CLAIMS

1. A method of reducing bioburden of an affinity chromatography resin comprising:

exposing a container comprising a composition comprising an affinity chromatography resin and methionine and/or histidine to a dose of gamma-irradiation sufficient to reduce the bioburden of the container and the affinity chromatography resin, wherein the methionine and/or histidine is present in an amount sufficient to ameliorate the loss of binding capacity of the affinity chromatography resin after exposure to the dose of gamma-irradiation.

2. The method of claim 1, further comprising, prior to exposing, disposing the composition into the container.

3. The method of claim 1, wherein the composition comprises an affinity chromatography resin and between about 5 mM and about 150 mM methionine.

4. The method of claim 1, wherein the composition comprises an affinity chromatography resin and between about 5 mM and about 150 mM histidine.

5. The method of claim 1, wherein the composition comprises an affinity chromatography resin, between about 5 mM and about 150 mM methionine, and about 5 mM and about 150 mM histidine.

6. The method of claim 1, wherein the container is a storage vessel.

7. The method of claim 1, wherein the container is a chromatography column.

8. The method of claim 1, wherein the container is a packed chromatography column.

9. The method of claim 1, wherein the composition is a solid mixture.

10. The method of claim 1, wherein the composition is a sedimented slurry of affinity chromatography resin in a liquid comprising the methionine and/or histidine.

11. The method of claim 10, wherein the liquid is a buffered solution.

12. The method of claim 1, wherein the dose is between about 15 kGy and about 45 kGy.

13. The method of claim 12, wherein the dose is between 20 kGy to 30 kGy.

14. The method of claim 13, wherein the dose is between 23 kGy and 27 kGy.

15. The method of claim 1, wherein exposing is performed at a temperature between -25 °C and 0 °C, inclusive.

16. The method of claim 1, wherein exposing is performed at a temperature between 0 °C and 25 °C, inclusive.

17. A packed chromatography column produced by the method of claim 8.

18. A composition comprising an affinity chromatography resin and at least one antioxidant agent, wherein the at least one antioxidant agent is present in an amount sufficient to ameliorate the loss of binding capacity of the affinity chromatography resin upon treatment with a dose of gamma-irradiation sufficient to reduce bioburden of the composition, wherein the at least one antioxidant agent is selected from the group consisting of: reduced glutathione, reduced thioredoxin, reduced cysteine, a carotenoid, melatonin, lycopene, tocopherol, reduced ubiquinone, ascorbate, bilirubin, uric acid, lipoic acid, a flavonoid, a phenolpropanoid acid, lidocaine, naringenin, fullerene, glucose, mannitol, 4-hydroxy-2,2,6,6-tetramethylpiperidin-1-oxyl, and dimethylmethoxy chromanol.

19. A composition comprising (i) a chromatography resin and (ii) a liquid comprising between 75 mM and about 125 mM methionine.

20. A composition comprising (i) a chromatography resin and (ii) a liquid comprising between 75 mM and about 125 mM histidine.

21. A composition comprising (i) a chromatography resin and (ii) a liquid comprising between 30 mM and about 70 mM methionine and between about 30 mM and about 70 mM histidine.

22. A composition comprising (i) a chromatography resin and (ii) a liquid comprising between about 10 mM and about 50 mM methionine, between about 10 mM and about 50 mM histidine, and between about 10 mM and about 50 mM sodium ascorbate.

23. A composition comprising (i) a chromatography resin and (ii) a liquid comprising between about 5 mM to about 45 mM sodium ascorbate, between about 5 mM and about 45 mM methionine, between about 5 mM and about 45 mM mannitol, and between about 5 mM and about 45 mM histidine.