CLAIMS

1. A fluid delivery consumable for delivering a fluid dose to a bioreactor, the fluid delivery consumable comprising:

a vial for holding the fluid dose, the vial having an outlet and an open end opposite to the outlet, and a seal arranged within the outlet of the vial to seal the outlet,

a plunger engaged with the open end and operable to urge the fluid dose towards the outlet, and

a gaiter sealingly attached to the vial and the plunger to provide a sealed cover for the plunger, wherein the gaiter surrounds the plunger between the open end of the vial and a top end of the plunger, and

a connector proximal to the outlet, wherein the connector comprises a hollow needle movable to pierce the seal to form a fluid connection with the vial, the connector being attachable to the bioreactor such that operation of the plunger moves the fluid dose from the vial to the bioreactor.

2. The fluid delivery consumable of claim 1, wherein the seal comprises a septum seal.

3. The fluid delivery consumable of claim 1 or claim 2, wherein the connector comprises an actuator operable to move the needle to pierce the seal.

4. The fluid delivery consumable of claim 3, wherein the connector comprises a first housing portion and a second housing portion, and wherein the actuator is operable to collapse the first housing portion relative to the second housing portion such that the hollow needle pierces the seal.

5. The fluid delivery consumable of claim 4, wherein the connector is configured such that the hollow needle engages the bioreactor when the first housing portion collapses relative to the second housing portion.

6. The fluid delivery consumable of claim 5, wherein the connector further comprises an end seal arranged at an opposite end of the connector to the vial, and wherein the hollow needle is arranged to pierce the end seal when the first housing portion is collapsed relative to the second housing portion.

7. The fluid delivery consumable of any preceding claim, further comprising a collar attached to an end of the vial proximal to the outlet, the connector being attached to the collar.

8. The fluid delivery consumable of claim 7, wherein the collar surrounds the end of the vial, including the outlet.

9. The fluid delivery consumable of claim 7 or claim 8, further comprising a locking ring shaped to engage a recess of the vial to secure the collar to the vial.

10. The fluid delivery consumable of any of claims 7 to 9, wherein the connector is threadingly attached to the collar.

11. The fluid delivery consumable of claim 10, further comprising a clip member arranged to prevent detachment of the connector from the collar after the connector has been attached to the collar.

12. The fluid delivery consumable of claim 11, wherein the collar or the connector comprises the clip member, and wherein the clip member is arranged to engage a recess on the other of the collar or the connector when the connector has been attached to the collar to prevent rotation of the connector relative to the collar after the connector has been attached to the collar.

13. The fluid delivery consumable of any preceding claim, wherein the gaiter comprises a collapsible wall arranged to collapse as the plunger is actuated.

14. The fluid delivery consumable of any of any preceding claim, further comprising a cap attached to the top end of the plunger, the gaiter being attached to the cap, and wherein the cap is larger than the open end of the via such that the gaiter comprises a frustrum-shaped wall.

15. The fluid delivery consumable of claim 14, wherein the frustrum-shaped wall comprises at least one inward fold and at least one outward fold arranged such that the frustrum-shaped wall is collapsible.

16. The fluid delivery consumable of any of any preceding claim, wherein the plunger or the cap comprises an engaging feature that is engageable for actuating the plunger.

17. The fluid delivery consumable of any preceding claim, wherein the plunger comprises a piston adapted to seal against an internal surface of the vial.

18. The fluid delivery consumable of any preceding claim, wherein the vial comprises a glass vial.

19. The fluid delivery consumable of any preceding claim, wherein the fluid dose comprises a plurality of magnetic particles in a fluid suspension.

20. The fluid delivery consumable of any of claims 1 to 18, wherein the fluid dose comprises a virus suspension.