WHAT IS CLAIMED IS:

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

exposing a container comprising a composition comprising (i) the affinity chromatography resin and (ii) a liquid comprising at least one antioxidant agent to a dose of gamma-irradiation sufficient to reduce the bioburden of the container and the affinity chromatography resin, 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 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 container is a storage vessel.

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

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

6. The method of claim 1, wherein the composition is a slurry of sedimented affinity chromatography resin in the liquid comprising the at least one antioxidant agent.

7. The method of claim 1, wherein the liquid comprises at least one antioxidant agent 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.

8. The method of claim 1, wherein the liquid comprises at least one antioxidant agent selected from the group consisting of: mannitol, sodium ascorbate, histidine, and methionine.

9. The method of claim 1, wherein the liquid comprises mannitol, sodium ascorbate, histidine, and methionine.

10. The method of claim 6, wherein the liquid comprises:

(i) between 75 mM and 125 mM mannitol;

(ii) between 75 mM and 125 mM methionine;

(iii) between 75 mM and 125 mM sodium ascorbate;

(iv) between 75 mM and 125 mM histidine;

(v) between 30 mM and 70 mM methionine and between 30 mM and 70 mM histidine;

(vi) between 10 mM and 50 mM methionine, between 10 mM and 50 mM histidine, and between 10 mM and 50 mM sodium ascorbate; or

(vii) between 5 mM to 45 mM sodium ascorbate, between 5 mM and 45 mM methionine,

between 5 mM and 45 mM mannitol, and between 5 mM to 45 mM histidine.

11. The method of claim 6 or 10, wherein the liquid is a buffered solution.

12. The method of claim 1, wherein the composition comprises affinity chromatography resin comprising a protein ligand.

13. The method of claim 12, wherein the protein ligand is protein A.

14. The method of claim 1, wherein the dose is between 15 kGy to 45 kGy.

15. The method of claim 14, wherein the dose is between 20 kGy to 30 kGy.

16. The method of claim 15, wherein the dose is between 23 kGy and 27 kGy.

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

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