight.
19. A heat stable chocolate according to any preceding claim, in which the endotherm melt peak position of the crystalline seed is 41 degrees Celsius or higher, such as 42 degrees
20 Celsius or higher, such as 43 degrees Celsius or higher, when measured by Differential Scanning Calorimetry by heating samples of 40 +/- 4 mg of crystalline seed from 30 degrees Celsius to 65 at a rate of 3 degrees Celsius per minute to produce a melting thermogram.
20. A heat stable chocolate according to any preceding claim, in which the endotherm melt peak position of the crystalline seed is about 44 degrees Celsius or higher, such as about 46
25 degrees Celsius or higher, such as about 47 degrees Celsius or higher or about 48 degrees Celsius or higher, when measured by Differential Scanning Calorimetry by heating samples of 40 +/- 4 mg of crystalline seed from 30 degrees Celsius to 65 at a rate of 3 degrees Celsius per minute to produce a melting thermogram.
21. A heat stable chocolate according to any preceding claim, in which the endotherm melt
30 peak position of the crystalline seed is about 50 degrees Celsius or higher, such as about 51

degrees Celsius or higher, such as about 52 degrees Celsius or higher or about 53 degrees Celsius or higher, when measured by Differential Scanning Calorimetry by heating samples of 40 +/- 4 mg of crystalline seed from 30 degrees Celsius to 65 at a rate of 3 degrees Celsius per minute to produce a melting thermogram.

- 5 22. A heat stable chocolate according to any preceding claim, in which the fat phase comprises oils with a melting point below 25 degrees Celsius in an amount of 1.0-42% by weight, such as 3.0-35% by weight, such as 3.5-27% or such as 5-20% by weight.

23. A method of producing a heat stable chocolate according to any preceding claim, the method comprising the steps of:

- 10 (a) providing a chocolate composition comprising a fat phase, the fat phase comprising
60.0 – 99.9% by weight of triglycerides,
40.0 – 95.0 by weight of triglycerides having C16 – C24 saturated fatty acids in the *sn-1*
and *sn-3* positions of the triglyceride and oleic acid in the *sn-2* position of the
15 triglyceride,
in which the fat phase comprises triglycerides from non-vegetable sources,
0.01 – 5% by weight of an emulsifier not being lecithin, in which the emulsifier not
being lecithin is selected from the group consisting of polysorbates, mono-glycerides,
di-glycerides, poly-glycerol esters, propylene glycol esters, sorbitan esters and any
20 combination thereof,
(b) adjusting the temperature of the chocolate composition to 25-39 degrees Celsius,
(c) adding 0.01 -15% by weight of the fat phase of crystalline seed during stirring to
produce a seeded chocolate composition, in which the crystalline seed comprises
SatOSat-triglycerides in an amount of 40-99.9%, in which Sat stands for a saturated
25 fatty acid and O stands for oleic acid, in which an endotherm melt peak position of the
crystalline seed is about 40 degrees Celsius or higher when measured by Differential
Scanning Calorimetry by heating samples of 40 +/- 4 mg of crystalline seed from 30
degrees Celsius to 65 degrees Celsius at a rate of 3 degrees Celsius per minute to
produce a melting thermogram defining the endotherm melt peak position, and
30 (d) processing the seeded chocolate composition to obtain the heat stable chocolate.

24. A method of producing a heat stable chocolate according to Claim 23, in which the chocolate composition is melted prior to step b).
25. A method of producing a heat stable chocolate according to Claim 23 or 24, in which the chocolate composition is a tempered chocolate composition.
- 5 26. A method according to Claim 23, 24 or 25, in which the method comprises a tempering step.
27. Use of a heat stable chocolate according to any of Claims 1 to 22 or a heat stable chocolate produced by a method according to any of Claims 23 to 26 for molding, coating, enrobing or filling applications.