CLAIMS

1. A non-return device for use with a waste trap or a urinal, the non-return device comprising:

a tubular portion comprising a device inlet, wherein the tubular portion comprises a non-constant tubular length that depends on circumferential position around the tubular portion;

a sealing portion having first and second sheet members biased to a sealed position in which the first and second sheet members are at least partially in surface contact, the sealing portion defining a device outlet; and

a transition portion extending between the tubular portion and the sealing portion and providing fluid communication between the tubular portion and the sealing portion, the transition portion having a convex section of wall biased to a bowed-out configuration for allowing fluid to open the sealing portion by forcing the first and second sheet members to an open position for allowing fluid flowing into the non-return device from the device inlet to flow out of the device outlet.

2. The non-return device of claim 1, wherein the sheet members are biased to return to the sealed position from the open position such that fluid is prevented from flowing from the device outlet to the device inlet.

3. The non-return device of either of claims 1 or 2, wherein the non-return device is injection moulded.

4. The non-return device of claim 3, wherein the sealing portion is moulded in a tool comprising a shell and a core.

5. The non-return device of either of claims 1 or 2, wherein the non-return device is compression moulded.

6. The non-return device of any one of claims 1 to 5, wherein the device inlet is circular.

7. The non-return device of any one of claims 1 to 6, wherein the device inlet is biased to an open position.

8. The non-return device of any one of claims 1 to 7, wherein the device inlet is stiffened.

9. The non-return device of any one of claims 1 to 8, wherein the device inlet is a circular flange.

10. The non-return device of any one of claims 1 to 9, wherein the sheet members define a flow path from the transition portion to the device outlet.

11. The non-return device of claim 10, wherein each sheet member comprises a first edge and a second edge, the edges being parallel to the flow path.

12. The non-return device of claim 11, wherein the first sheet member first edge is joined to the second sheet member first edge and the first sheet member second edge is joined to the second sheet member second edge.

13. The non-return device of any one of claims 1 to 12, wherein the flow path is non-linear.

14. The non-return device of any one of claims 1 to 13, wherein the sheet members define at least one bend or kink.

15. The non-return device of claim 14, wherein the bend or kink extends across the sheet members in direction perpendicular to the direction of the flow path.

16. The non-return device of either of claims 14 or 15, wherein there is one kink.

17. The non-return device of any one of claims 14 to 16, wherein the sealing portion comprises a plurality of sealing portion sections, each sealing portion section being adjacent, a bend or kink.

18. The non-return device of claim 17, wherein the angle between the sealing portion sections adjacent the kink is between 110° and 170°.

19. The non-return device of claim 18, wherein the angle is between 120° to 160°.

20. The non-return device of claim 18 or 19, wherein the angle is 135°.

21. The non-return device of any one of claims 17 to 20, wherein each sealing portion section is linear.

22. The non-return device of any one of claims 1 to 21, wherein at least a portion of each sheet member is less than 0.5mm thick

23. The non-return device of claim 22, wherein at least a portion of each sheet member is less than 0.3mm thick.

24. The non-return device of claim 23, wherein at least a portion of each sheet member is 0.1 millimetres thick.

25. The non-return device of any one of claims 22 to 24, wherein the sheet member portion is adjacent a sealing portion section.

26. The non-return device of any one of claims 1 to 25, wherein the sheet members are a variable thickness.

27. The non-return device of any one of claims 1 to 26, wherein the non-return device comprises silicon.

28. The non-return device of claim 27, wherein the non-return device comprises liquid silicon.

29. The non-return device of any one of claims 1 to 28, wherein the sheet members are biased to the sealed position by resilience.

30. The non-return device of any one of claims 1 to 29, wherein the first and second sheet members comprise at least one biasing member.

31. The non-return device of claim 30, wherein the first and second sheet members comprise at least one stiffening member.

32. The non-return device of claim 31, wherein the biasing members and the stiffening members are the same.

33. The non-return device of claim 31 or 32, wherein the at least one biasing member and/or the at least one stiffening member are first and second ribs.

34. The non-return device of claim 33, wherein the first rib connects first edges of the first and second sheet members and the second rib connects second edges of the first and second sheet members.

35. The non-return device of claim 34, wherein the ribs extend the full length of the sheet members.

36. The non-return device of any one of claims 33 to 35, wherein the ribs bias the first and second sheet members to the sealed position.

37. The non-return device of any one of claims 33 to 36, wherein each rib is more than 50% of the thickness of each sheet member.

38. The non-return device of any one of claims 33 to 36, wherein each rib is more than 50% thicker than the sheet members combined.

39. The non-return device of any one of claims 33 to 38, wherein the ribs extend up to the transition portion.

40. A non-return device for use with a waste trap or a urinal, the non-return device comprising:

a tubular portion comprising a device inlet, wherein the tubular portion comprises a non-constant tubular length that depends on circumferential position around the tubular portion;

a sealing portion having first and second sheet members biased to a sealed position in which the first and second sheet members are at least partially in surface contact, the sealing portion defining a device outlet; and at least one sheet member comprising at least one stiffening member; and

a transition portion extending between the tubular portion and the sealing portion and providing fluid communication between the tubular portion and the sealing portion,

the transition portion being biased to a bowed-out configuration for allowing fluid to open the sealing portion by forcing the first and second sheet members to an open position for allowing fluid flowing into the non-return device from the device inlet to flow out of the device outlet.

41. The non-return device of claim 40, wherein the transition portion has a convex section of wall.

42. A non-return device for use with a waste trap or a urinal, the non-return device comprising:

a tubular portion comprising a device inlet, wherein the tubular portion comprises a non-constant tubular length that depends on circumferential position around the tubular portion;

a sealing portion having first and second sheet members biased to a sealed position in which the first and second sheet members are at least partially in surface contact, the sealing portion defining a device outlet; and at least one sheet member comprising at least one biasing member; and

a transition portion extending between the tubular portion and the sealing portion and providing fluid communication between the tubular portion and the sealing portion,

the transition portion being biased to a bowed-out configuration for allowing fluid to open the sealing portion by forcing the first and second sheet members to an open position for allowing fluid flowing into the non-return device from the device inlet to flow out of the device outlet.

43. The non-return device of claim 42, wherein the transition portion has a convex section of wall.