CLAIM(S):

1. An electrostatic spray dried powdered milk product with a surface composition comprising at least 8% less fat compared to a powdered milk product prepared from the same source milk using traditional high heat spray drying, wherein:

the electrostatic spray drying process applies a negative electrostatic charge and uses an air inlet temperature of 80-150 °C and an exhaust outlet temperature of 60 °C or below,

the electrostatic spray dried powdered milk product has an HMF content that is reduced by at least 1.5 times compared to the HMF content of the same milk product that has been spray dried using traditional high heat spray drying after 1 week of storage at 22 °C, and 54% relative humidity (RH),

the electrostatic spray dried powdered milk product has an oxidative stability after manufacture that is higher than in the same milk product that has been spray dried using traditional high heat spray drying, and

the traditional high heat spraying drying operates at inlet temperatures from 160°C to 200°C.

2. The electrostatic spray dried powdered milk product of claim 1, wherein the air inlet temperature is 90-150°C.

3. The electrostatic spray dried powdered milk product of claim 1 or 2, wherein 10% or more of the surface composition comprises a carbohydrate.

4. The electrostatic spray dried powdered milk product of any one of claims 1-3, wherein the powdered milk product is agglomerated.

5. The electrostatic spray dried powdered milk product of claim 4, wherein the agglomerate size is 100 μm or more.

6. The electrostatic spray dried powdered milk product of any one of claims 1-5, wherein the milk product comprises a dairy source comprising milk, whole milk, skim milk, butter, manufacturer’s cream, heavy whipping cream, whipping cream, medium cream, light

cream, half and half, buttermilk, yogurt, infant milk formula, colostrum, whey proteins, lactoferrin, lactoglobulin, or any combination thereof.

7. The electrostatic spray dried powdered milk product of any one of claims 1-5, wherein the source milk comprises colostrum, yogurt, or lactoferrin.

8. The electrostatic spray dried powdered milk product of any one of claims 1-5, wherein the source milk comprises whole milk having a fat content of 3-6%.

9. The electrostatic spray dried powdered milk product of any one of claims 1-8, wherein the applied voltage is 0.1 kV or more.

10. A method of providing a powdered milk product comprising electrostatically spray drying a milk product, wherein the electrostatic spray drying comprises applying a negative electrostatic charge and using an air inlet temperature of 80-150 °C and an exhaust outlet temperature of 60 °C or below.

11. The method of claim 10, wherein the air inlet temperature is 90-150 °C.

12. The method of claim 10 or claim 11, wherein the applied voltage is 0.1 kV or more.

13. The method of any one of claims 10-12, wherein the applied voltage is continuous.

14. The method of any one of claims 10-13, wherein the applied voltage is modulated between two or more different voltages.

15. The method of any one of claims 10-14, wherein the powdered milk product has a surface composition comprising at least 8% less fat compared to a spray dried powder of the same milk product using traditional high heat spray drying operating at an inlet temperature of 180 °C.

16. The method of any one of claims 10-15, wherein the powdered milk product has a surface composition comprising 10% or more of a carbohydrate.

17. The method of any one of claims 10-16, wherein the powdered milk product is agglomerated during the electrostatic spray process.

18. The method of claim 17, wherein the agglomerate size is 100 μm or more.

19. The method of any one of claims 10-18, wherein the milk product comprises cream, heavy whipping cream, whipping cream, medium cream, light cream, half and half, buttermilk, yogurt, colostrum, whey proteins, lactoferrin, lactoglobulin, or any combination thereof.

20. The method of any one of claims 10-19, wherein the milk product comprises colostrum.

21. The method of any one of claims 10-20, wherein the milk product has a fat content of 3-6%.

22. The electrostatic spray dried powdered milk product of any one of claims 1-5, wherein the powdered milk product comprises yogurt powder which has cell viability, and wherein the cells are *L. delbrueckii subsp. bulgaricus* and Str*eptococcus thermophilus*.