**CLAIMS:**

1. A clean room comprising a heating ventilation and air conditioning (HVAC) system that provides non-hydrated dilute hydrogen peroxide (DHP) gas at a concentration of at least 0.05 parts per million (ppm) up to 10.0 ppm and less than 0.015 parts per million (ppm) ozone, wherein said DHP gas is continuously maintained at said concentration by a DHP generating device and is free of plasma or organic species, wherein said clean room is at least International Organization for Standardization (ISO) class 6 compliant as provided by ISO standard 14644-1 and 14644-2 dated 2000.

2. The clean room of claim 1, wherein said clean room is an ISO 14644 class 1 clean room, an ISO 14644 class 2 clean room, an ISO 14644 class 3 clean room, an ISO 14644 class 4 clean room, or an ISO 14644 class 5 clean room.

3. The clean room of claim 1, wherein said clean room is a BS 5295 class 1 clean room, a BS 5295 class 2 clean room, a BS 5295 class 3 clean room, or a BS 5295 class 4 clean room, wherein said BS 5295 classes conform to UK standard BS 5295 dated 1989.

4. The clean room of claim 1, wherein said clean room is an EU GMP grade A clean room, an EU GMP grade B clean room, an EU GMP grade C clean room, an EU GMP grade D clean room, wherein said EU EMP grade conforms to EU GMP Standard dated January 1, 1997.

5. The clean room of claim 1, wherein said clean room is a modular clean room.

6. The clean room of claim 1, further comprising a makeup air system that comprises one or more filters selected from a 30% American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) filter, a 60% ASHRAE filter, or a 95% ASHRAE filter, wherein said ASHRAE filter meets ANSI/AHRAE standard 52.2-2007.

7. The clean room of claim 1, wherein said clean room is a turbulent flow clean room.

8. The clean room of claim 1, wherein said clean room is a laminar flow clean room.

9. The clean room of claim 1, wherein said clean room comprising DHP gas is present at less than 1.0 ppm.

10. The clean room of any one of claims 2 to 5, wherein said clean room is a pharmaceutical clean room.

11. The clean room of any one of claims 2 to 5, wherein said clean room is a biopharmaceutical clean room.

12. The clean room of any one of claims 2 to 5, wherein said clean room is a clean room for semiconductor manufacture.

13. The clean room of any one of claims 1 to 12, wherein said clean room has reduced levels of airborne molecular contaminants.

14. The clean room of claim 1, wherein the air change rate is between 1 and 360 air changes per hour (ACH).

15. The clean room of claim 8, wherein the average air velocity is between 0.005 m/s to 0.508 m/s.

16. The clean room of claim 1, wherein said clean room comprises a biocontainment environment specified by the Centers for Disease Control and Prevention as biosafety level 1 (BSL-1), biosafety level 2 (BSL-2), biosafety level 3 (BSL-3), or biosafety level 4 (BSL-4), wherein said BSL levels meet Biosafety in Microbiological and Biomedical Laboratories (BMBL) 5th edition (December 2009).

17. A method of providing non-hydrated dilute hydrogen peroxide (DHP) gas at a concentration of at least 0.05 parts per million (ppm) and an ozone concentration of less than 0.015 ppm to a clean room comprising installing a DHP gas generating device, wherein said DHP gas is free of plasma or organic species, and said clean room is at least International Organization for Standardization (ISO) class 6 compliant as provided by ISO standard 14644-1 and 14644-2 dated 2000.

18. The method of claim 17, wherein said non-hydrated DHP gas is not prepared from vaporized hydrogen peroxide liquid.

19. A method of reducing organic species adsorption-induced contamination during silicon wafer production comprising providing non-hydrated DHP gas at a concentration of at least 0.05 parts per million (ppm) and an ozone concentration of less than 0.015 ppm to a silicon wafer production facility clean room, wherein said DHP gas is continuously maintained at said concentration by a DHP generating device and said DHP gas is free of plasma or organic species.

20. The method of claim 19, wherein said organic species are selected from the group consisting of stearic acid, butylated hydroxy toluene, siloxane, 4-dodecylbenzenesulfonic acid, n-pentadecane, bis(2-ethylhexyl) benzene-1,2-dicarboxylate (DOP), 3,4-dibutylphthalic acid (DBP), diethylphthalate (DEP), tris(2-chloroethyl) phosphate (TCEP), triphenyl phosphate (TPP), triethyl phosphate (TEP), hexanedioate (DOA), 2,2-dibutylhexanedioic acid (DBA), and 2,6-ditert-butyl-4-methylphenol (BHT).

21. The clean room of claim1, wherein said clean room is an ISO 14644 class 1 clean room.

22. The clean room of claim 1, wherein said clean room is an ISO 14644 class 2 clean room.

23. The clean room of claim 1, wherein said clean room is an ISO 14644 class 3 clean room.

24. The clean room of claim 1, wherein said clean room is an ISO 14644 class 4 clean room.

25. The clean room of claim 1, wherein said clean room is an ISO 14644 class 5 clean room.