CLAIMS

1. A biocontainer assembly comprising:

a biocontainer bag, the biocontainer bag defining a storage volume;

a shelf, the shelf having a support surface configured to support the biocontainer bag, the support surface disposed at an oblique angle with respect to a horizontal axis, the shelf including an upper end and a lower end, the lower end being disposed vertically below the upper end, and the shelf including a bag cradle mounted to the lower end, the bag cradle including an angled support surface configured to receive therein a bottom end of the biocontainer bag;

a capacitive fill level sensor, the capacitive fill level sensor mounted to the support surface, the capacitive fill level sensor configured to generate a fill level signal indicative of the amount of material within the storage volume of the biocontainer bag.

2. The biocontainer assembly according to claim 1, wherein the capacitive fill level sensor is mounted to the shelf such that the capacitive fill level sensor is positioned to detect a volume of material disposed within the storage volume of the biocontainer bag when the biocontainer bag is in an inclined storage position upon the support surface of the shelf over a range of volumes between a predetermined minimum fill volume and a predetermined maximum fill volume.

3. The biocontainer assembly according to claim 1 or claim 2, wherein the capacitive fill level sensor comprises a strip sensor configured to detect fill levels along the strip over a predetermined length.

4. The biocontainer assembly according to any of claim 1 to claim 3, wherein the capacitive fill level sensor comprises a plurality of fill level sensors arranged in spaced relationship to each other, a first fill level sensor being disposed at a first position corresponding to the predetermined maximum fill volume, and a second fill level sensor being disposed at a second position corresponding to the predetermined minimum fill volume.

5. The biocontainer assembly according to any of claim 1 to claim 4, wherein the oblique angle at which the support surface is disposed is in a range between five degrees and forty-five degrees.

6. The biocontainer assembly according to claim 5, wherein the oblique angle at which the support surface is disposed is in a range between fifteen degrees and thirty-five degrees.

7. The biocontainer assembly according to any of claim 1 to claim 6, wherein the shelf includes an underside surface, and wherein the capacitive fill level sensor comprises a strip sensor configured to detect fill levels along the strip over a predetermined length, and wherein the capacitive fill level sensor is mounted to the underside surface, the shelf having a thickness of nominally 2mm such that the capacitive fill level sensor is operable to detect material within the storage volume of the biocontainer bag.

8. The biocontainer assembly according to claim 7, wherein the underside surface of the shelf defines a recess, the capacitive fill level sensor disposed within the recess, and wherein the shelf includes a cover plate, the cover plate mounted to the underside of the shelf such that the cover plate is over the recess.

9. The biocontainer assembly according to any of claim 1 to claim 8, wherein the biocontainer bag includes a pair of flexible panels, the flexible panels being connected together, the flexible panels cooperate together to define, at least in part, the storage volume, the biocontainer bag defining a port, the port in fluid communication with the storage volume.

10. The biocontainer assembly according to claim 9 wherein the flexible panels of the biocontainer bag are made from plastic.

11. The biocontainer assembly according to any of claim 1 to claim 10, further comprising:

a controller, the controller in operable arrangement with the capacitive fill level sensor to receive the fill level signal therefrom, the controller configured to control a volume management operation with respect to the amount of material within the storage volume of the biocontainer bag based upon the fill level signal received from the capacitive fill level sensor.

12. The biocontainer assembly according to any of claim 1 to claim 11, further comprising:

a support frame, the support frame including a plurality of uprights, the shelf being mounted to the uprights such that the support surface of the shelf is disposed at the oblique angle with respect to a horizontal axis.

13. The biocontainer assembly according to claim 12, further comprising:

a trolley, the trolley including a base and a plurality of wheels rotatably attached to the base, the base of the trolley mounted to a bottom of the support frame.

14. The biocontainer assembly according to claim 12, wherein the biocontainer bag, the shelf, and the capacitive fill level sensor, comprise a first biocontainer bag, a first shelf, and a first capacitive fill level sensor, respectively, the biocontainer assembly the further comprising:

a second biocontainer bag, the second biocontainer bag defining a storage volume;

a second shelf, the second shelf having a support surface configured to support the biocontainer bag, the support surface mounted to the uprights of the support frame such that the support surface is disposed at an oblique angle with respect to a horizontal axis, the second shelf disposed in vertical spaced relationship to the first shelf;

a second capacitive fill level sensor, the second capacitive fill level sensor mounted to the support surface of the second shelf, the second capacitive fill level sensor configured to generate a fill level signal indicative of the amount of material within the storage volume of the second biocontainer bag.

15. The biocontainer assembly according to claim 14, further comprising:

a trolley, the trolley including a base and a plurality of wheels rotatably attached to the base, the base of the trolley mounted to a bottom of the support frame.

16. A biocontainer assembly comprising:

a frame structure, the frame structure including a plurality of uprights;

an angled support member, the angled support member includes a planar support surface configured to support a biocontainer bag defining an interior storage

volume therein, the angled support member being mounted to the uprights of the frame structure such that the support surface is disposed at an incline angle with respect to a horizontal axis so that the biocontainer bag, when resting upon the support surface, is in an inclined storage position with respect to the horizontal axis, wherein the incline angle at which the support surface is disposed is in a range between five degrees and forty-five degrees; and

a capacitive fill level sensor, the capacitive fill level sensor mounted to the angled support member such that the capacitive fill level sensor is positioned to detect a volume of material disposed within the biocontainer bag when the biocontainer bag is in the inclined storage position over a range of volumes between a minimum fill volume and a maximum fill volume.

17. A method of using a biocontainer assembly according to any of claim 1 to claim 15, the method comprising:

placing a biocontainer bag on a support surface of a shelf, the biocontainer bag defining a storage volume, and the support surface of the shelf configured to support the biocontainer bag and disposed at an oblique angle with respect to a horizontal axis;

detecting, using a capacitive fill level sensor mounted to the support surface, an amount of material within the storage volume of the biocontainer bag;

transmitting a fill level signal from the capacitive fill level sensor to a controller, the fill level signal indicative of the amount of material detected within the storage volume of the biocontainer bag.

18. The method according to claim 17, further comprising:

performing, using the controller, a volume management operation with respect to the amount of material within the storage volume of the biocontainer bag based upon the fill level signal received from the capacitive fill level sensor.