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Claims

1. A purification apparatus, comprising an elongate UV source and a conduit for water, or another fluid, to be purified, the conduit being formed of a UV transmissive material, wherein
5 the conduit has an inlet and an outlet and is positioned so that part of it is wrapped around at least part of the UV source thereby to sterilise water or fluid within the conduit, further comprising reflective means for causing UV radiation to be reflected onto one or more parts of the conduit which extends beyond the part which is wrapped around the UV source.
- 10 2. Apparatus as claimed in Claim 1, wherein the reflective means comprises a cap having a surface adapted to reflect UV radiation to a part of the conduit which is not wrapped around the UV source.
3. Apparatus as claimed in Claim 2, wherein the cap has at least one internal surface
15 arranged to reflect UV radiation onto at least part of the inlet and/or outlet of the conduit.
4. Apparatus as claimed in Claim 2 or 3, wherein the reflective internal surface of the cap is tapered towards the outlet of the conduit.
- 20 5. Apparatus as claimed in any of Claims 2 to 4, wherein the reflective internal surface converges as it extends away from the UV source.
6. Apparatus as claimed in any of Claims 2 to 5, wherein the reflective internal surface is
25 arranged to concentrate radiation as it extends away from the UV source.
7. Apparatus as claimed in any of Claims 2 to 6, wherein the cap has an extent in one direction which is greater than its extent in the other direction.
8. Apparatus as claimed in any of Claims 2 to 7, wherein the cap is generally segment
30 shaped in a cross section.

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9. Apparatus as claimed in any of Claims 2 to 8, wherein the reflective internal surface of the cap comprises a bottom surface, a top surface and side surface extending between the top and bottom surfaces, wherein at least the top and/or side surface is tapered towards the outlet.
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10. Apparatus as claimed in any of Claims 2 to 9, wherein the reflective cap provides a reflective path which extends beyond the outer radial extent of the conduit.
11. Apparatus as claimed in any of Claims 2 to 10, wherein a faucet is provided having a reflective surface and positioned such that it reflects UV radiation onto the outlet.
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12. Apparatus as claimed in Claim 11, wherein the faucet comprises part of the cap.
13. Apparatus as claimed in Claim 11 or 12, wherein the faucet is connected to the cap to form an unbroken refractive path.
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14. Apparatus as claimed in Claim 11, 12 or 13, wherein the conduit extends into the faucet but stops short of the end of the faucet so that the outlet of the conduit is recessed with respect to an outlet of the faucet.
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15. Apparatus as claimed in Claim 14, wherein the portion of the conduit extending into the faucet is shielded by the faucet from direct radiation from the UV source.
16. Apparatus as claimed in any preceding claim, including a chamber having an internal UV reflective surface which is mounted over the wrapped part of the conduit thereby to reflect radiation back to the conduit.
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17. Apparatus as claimed in Claim 16, when dependent on any of Claims 2 to 15, wherein the chamber terminates in the cap.
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18. Apparatus as claimed in any preceding claim, wherein the conduit is formed of a UV transmissive material, for example quartz.
19. Apparatus as claimed in any preceding claim, including one or more mirrors forming at least part of the reflective surface.
20. Apparatus as claimed in any preceding claim, wherein the inlet and outlet of the conduit are provided at generally the same end of the apparatus.
21. Apparatus as claimed in any of Claims 1 to 19, wherein the inlet and outlet of the conduit are provided at generally opposite ends of the apparatus.
22. Apparatus as claimed in any preceding claim, wherein the conduit includes one or more folded parts positioned generally longitudinally in relation to the UV source.
23. Apparatus as claimed in any preceding claim, wherein the conduit is a tank adapted to surround at least part of the UV source radially.
24. Apparatus as claimed in any preceding claim, wherein the UV source comprises two or more UV sources.
25. Apparatus as claimed in any preceding claim, including a vessel for a second source of flowable substance so as to enable a different source of substance to be dispensed directly without being directly impinged upon by radiation from the UV source.
26. Apparatus as claimed in Claim 25, wherein the conduit for the second source of substance is positioned so as to receive at least some reflected radiation.

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27 Apparatus as claimed in any of Claims 2 to 26, wherein the cap has a first curved end of a first radius of curvature and a second curved end of a second, larger, radius of curvature in cross section.

Claims

1. A purification apparatus, comprising an elongate UV source and a conduit for water, or another fluid, to be purified, the conduit being formed of a UV transmissive material, wherein
5 the conduit has an inlet and an outlet and is positioned so that part of it is wrapped around at least part of the UV source thereby to sterilise water or fluid within the conduit, further comprising reflective means for causing UV radiation to be reflected onto one or more parts of the conduit which extends beyond the part which is wrapped around the UV source, wherein the reflective means comprises a cap having a surface adapted to reflect UV radiation to a part
10 of the conduit which is not wrapped around the UV source, and wherein the cap has at least one reflective internal surface arranged to reflect UV radiation onto the outlet of the conduit.
2. Apparatus as claimed in Claim 1, wherein the cap has at least one reflective internal surface arranged to reflect UV radiation onto at least part of the inlet of the conduit.
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3. Apparatus as claimed in Claim 1 or 2, wherein the reflective internal surface is tapered towards the outlet of the conduit.
4. Apparatus as claimed in any of Claims 1 to 3, wherein the reflective internal surface
20 converges as it extends away from the UV source.
5. Apparatus as claimed in any of Claims 1 to 4, wherein the reflective internal surface is arranged to concentrate radiation as it extends away from the UV source.
- 25 6. Apparatus as claimed in any of Claims 1 to 5, wherein the cap has an extent in one direction which is greater than its extent in the other direction.
7. Apparatus as claimed in any of Claims 1 to 6, wherein the cap is generally segment
30 shaped in a cross section.

8. Apparatus as claimed in any of Claims 1 to 7, wherein the reflective internal surface comprises a bottom surface, a top surface and side surface extending between the top and bottom surfaces, wherein at least the top and/or side surface is tapered towards the outlet.
- 5 9. Apparatus as claimed in any of Claims 1 to 8, wherein the reflective internal surface provides a reflective path which extends beyond the outer radial extent of the conduit.
- 10 10. Apparatus as claimed in any of Claims 1 to 9, wherein a faucet is provided having a reflective surface and positioned such that it reflects UV radiation onto the outlet.
- 11 11. Apparatus as claimed in Claim 10, wherein the faucet comprises part of the cap.
- 12 12. Apparatus as claimed in Claim 10 or 11, wherein the faucet is connected to the cap to form an unbroken refractive path.
- 15 13. Apparatus as claimed in Claim 10, 11 or 12, wherein the conduit extends into the faucet but stops short of the end of the faucet so that the outlet of the conduit is recessed with respect to an outlet of the faucet.
- 20 14. Apparatus as claimed in Claim 13, wherein the portion of the conduit extending into the faucet is shielded by the faucet from direct radiation from the UV source.
- 25 15. Apparatus as claimed in any preceding claim, including a chamber having an internal UV reflective surface which is mounted over the wrapped part of the conduit thereby to reflect radiation back to the conduit.
- 16 16. Apparatus as claimed in Claim 15, wherein the chamber terminates in the cap.
- 17 17. Apparatus as claimed in any preceding claim, wherein the conduit is formed of a UV
30 transmissive material, for example quartz.

18. Apparatus as claimed in any preceding claim, including one or more mirrors forming at least part of the reflective surface.

5 19. Apparatus as claimed in any preceding claim, wherein the inlet and outlet of the conduit are provided at generally the same end of the apparatus.

20. Apparatus as claimed in any of Claims 1 to 18, wherein the inlet and outlet of the conduit are provided at generally opposite ends of the apparatus.

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21. Apparatus as claimed in any preceding claim, wherein the conduit includes one or more folded parts positioned generally longitudinally in relation to the UV source.

22. Apparatus as claimed in any preceding claim, wherein the conduit is a tank adapted to surround at least part of the UV source radially.

15 23. Apparatus as claimed in any preceding claim, wherein the UV source comprises two or more UV sources.

20 24. Apparatus as claimed in any preceding claim, including a vessel for a second source of flowable substance so as to enable a different source of substance to be dispensed directly without being directly impinged upon by radiation from the UV source.

25 25. Apparatus as claimed in Claim 24, wherein the conduit for the second source of substance is positioned so as to receive at least some reflected radiation.

26. Apparatus as claimed in any of Claims 1 to 25, wherein the cap has a first curved end of a first radius of curvature and a second curved end of a second, larger, radius of curvature in cross section.

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27. Apparatus substantially as herein described on pages 6 to 15 of the specification and with reference to the accompanying figures.