CLAIM(S):

1. An electrostatic spray dried powdered milk product with a surface composition comprising a reduced fat content 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 150 °C or below and an exhaust outlet temperature of 60 °C or below, and the reduction in surface fat content is 8% or more.

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

3. The electrostatic spray dried powdered milk product of claim 1 or claim 2, wherein the powdered milk product is agglomerated.

4. The electrostatic spray dried powdered milk product of claim 3, wherein the average agglomerate size is 100 µm or more.

5. The electrostatic spray dried powdered milk product of any one of claims 1-4, wherein the milk product comprises a source milk 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.

6. The electrostatic spray dried powdered milk product of any one of claims 1-4, wherein the source milk comprises colostrum, yogurt, or lactoferrin.

7. The electrostatic spray dried powdered milk product of any one of claims 1-4, wherein the source milk comprises whole milk having a fat content of 3-6%.

8. The electrostatic spray dried powdered milk product of claim 1, wherein the powdered milk product is electrostatically spray dried at an air inlet temperature of 90 °C, 95 °C or 150 °C or below and an exhaust outlet temperature of 30 °C, 35 °C, 40 °C, or 60 °C or below.

9. The electrostatic spray dried powdered milk product of claim 8, wherein the applied voltage is 0.1 kV or more.

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

11. The method of claim 10, wherein the atomizing temperature is 80 °C or below.

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 a reduced fat content compared to a powdered milk product prepared from the same source milk using traditional high heat spray drying, wherein the reduction in surface fat content is 8% or more.

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 average agglomerate size is 100 μm or more.

19. The method of any one of claims 10-18, wherein the milk product comprises a source milk comprising 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 source milk comprises colostrum.

21. The method of any one of claims 10-20, wherein the source milk comprises whole milk having a fat content of 3-6%.

22. The method of any one of claims 10-21, wherein the powdered milk product retains milk protein bioactivity of 90% or higher and/or high cell viability in a yogurt powder.

23. The electrostatic spray dried powdered milk product of any one of claims 1-4, wherein the powdered milk product retains milk protein bioactivity of 90% or higher and/or high cell viability in a yogurt powder.