

**What is claimed is:**

1. A method of reducing flow of sweep gas through an interior volume of a ventilated gas cabinet arranged to contain a gas supply system including gas supply vessel(s), said method comprising using physical adsorbent-based gas storage and dispensing vessel(s) as said gas supply vessel(s) to thereby reduce flow of sweep gas through said interior volume, in relation to gas supply vessel(s) that are not physical adsorbent-based.
2. The method of claim 1, wherein said gas supply vessel(s) contain a sorbate gas at subatmospheric pressure.
3. The method of claim 1, wherein said gas supply vessel(s) contain a sorbate gas selected from the group consisting of arsine, phosphine, hydrogen selenide, hydrogen telluride, nitrogen trifluoride, boron trifluoride, boron trichloride, diborane, trimethylsilane, tetramethylsilane, disilane, silane, germane, and organometallic gaseous reagents.
4. A method of fabricating a gas source package, said method comprising:  
  
introducing a monolithic carbon physical adsorbent material into said an interior volume of a metal tube closed at a first end thereof and open at a second end thereof; and  
  
after introduction of said monolithic carbon physical adsorbent material into the interior volume of said tube, welding a top plate member to the second end of the tube to enclose the interior volume.
5. The method of claim 4, further comprising securing a fluid dispensing assembly to the top plate member.
6. The method of claim 4, wherein the monolithic carbon physical adsorbent material is conformed in size and shape to the interior volume of said tube, and occupies from about 75% to about 95% of the interior volume.
7. The method of claim 4, further comprising introducing gas to the interior volume for adsorption on said monolithic carbon physical adsorbent material.

8. The method of claim 7, wherein the gas introduced to the interior volume is thereafter stored in the interior volume at subatmospheric pressure.
9. The method of claim 7, wherein the gas comprises gas selected from the group consisting of arsine, phosphine, hydrogen selenide, hydrogen telluride, nitrogen trifluoride, boron trifluoride, boron trichloride, diborane, trimethylsilane, tetramethylsilane, disilane, silane, germane, and organometallic gaseous reagents.
10. A gas cabinet assembly comprising an enclosure with an interior volume that is adapted to contain a physical adsorbent-based gas storage and dispensing system, and arranged to be ventilated by flow of sweep gas through the interior volume from a source of said sweep gas exterior to the enclosure, and discharge thereof from the enclosure, at a reduced rate of flow in relation to a corresponding gas cabinet adapted to contain a gas storage and dispensing system lacking said physical adsorbent.
11. The gas cabinet assembly of claim 10, wherein the enclosure is a component part of a semiconductor process tool.
12. The gas cabinet assembly of claim 10, wherein the enclosure comprises a gas box in an ion implantation system.
13. The gas cabinet assembly of claim 10, wherein the enclosure is equipped with flow circuitry.
14. The gas cabinet assembly of claim 13, wherein the flow circuitry includes at least one component selected from the group consisting of piping, manifolding, valving, mass flow controllers, pressure and temperature monitoring devices.
15. The gas cabinet assembly of claim 13, wherein the flow circuitry is adapted to be coupled with an array of gas supply vessels of the physical adsorbent-based gas storage and dispensing system, and the flow circuitry is switched, upon depletion of gas from a currently on-stream vessel, to a back-up vessel in the enclosure.
16. The gas cabinet assembly of claim 10, wherein the enclosure contains monitoring and control

componentry.

17. The gas cabinet assembly of claim 10, wherein the enclosure contains at least one gas supply vessel.

18. The gas cabinet assembly of claim 17, wherein the at least one gas supply vessel contains a sorbate gas selected from the group consisting of arsine, phosphine, hydrogen selenide, hydrogen telluride, nitrogen trifluoride, boron trifluoride, boron trichloride, diborane, trimethylsilane, tetramethylsilane, disilane, silane, germane, and organometallic gaseous reagents.

19. The gas cabinet assembly of claim 10, wherein the sweep gas discharged from the enclosure is discharged to a house exhaust system of a facility in which the enclosure is deployed.

20. The gas cabinet assembly of claim 10, wherein the sweep gas discharged from the enclosure is treated and recirculated through the enclosure as a recycled sweep gas.

21. An adsorbent consisting of pyrolyzed monolithic carbon adsorbent of rectangular parallelepiped shape, having adsorbed thereon a fluid which is desorbable from the adsorbent for dispensing, wherein the fluid is selected from the group consisting of arsine, phosphine, hydrogen selenide, hydrogen telluride, nitrogen trifluoride, boron trifluoride, boron trichloride, diborane, trimethylsilane, tetramethylsilane, disilane, silane, germane, and organometallic gaseous reagents, wherein said pyrolyzed monolithic adsorbent is contained in a fluid storage and dispensing vessel wherein the pyrolyzed monolithic adsorbent occupies from 60% to about 95% of interior volume of the fluid storage and dispensing vessel.

22. The monolithic adsorbent of claim 21, having arsine adsorbed thereon.

23. The monolithic adsorbent of claim 21, having phosphine adsorbed thereon.

24. The monolithic adsorbent of claim 21, having boron trifluoride adsorbed thereon.

25. The adsorbent in a fluid storage and dispensing vessel as claimed in claim 1, wherein the fluid storage and dispensing vessel is contained in a gas cabinet, wherein the gas cabinet is adapted for flow of a ventilation gas therethrough so that any toxic or hazardous contaminants in the cabinet deriving from

said vessel therein, are displaced from the cabinet and do not accumulate to threshold limit value (TLV) levels of such toxic or hazardous contaminants.

**What is claimed is:**

1. A method of fabricating a gas source package, said method comprising:

introducing a monolithic carbon physical adsorbent material into an interior volume of a metal tube closed at a first end thereof and open at a second end thereof, said monolithic carbon physical adsorbent material comprising multiple monolithic articles, each of cylindrical form, abutting one another in face-to-face contact; and

after introduction of said monolithic carbon physical adsorbent material into the interior volume of said tube, welding a flat top plate member to the second end of the tube to enclose the interior volume, wherein the top plate member has a central opening arranged to leak-tightly engage a fluid dispensing assembly.

2. The method of claim 1, further comprising securing a fluid dispensing assembly to the top plate member.

3. The method of claim 1, wherein the monolithic carbon physical adsorbent material is conformed in size and shape to the interior volume of said tube, and occupies from about 75% to about 95% of the interior volume.

4. The method of claim 1, further comprising introducing gas to the interior volume for adsorption on said monolithic carbon physical adsorbent material.

5. The method of claim 4, wherein the gas introduced to the interior volume is thereafter stored in the interior volume at subatmospheric pressure.

6. The method of claim 4, wherein the gas comprises gas selected from the group consisting of arsine, phosphine, hydrogen selenide, hydrogen telluride, nitrogen trifluoride, boron trifluoride, boron trichloride, diborane, trimethylsilane, tetramethylsilane, disilane, silane, germane, and organometallic gaseous reagents.

7. The method of claim 1, wherein the top plate member comprises an NPT thread to leak-tightly engage the fluid dispensing assembly.

8. The method of claim 7, further comprising securing a fluid dispensing assembly to the top plate member.

9. The method of claim 1, further comprising positioning an O-ring around a periphery of the central opening, and fixing in position in the central opening a valve insertion ring, wherein the valve insertion ring includes an upper disc portion from which downwardly depends a plug portion of smaller diameter than the upper disc portion, so that the plug portion fits closely within the central opening of the top plate member, with the O-ring between an underside of the upper disc portion and an upper surface of the top plate member.