Claims:

1. A method for the manufacture of a freeze-dried coffee powder, the method comprising:

(a) providing a coffee extract having from 40wt% to 55wt% solids;

(b) high-shear mixing the coffee extract in a rotor/stator aerator with added gas to form a foamed coffee extract, the gas being added in an amount of from 1NL/kg to 5NL/kg of coffee extract, wherein the rotor/stator aerator is maintained at a pressure of less than 2 bar and is configured to subject the coffee extract to a shear of from 7,500 to 20,000 s^{-1} in a single pass having a residency time of at least 1 second,

(c) cooling the foamed coffee extract to below -40°C without shear, or with low shear, to form a frozen coffee extract,

(d) grinding the frozen coffee extract to a powder; and

(e) drying the powder,

wherein the step (c) of cooling the foamed coffee extract to below -40°C comprises:

(i) cooling the foamed coffee extract to a first temperature;

(ii) cooling the foamed coffee extract from the first temperature to a second temperature lower than the first temperature; and

(iii) cooling the foamed coffee extract from the second temperature to below -40°C,

wherein the first temperature is 1°C above a freezing point of the foamed coffee extract and wherein the second temperature is 3°C below the freezing point,

wherein step (ii) has a duration of from 30 minutes to 5 hours, preferably 1 to 4 hours, and wherein the foamed coffee extract obtained in step (b) is maintained at a pressure of less than 2 bar until the frozen coffee extract is formed in step (c).

2. The method according to claim 1, wherein the coffee extract in the rotor/stator aerator is maintained at a pressure of from 1 to 1.8 Bar, preferably from 1 to 1.4 Bar.

3. The method according to claim 1 or claim 2, wherein the high shear mixing of the coffee extract is performed in a single pass, or two or more passes.

4. The method according to any preceding claim, wherein the coffee extract has a residency time in the rotor/stator aerator of at least 2 seconds in each pass, preferably, from 20 seconds to 2 minutes.

5. The method according to any preceding claim, wherein the low shear during cooling is less than $50s^{-1}$.

6. The method according to any of the preceding claims, wherein the gas is selected from nitrogen, air, argon, nitrous oxide and carbon dioxide, or a mixture of two or more thereof.

7. The method according to any preceding claim, wherein the step (i) of cooling the foamed coffee extract to the first temperature, comprises a step of holding the foamed coffee extract at a temperature more than 1°C above, but no more than 15°C above, the freezing point of the foamed coffee for a duration of from 30 minutes to 4 hours, optionally with low shear agitation.

8. The method according to claim 7, wherein the step of holding the foamed coffee extract is at a temperature no more than 10°C above the freezing point of the foamed coffee.

9. The method of claim 7 or claim 8, wherein the duration of the holding step is controlled to ensure that the average gas bubble size remains less than 40 microns, preferably less than 20 microns.

10. The method of any of claims 7 to 9, wherein the holding step comprises holding the cooled foamed coffee extract inside a crystalliser vessel at a temperature of from 0 to -5°C.

11. The method of any of claims 7 to 10, wherein the holding step comprises holding the cooled foamed coffee extract inside a crystalliser with an agitation speed of from 5 to 15 rpm, and preferably of from 8 to 12 rpm, and most preferably of approximately 10 rpm.

12. The method of any of claims 7 to 11, wherein the holding step comprises holding the foamed coffee extract inside the crystalliser for at least 30 minutes, preferably at least 60 minutes, more preferably at least 90 minutes, and most preferably at least 120 minutes.

13. The method according to any preceding claim, wherein the coffee extract:
(a) has from 40 to 45wt% solids and wherein the freezing point is from -5 to -7°C; or
(b) has from 45 to 50wt% solids and wherein the freezing point is from -7 to -8°C; or
(c) has from 50 to 55wt% solids and wherein the freezing point is from -8 to -10°C.

14. The method according to any preceding claim, wherein the coffee extract has from 48 to 51wt% solids.

15. The method according to any of the preceding claims, wherein the foamed coffee extract is at atmospheric pressure before the step of cooling and has a density of from 500 to 800g/l.