WHAT IS CLAIMED IS:

1. A sparger assembly (800) for a bioprocessing system (10, 210), comprising:

a first hydrophobic layer (806) having a plurality of pores (808) of a first size; and

a second drilled-hole sparging layer (810) disposed above the first hydrophobic layer (806) and having a plurality of discrete through-holes (812) of a second size extending through the second drilled-hole sparging layer, the second size being greater than the first size and being between 100 to 500 micrometers in diameter;

wherein the pores (808) of the first hydrophobic layer (806) and the plurality of through-holes (812) of the second drilled-hole sparging layer (810) allow for the passage of a sparge gas (814) sequentially through the first hydrophobic layer (806) and the second drilled hole sparging layer (810),

wherein the first hydrophobic layer (806) is configured to permit passage of the sparge gas (814) while inhibiting the passage of water towards a gas inlet of the sparger assembly (800), and

wherein the second drilled-hole sparging layer (810) is configured to generate bubbles in a liquid medium at the plurality of discrete through-holes (812).

2. The sparger assembly (800) of claim 1, wherein:

the first hydrophobic layer (806) has a three-dimensionally interconnected pore structure.

3. The sparger assembly (800) of any preceding claim, wherein:

the first hydrophobic layer (806) is formed from a sintered hydrophobic material.

4. The sparger assembly (800) of any preceding claim, wherein the first hydrophobic layer (806) is formed from: a polymer material, polyethylene, polytetrafluoroethylene (PTFE), polypropylene, and/or fluorocarbons.

5. The sparger assembly (800) of any preceding claim, wherein:

the first size is between 2 and 20 micrometers in diameter.

6. The sparger assembly (800) of any preceding claim, further comprising:

a housing (802) receiving the first hydrophobic layer (806) and the second drilled-hole sparging layer (810), the housing (802) being configured to receive a sparge gas (814) from a supply;

wherein the sparge gas (814) supplied to the housing (802) is permitted to pass through the first hydrophobic layer (806) and the second drilled-hole layer (810) into a bioprocessing vessel (20); and

wherein the first pore size of the first hydrophobic layer (806) is such that water is not permitted to pass from the bioprocessing vessel (20) past the first hydrophobic layer (806).

7. The sparger assembly (800) of any preceding claim, wherein:

the first layer (806) is gas permeable and water impermeable.

8. A bioprocessing system (10), comprising:

a vessel (12);

a flexible bioprocessing bag (20) positionable within the vessel (12); and

at least one sparger assembly (800) positioned at a bottom of the flexible bioprocessing bag (20), the sparger assembly (800) being as per the sparger assembly (800) of any preceding claim.

9. The bioprocessing system (10) of claim 8, further comprising at least one of: a magnetic drive (34) external to the vessel (12), and/or a magnetic hub (30) and/or an impeller (28).

10. The bioprocessing system (10) of claim 8 or 9, wherein at least one of said at least one sparger assembly (800) forms part of an aeration manifold (112, 114, 212, 214, 510, 512) that is removably attachable to a base plate (110, 210) therein.

11. The bioprocessing system (10) of claim 10, wherein respective aeration manifolds (112, 114, 212, 214, 510, 512) are arc-shaped.

12. The bioprocessing system (10) of claim 10 or 11, wherein respective pairs of aeration manifolds (112, 114, 212, 214, 510, 512) are connected together.