

**WHAT IS CLAIMED IS:**

- Claim 1. A fabric assembly comprising:
- a flexible substrate including a top surface;
  - a plurality of guard plates affixed to the top surface of the flexible substrate and arrayed in a pattern such that a plurality of continuous gaps are defined between adjacent plates; and
  - one or more antimicrobial agents contained in and/or on at least one of the substrate and plurality of guard plates, and wherein the antimicrobial agents are selected to reduce the fabric assembly's surface population of at least one of bacteria, virus, mold, fungus, or algae.
- Claim 2. The fabric assembly of claim 1, wherein the antimicrobial agent comprises a metal in metallic form.
- Claim 3. The fabric assembly of claim 1, wherein the antimicrobial agent is a metal in metallic form.
- Claim 4. The fabric assembly of claim 1, wherein the antimicrobial agent comprises a metal-zeolite.
- Claim 5. The fabric assembly of claim 1, wherein the antimicrobial agent is a metal-zeolite.
- Claim 6. The fabric assembly of claim 1, wherein the antimicrobial agent comprises a metal-glass.
- Claim 7. The fabric assembly of claim 1, wherein the antimicrobial agent is a metal-glass.
- Claim 8. The fabric assembly of claim 1, wherein the antimicrobial agent comprises a metal salt.

Claim 9. The fabric assembly of claim 1, wherein the antimicrobial agent is a metal salt.

Claim 10. The fabric assembly of claim 1, wherein the antimicrobial agent comprises an organic.

Claim 11. The fabric assembly of claim 1, wherein the antimicrobial agent is an organic.

Claim 12. The fabric assembly of claim 1, wherein the antimicrobial agent comprises a quaternary ammonium compound.

Claim 13. The fabric assembly of claim 1, wherein the antimicrobial agent is a quaternary ammonium compound.

Claim 14. The fabric assembly of claim 1, wherein the antimicrobial agent comprises a naturally occurring substance.

Claim 15. The fabric assembly of claim 1, wherein the antimicrobial agent is a naturally occurring substance.

Claim 16. The fabric assembly of claim 1, wherein the antimicrobial agent comprises a metal in metallic form, a metal-zeolite, a metal-glass, a metal salt, an organic, a quaternary ammonium compound, a naturally occurring substance, or a combination thereof.

Claim 17. The fabric assembly of claim 1, wherein the guard plate material is chosen to make the fabric assembly antimicrobial regenerative.

Claim 18. The fabric assembly of any of claims 1-17, wherein the antimicrobial agent is contained in the plurality of guard plates.

Claim 19. The fabric assembly of any of claims 1-17, wherein the antimicrobial agent is contained in the substrate.

Claim 20. The fabric assembly of any of claims 1-17, wherein the antimicrobial agent is on the plurality of guard plates.

Claim 21. The fabric assembly of any of claims 1-17, wherein the antimicrobial agent is on the substrate.

Claim 22. A method comprising forming the fabric assembly of any of claims 1-21.

Claim 23. The method of claim 22, wherein forming a fabric assembly comprises depositing a plurality of guard plates affixed to a top surface of a flexible substrate and arrayed in a pattern such that a plurality of continuous gaps are defined between adjacent plates, wherein the fabric assembly includes one or more antimicrobial agents contained in and/or on at least one of the substrate and plurality of guard plates, and wherein the antimicrobial agents are selected to reduce the fabric assembly's surface population of at least one of bacteria, virus, mold, fungus, or algae.