

**What is claimed is:**

1. A pyrolyzed monolith carbon physical adsorbent that is characterized by at least one of the following characteristics:
  - (a) a fill density measured for arsine gas at 25° C. and pressure of 650 torr that is greater than 400 grams arsine per liter of adsorbent;
  - (b) at least 30% of overall porosity of said adsorbent comprising slit-shaped pores having a size in a range of from about 0.3 to about 0.72 nanometer, and at least 20% of the overall porosity comprising micropores of diameter < 2 nanometers; and
  - (c) a bulk density of from 0.9 to 2.0 grams per cubic centimeter.
2. The adsorbent of claim 1, wherein the adsorbent is characterized by characteristic (a).
3. The adsorbent of claim 1, wherein the adsorbent is characterized by characteristic (b).
4. The adsorbent of claim 1, wherein the adsorbent is characterized by characteristic (c).
5. The adsorbent of claim 1, wherein the adsorbent is characterized by characteristics (a) and (b).
6. The adsorbent of claim 1, wherein the adsorbent is characterized by characteristics (b) and (c).
7. The adsorbent of claim 1, wherein the adsorbent is characterized by characteristics (a) and (c).
8. The adsorbent of claim 1, wherein the adsorbent is characterized by characteristics (a), (b) and (c).
9. The adsorbent of claim 1, comprising one or more pyrolyzed monolith adsorbent articles, wherein each such article has a disc shape.
10. The adsorbent of claim 9, wherein the adsorbent comprises a multiplicity of said articles in a vertical stack, wherein each article has a height to diameter ratio, H/D, that is from about 0.10 to about 0.80.

11. The adsorbent of claim 1, wherein the adsorbent has three-dimensional x, y and z dimensions greater than 1.5 centimeters.
12. The adsorbent of claim 1, wherein the adsorbent has at least 30% of its porosity in pores with a diameter of less than 2 nanometers.
13. The adsorbent of claim 1, wherein the adsorbent has a doping agent thereon, wherein the doping agent comprises at least one agent selected from the group consisting of boric acid, sodium tetraborate, sodium silicate, and disodium hydrogen phosphate.
14. A pyrolyzed monolith carbon physical adsorbent that is characterized by at least one of the characteristics (a) and (b): (a) a fill density measured for arsine gas at 25° C. and pressure of 650 torr that is greater than 400 grams arsine per liter of adsorbent; and (b) at least 30% of overall porosity of said adsorbent comprising slit-shaped pores having a size in a range of from about 0.3 to about 0.72 nanometer, and at least 20% of the overall porosity comprising micropores of diameter<2 nanometers.
15. The adsorbent of claim 14, wherein the adsorbent is characterized by characteristic (a).
16. The adsorbent of claim 14, wherein the adsorbent is characterized by characteristic (b).
17. The adsorbent of claim 14, wherein the adsorbent is characterized by characteristics (a) and (b).
18. A pyrolyzed monolith carbon physical adsorbent that is characterized by the following characteristics:
  - (a) a fill density measured for arsine gas at 25° C. and pressure of 650 torr that is greater than 400 grams arsine per liter of adsorbent;
  - (b) at least 30% of overall porosity of said adsorbent comprising slit-shaped pores having a size in a range of from about 0.3 to about 0.72 nanometer, and at least 20% of the overall porosity comprising micropores of diameter<2 nanometers; and
  - (c) a bulk density of from about 0.8 to about 2.0 grams per cubic centimeter.