

CLAIMS

1. An adsorber vessel for the adsorption of gas contaminants from a gaseous stream comprising:

a vertical wall baffle positioned on an inner surface of an adsorber vessel wall; and

5 a bed support positioned below the vertical wall baffle and affixed to the inner surface of the adsorber vessel wall to support an adsorbent material,

wherein the adsorbent material is interned by at least the bed support and the vertical wall baffle such that at least 90% of the volume created between the vertical wall baffle and the inner surface of the adsorber vessel is free of adsorbent material.

10 2. The adsorber vessel of claim 1, wherein the vertical wall baffle comprises a first section having a first end and a second end, wherein the first end of the first section is affixed along the periphery of the inner surface of the adsorber vessel wall and wherein the second end of the first section extends outwardly from the periphery of the inner surface of the adsorber vessel wall; and a second section having a first end and a
15 second end, wherein the first end of the second section is affixed proximate to the second end of the first section, and wherein the second end of the second section extends vertically upward in the adsorber vessel such that the second end of the second section is in a spaced relationship with a portion of the inner surface of the adsorber vessel wall above the second section creating a volume between the vertical wall baffle
20 and the inner surface of the adsorber vessel wall.

3. The adsorber vessel of claim 2, wherein the angle between the first section and the second section is greater than or equal to 90 degrees.

4. The adsorber vessel of claim 2, wherein the angle between the first section and the second section is less than or equal to 90 degrees.

25 5. The adsorber vessel of claim 2, further comprising a third section having a first end and a second end, wherein the first end of the third section is affixed along the periphery of the inner surface of the adsorber vessel wall below the first section, and wherein the second end of the third section extends outwardly from the periphery of the inner surface of the adsorber vessel wall.

30 6. The adsorber vessel of claim 2, further comprising a capping plate having a first end and a second end, wherein the first end of the capping plate is affixed to the

second end of the second section of the vertical wall baffle and the second end of the capping plate extends towards the inner surface of the adsorber vessel wall such that the second end of the capping plate is in a spaced relationship with a portion of the inner surface of the adsorber vessel wall.

5 7. The adsorber vessel of claim 2, wherein the first section of the vertical wall baffle is composed of a non-perforated material, and wherein the first section of the vertical wall baffle contacts the bed support.

 8. The adsorber vessel of claim 2, wherein the second end of the second section of the vertical wall baffle is positioned above the top surface of the adsorbent material volume.
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 9. The adsorber vessel of claim 9, wherein the second end of the second section of the vertical wall baffle is at least 25 mm above the top surface of the adsorbent material volume.

 10. The adsorber vessel of claim 1, wherein the volume created between the vertical wall baffle and the inner surface of the adsorber vessel is filled with a gas, an insulation material, or a non-adsorbent material.
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 11. The adsorber vessel of claim 1, wherein the vertical wall baffle is curved such that a first end of the vertical wall baffle extends horizontally and is affixed along the periphery of the inner surface of the adsorber vessel wall and a second end of the vertical wall baffle extends vertically upward in the adsorber vessel such that the second end is in a spaced relationship with a portion of the inner surface of the adsorber vessel wall above the second end of the vertical wall baffle creating a volume between the vertical wall baffle and the inner surface of the adsorber vessel wall.
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 12. The adsorber vessel of claim 11, wherein the second end of the vertical wall baffle is positioned at or above the top surface of the adsorbent material volume.
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 13. The adsorber vessel of claim 11, wherein the second end of the vertical wall baffle is at least 25 mm above the top surface of the adsorbent material volume.

 14. An apparatus for the adsorption of gas contaminants from a gaseous stream comprising:

30 a vessel having a vessel wall, the vessel wall including an inner surface;

a bed of adsorbent material having a top surface and being positioned atop a bed support; and

5 a baffle located within the vessel and above the bed support, the baffle including an upper portion having an upper end and a lower portion having a lower end, the lower end being positioned against the inner surface of the vessel wall, at least a portion of the baffle being spaced apart from the inner wall surface, thereby defining a void area between the baffle and the inner wall surface, the upper portion extending above the top surface of the bed of adsorbent material, the lower portion being submerged in the bed of adsorbent material and being adapted to prevent air or adsorbent material from
10 flowing into the void area through the baffle or between the lower end of baffle and the inner wall surface.

15. The apparatus of claim 14, wherein the upper end of the baffle is positioned proximate to the inner surface of the vessel wall.

16. The apparatus of claim 14, wherein the vessel wall has a circumference and the baffle substantially extends around the circumference of the vessel wall.
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17. The apparatus of claim 14, wherein the void area is substantially free of the adsorbent material.

AMENDED CLAIMS
received by the International Bureau on 9 July 2012 (09.07.2012)

1. An adsorber vessel for the adsorption of gas contaminants from a gaseous stream comprising:

a vertical wall baffle positioned on an inner surface of an adsorber vessel wall, wherein the vertical wall baffle comprises a first section having a first end and a second end, wherein the first end of the first section is affixed along the periphery of the inner surface of the adsorber vessel wall and wherein the second end of the first section extends outwardly from the periphery of the inner surface of the adsorber vessel wall; and a second section having a first end and a second end, wherein the first end of the second section is affixed proximate to the second end of the first section, and wherein the second end of the second section extends vertically upward in the adsorber vessel such that the second section is in a spaced relationship with a portion of the inner surface of the adsorber vessel wall creating a volume between the vertical wall baffle and the inner surface of the adsorber vessel wall; and

a bed support positioned spatially apart and below the vertical wall baffle and affixed to the inner surface of the adsorber vessel wall to support an adsorbent material,

wherein the adsorbent material is interned by at least the bed support and the vertical wall baffle such that at least 90% of the volume created between the vertical wall baffle and the inner surface of the adsorber vessel is free of adsorbent material and a portion of the vertical wall baffle is positioned above the top surface of the adsorbent material.

~~2. The adsorber vessel of claim 1, wherein the vertical wall baffle comprises a first section having a first end and a second end, wherein the first end of the first section is affixed along the periphery of the inner surface of the adsorber vessel wall and wherein the second end of the first section extends outwardly from the periphery of the inner surface of the adsorber vessel wall; and a second section having a first end and a second end, wherein the first end of the second section is affixed proximate to the second end of the first section, and wherein the second end of the second section extends vertically upward in the adsorber vessel such that the second end of the second section is in a spaced relationship with a portion of the inner surface of the adsorber vessel wall above the second section creating a volume between the vertical wall baffle and the inner surface of the adsorber vessel wall.~~

32. The adsorber vessel of claim 21, wherein the angle between the first section and the second section is greater than or equal to 90 degrees.

43. The adsorber vessel of claim 21, wherein the angle between the first section and the second section is less than or equal to 90 degrees.

54. The adsorber vessel of claim 21, further comprising a third section having a first end and a second end, wherein the first end of the third section is affixed along the periphery of the inner surface of the adsorber vessel wall below the first section, and wherein the second end of the third section extends outwardly from the periphery of the inner surface of the adsorber vessel wall.

65. The adsorber vessel of claim 21, further comprising a capping plate having a first end and a second end, wherein the first end of the capping plate is affixed to the second end of the second section of the vertical wall baffle and the second end of the capping plate extends towards the inner surface of the adsorber vessel wall such that the second end of the capping plate is in a spaced relationship with a portion of the inner surface of the adsorber vessel wall.

76. The adsorber vessel of claim 21, wherein the first section of the vertical wall baffle is composed of a non-perforated material, and wherein the first section of the vertical wall baffle contacts the bed support.

87. The adsorber vessel of claim 21, wherein the second end of the second section of the vertical wall baffle is positioned above the top surface of the adsorbent material volume.

98. The adsorber vessel of claim 87, wherein the second end of the second section of the vertical wall baffle is at least 25 mm above the top surface of the adsorbent material volume.

109. The adsorber vessel of claim 1, wherein the volume created between the vertical wall baffle and the inner surface of the adsorber vessel is filled with a gas, an insulation material, or a non-adsorbent material.

110. The adsorber vessel of claim 1, wherein the vertical wall baffle is curved such that a first end of the vertical wall baffle extends horizontally and is affixed along the periphery of the inner surface of the adsorber vessel wall and a second end of the vertical wall baffle extends vertically upward in the adsorber vessel such that the second end is in a spaced relationship with a portion of the inner surface of the adsorber vessel wall above the second end of the vertical wall baffle creating a volume between the vertical wall baffle and the inner surface of the adsorber vessel wall.

111. The adsorber vessel of claim 104, wherein the second end of the vertical wall baffle is positioned at or above the top surface of the adsorbent material volume.

123. The adsorber vessel of claim 104, wherein the second end of the vertical wall baffle is at least 25 mm above the top surface of the adsorbent material volume.

134. The adsorber vessel of claim 2, wherein the second end of the second section of the vertical wall baffle rests against the inner surface of the adsorber vessel in

an unsealed manner that enables movement of gas between the second end of the second section of the vertical wall baffle and the inner surface of the adsorber vessel.

145. An apparatus for the adsorption of gas contaminants from a gaseous stream comprising:

a vessel having a vessel wall, the vessel wall including an inner surface;

a bed of adsorbent material having a top surface and being positioned atop a bed support; and

a baffle located within the vessel and above the bed support, the baffle including an upper portion having an upper end and a lower portion having a lower end, the lower end being positioned against the inner surface of the vessel wall, at least a portion of the baffle being spaced apart from the inner wall surface, thereby defining a void area between the baffle and the inner wall surface, the upper portion extending above the top surface of the bed of adsorbent material, the lower portion being submerged in the bed of adsorbent material and being adapted to prevent air or adsorbent material from flowing into the void area through the baffle or between the lower end of baffle and the inner wall surface;

wherein the lower end of the baffle is above and spaced apart from the bed support so that a portion of the adsorbent material is in contact with the inner surface of the vessel wall in an area between the lower end of the baffle and the bed support.

156. The apparatus of claim 145, wherein the upper end of the baffle is positioned proximate to the inner surface of the vessel wall.

167. The apparatus of claim 145, wherein the vessel wall has a circumference and the baffle substantially extends around the circumference of the vessel wall.

178. The apparatus of claim 145, wherein the void area is substantially free of the adsorbent material.

189. The adsorber vessel of claim 145, wherein the upper end of the upper portion of the baffle rests against the inner surface of the vessel in an unsealed manner that enables movement of gas between the upper end of the upper portion of the baffle and the inner surface of the adsorber vessel.

~~20. The adsorber vessel of claim 15, wherein the lower end of the baffle is above and spaced apart from the bed support so that a portion of the adsorbent material is in contact with the inner surface of the vessel wall in an area between the lower end of the baffle and the bed support.~~

Statement under Article 19(1)

Claims 1 and 9 have been amended. Claims 14 and 19-20 are new. Original claims 14-17 have been renumbered in the attached replacement sheets as claims 15-18. After amending the claims as set forth above, claims 1-20 are now pending in this application.

The claims have been amended and new claims have been introduced in order to more clearly define over US2435781 and US5908492, which were cited as "X" references in the International Search Report mailed on 6 December 2011.