WHAT IS CLAIMED IS:

1. A disinfection cap having a housing comprising:

a top wall and a cylindrical sidewall having an inner surface defining a cavity, and an outer surface,

an open bottom formed by the cylindrical sidewall with an opening to the cavity within said housing for receiving a hub of a luer connector;

an open cell foam structure disposed within the cavity, the open cell foam structure abutting a top wall of the cavity, the open cell foam structure being impregnated with disinfectant fluid in a pre-activated state; and

a closed cell foam structure disposed against the open cell foam structure, the closed cell foam structure being configured as a blockage feature when an inner lumen of the hub is fluidly sealed by the closed cell foam structure preventing disinfectant to enter said lumen when the hub of said luer connector is received within said inner surface of said cavity,

characterized in that

the open cell foam structure is bonded to the closed cell foam structure, the closed cell foam structure and the open cell foam structure both have the corresponding non-circular cross-sectional shape said non-circular cross-sectional shape is configured to create an interference fit with the inner surface of the cavity while still permitting fluid to flow from the open cell foam structure disposed between the top wall and the closed cell foam structure upon compression of the open cell foam structure.

2. The disinfection cap of claim 1, wherein insertion of the luer connector causes compression of the open cell foam structure, thereby releasing fluid.

3. The disinfection cap of claim 1, wherein the closed cell foam structure has a polygonal shape.

4. The disinfection cap of claim 3, wherein the closed cell foam structure has one of a multitude of corners which engage the inner surface of the housing in an interference fit.

5. The disinfection cap of claim 4, wherein a gap is formed between the multitude of corners and one of a multitude of flat portions and the inner surface of the housing, the gap creating a pathway for disinfectant to flow through upon compression of the open cell foam structure.

6. The disinfection cap of claim 3, wherein the closed cell foam structure has a hexagonal shape.

7. The disinfection cap of claim 3, wherein the closed cell foam structure has a pentagonal shape.

8. The disinfection cap of claim 1, wherein the closed cell foam structure has a star shape.

9. The disinfection cap of claim 8, wherein the closed cell foam structure has one of a multitude of points which engage the inner surface of the housing in an interference fit.

10. The disinfection cap of claim 9, wherein a gap is formed between one of a multitude of inner points and the inner surface of the housing, the gap creating a pathway for disinfectant to flow through upon compression of the open cell foam structure.

11. The disinfection cap of claim 3, wherein the closed cell foam structure has a four-point star shape.

12. The disinfection cap of claim 3, wherein the closed cell foam structure has a five point star shape.

13. The disinfection cap of claim 1, further including an at least one thread on said outer surface of the housing, said at least one thread being sufficient to interlock with a mating feature of the luer connector.

14. The disinfection cap of claim 5, wherein said hub is secured within said inner surface of said cavity by interlocking at least a portion of at least one thread with a mating feature on said hub of said luer connector.

15. The disinfection cap of claim 1, wherein a removable peelable seal covers an opening to the cavity.

16. The disinfection cap of claim 1, wherein the open cell foam structure has a polygonal shape.

17. The disinfection cap of claim 1, wherein the open cell foam structure has a star shape.

18. A method of manufacturing of the disinfection cap of claim 1, comprising:

bonding sheets of the closed cell foam to the open cell foam into a bonded open cell foam structure and closed cell foam structure;

cutting the bonded open cell foam structure and closed cell foam structure into a shape; and,

inserting the bonded open cell foam structure and closed cell foam structure into the cavity of the housing of the disinfection cap.

19. The method of manufacturing of claim 18 further comprising:

impregnating the bonded open cell foam structure with disinfectant before inserting the bonded open cell foam structure and closed cell foam structure.

20. The method of manufacturing of claim 18 further comprising:

impregnating the bonded open cell foam structure with a disinfectant through a gap formed between a flat portion of the closed cell foam structure and an inner surface of the cavity of the housing.

21. The method of manufacturing of claim 18 further comprising:

placing a peelable seal on an open end of the housing to seal the cavity and the disinfectant within.