

What is claimed is:

1. A process for producing a homogenized liquid mixed allergen composition comprising:
dry blending a dry mixture, wherein the dry mixture comprises 6 to 20 allergens and a bulking agent;
5 milling the dry mixture and passing the milled dry mixture through a large screen to obtain a first pass mixture;
milling the first pass mixture and passing the first pass mixture through a small screen to obtain a fine particle mixture with substantially consistent particle size;
mixing the fine particle mixture into water to obtain a hydrated mixture; and
10 passing the hydrated mixture through a homogenizer to obtain a homogenized liquid mixed allergen composition.
2. The process of claim 1, wherein milling the dry mixture comprises using a rotor speed of about 7,500 RPM.
3. The process of claim 1 or 2, wherein milling the first pass mixture comprises using a rotor
15 speed of about 7,500 RPM.
4. The process of any one of claims 1-3, wherein the large screen has an opening size of about 0.033 inches.
5. The process of any one of claims 1-4, wherein the small screen has an opening size of about 0.020 inches.
- 20 6. The process of any one of claims 1-5, wherein milling the dry mixture and/or milling the first pass mixture further comprises pulsing a vacuum suction through the mill.
7. The process of any one of claims 1-6, wherein the bulking agent comprises maltodextrin.
8. The process of claim 7, wherein the bulking agent further comprises sucrose.
9. The process of any one of claims 1-8, wherein the bulking agent comprises a weight ratio of
25 about 3:1 maltodextrin and sucrose.
10. The process of any one of claims 1-9, wherein mixing the fine particle mixture into water comprises shear mixing.
11. The process of claim 10, further comprising hydrating the fine particle mixture in the water for about 1 hour or more.

12. The process of any one of claims 1-11, further comprising processing the liquid mixed allergen mixture at an ultra-high temperature.
13. The process of claim 12, wherein the ultra-high temperature is about 287°F or higher.
14. The process of claim 12 or 13, wherein the processing of the liquid mixed allergen mixture
5 at an ultra-high temperature occurs after passing the hydrated mixture through the homogenizer.
15. The process of any one of claims 1-14, further comprising shear mixing the homogenized liquid allergen mixture with one or more excipients to obtain a shear-mixed homogenized liquid allergen mixture.
- 10 16. The process of claim 15 wherein the one or more excipients are each selected from the group consisting of: a food safe oil, a polysaccharide, flavoring, and a food safe salt.
17. The process of claim 16, wherein the polysaccharide is gellan gum.
18. The process of claim 16 or 17, wherein the food safe salt is dipotassium phosphate.
19. The process of any one of claims 1-18, further comprising in-line homogenizing the shear-
15 mixed homogenized liquid allergen mixture.
20. The process of any one of claims 1-19, wherein one or more additional allergens are dry milled separately and optionally mixed with the dry mixture, the first pass mixture, and/or the fine particle mixture.
21. A liquid mixed allergen composition comprising a homogenized liquid mixed allergen
20 composition wherein the homogenized liquid mixed allergen composition is produced by a process of any one of claims 1-20.
22. A liquid homogenized mixed allergen composition comprising:
12 to 16 different protein allergens; maltodextrin; sucrose; oil, and optionally a vitamin,
wherein the weight ratio of maltodextrin to sucrose is about 3:1.
- 25 23. The liquid homogenized mixed allergen composition of claim 22, wherein the vitamin is vitamin D.
24. The liquid homogenized mixed allergen composition of claim 22, further comprising gellan gum.

25. A unit dose of about 20 mL to about 30 mL of a liquid homogenized mixed allergen composition comprising: 12 to 16 different protein allergens; maltodextrin; sucrose; oil, and optionally a vitamin, wherein the weight ratio of maltodextrin to sucrose is about 3:1.