Preferably:

- the first frustoconical portion has a first length measured parallel to the axis which is between 2 and 3 millimetres, and/or

- the second frustoconical portion has a second length measured parallel to the axis which is between 6 millimetres and 8 millimetres.

Preferably, the sleeve has an inner surface in which the internal thread is formed, an outer surface opposite the inner surface, and a connecting surface connecting the inner surface to the outer surface, the connector furthermore comprising a fluid seal fixed on the connecting surface.

Preferably, the connector comprises two elements that can be gripped by a user, formed on the outer surface of the sleeve.

Preferably, the two grippable elements are two fins diametrically opposed with respect to the axis.

SUMMARY OF INVENTION

According to an aspect of the present invention, there is provided a kit comprising a vial and a male connector,

wherein the vial is obtained by a blow-fill-seal process, and comprises:

- a neck comprising an external thread,

- a sealing part which seals the neck and which is suitable for being broken by a user so as to reveal an opening delimited by the neck giving access to the inside of the vial from the outside of the vial,

and wherein the male connector comprises:

- a male part suitable for being inserted in the female connector after breaking of the sealing part, the male part having an outer surface extending around an axis and tapering towards a free end of the male part,

- a sleeve extending around and at a distance from the male part, the sleeve comprising an internal thread suitable for cooperating with the external thread when the male part is inserted in the female connector,

wherein the outer surface comprises a first frustoconical portion forming a first angle with respect to the axis, and a second frustoconical portion extending the first frustoconical portion towards the free end, the second frustoconical portion forming a second angle with respect to the axis, the second angle being less than the first angle.

DESCRIPTION OF THE FIGURES

Other features, aims and advantages of the invention will emerge from the following description, which is given purely by way of illustration and not being limiting and which should be read with reference to the attached drawings, in which:

Figure 1 is a perspective view of an interconnector according to an embodiment.

Figure 2 is a side view of the interconnector of figure 1.

Figure 3 is a sectional view of the interconnector of figure 1.

Figure 4 is a sectional view of a male connector constituting a part of the interconnector of figure 1.

Figure 5 is a view from above of a vial according to an embodiment, in a closed state.

Figure 6 is a side view of the vial of figure 5, in an open state.

Figure 7 is a sectional view of the vial of figure 5.

Figure 8 is a side view of an injection device according to an embodiment.

Figure 9 is a sectional view of the injection device of figure 8.

Figure 10 is a side view of two pieces of equipment forming an injection kit according to an embodiment in a disassembled state.

Figure 11 is a side view of the kit of figure 10 in an assembled state.

CLAIMS

1. A kit comprising a vial and a male connector,
wherein the vial is obtained by a blow-fill-seal process, and comprises:
- a neck comprising an external thread,
- a sealing part which seals the neck and which is suitable for being broken by a user so as to reveal an opening delimited by the neck giving access to the inside of the vial from the outside of the vial,
and wherein the male connector comprises:
- a male part suitable for being inserted in the female connector after breaking of the sealing part, the male part having an outer surface extending around an axis and tapering towards a free end of the male part,
- a sleeve extending around and at a distance from the male part, the sleeve comprising an internal thread suitable for cooperating with the external thread when the male part is inserted in the female connector,
wherein the outer surface comprises a first frustoconical portion forming a first angle with respect to the axis, and a second frustoconical portion extending the first frustoconical portion towards the free end, the second frustoconical portion forming a second angle with respect to the axis, the second angle being less than the first angle.

2. The kit according to claim 1, wherein the first angle is between 25 degrees and 35 degrees with respect to the axis.

3. The kit according to claim 1, wherein the first angle is between 10 degrees and 15 degrees with respect to the axis.

4. The kit according to any one of the preceding claims, wherein the second angle is between 4 and 10 degrees with respect to the axis.

5. The kit according to any one of the preceding claims, wherein:
- the first frustoconical portion has a first length measured parallel to the axis which is between 2 and 3 millimetres, and/or
- the second frustoconical portion has a second length measured parallel to the axis which is between 6 millimetres and 8 millimetres.

6. The kit according to any one of the preceding claims, wherein the sleeve has an inner surface in which the internal thread is formed, an outer surface opposite the inner surface , and a connecting surface connecting the inner surface to the outer surface, the connector further comprising a fluid seal fixed on the connecting surface.

7. The kit according to any one of the preceding claims, wherein the male connector comprises two elements which can be gripped by a user, formed on the outer surface of the sleeve.

8. The kit according to the preceding claim, wherein the two grippable elements are two fins that are diametrically opposed with respect to the axis.

9. The kit according to any one of the preceding claims, comprising a device, the device comprising the male connector and being suitable for delivering a fluid coming from the vial, when the male connector is connected to the female connector.

10. The kit according to the preceding claim, wherein the device comprises an injection needle for delivering the fluid, a spray nozzle for delivering the fluid in the form of a spray, or a sterilising filter enabling the fluid to be delivered in the form of drops.

11. The kit according to any one of the preceding claims, comprising an interconnector, the interconnector comprising the male connector, a second connector and a passage capable of forming a fluid connection between the vial and another piece of equipment, when the male connector is connected to the vial and the second connector is connected to the other piece of equipment.

12. The kit according to any one of the preceding claims, further comprising a syringe comprising a male luer connector suitable for being connected to the female connector, the syringe being suitable for drawing a fluid from the vial, when the male luer connector is connected to the female connector.

13. The kit according to any one of the preceding claims, wherein the male connector comprises:
- an annular connection part extending radially around the axis in order to connect the male element to the sleeve,
- a seal fixed on the connection part and arranged between the male part and the sleeve, such that the neck comes into contact with the seal when the male part is inserted in the female connector, the seal being at a distance from the internal thread in a direction parallel to the axis.

14. The kit according to any one of the preceding claims, wherein the free end of the male part is set back with respect to the sleeve in a direction parallel to the axis.

15. The kit according to any one of the preceding claims, wherein the vial is made of low-density polyethylene.