Claims

1. Apparatus for applying an impregnating agent onto surfaces of items, in particular footwear, where said apparatus (1) has a treatment chamber (20), where an openable and closable door (31) is provided, said door (31) allowing access to the interior of said treatment chamber (20) for placing item(s) (10) to be impregnated inside said treatment chamber (20), and where adjacent the bottom (21) of said treatment chamber (20) means (22) for placing the item(s) (10), in particular footwear at approximate determined positions (23,24,25) are provided and where at least three nozzles (26,27,28,29,30) are arranged in said treatment chamber (20), where said nozzles (26,27,28,29,30) are able to create and issue a mist of impregnating agent, such that first and second nozzles (26,27) are arranged to direct the mist to a zone (41,42) of the item(s) (10) in the determined position (23,24,25) corresponding to the right and left front area respectively and a third nozzle (30) is positioned behind and between the determined position (23,24,25) of the item(s) (10), which third nozzle (30) directs the impregnating mist towards a zone of the item(s) in the determined position corresponding to the rear and inside sides of the item(s).

2. Apparatus according to claim 1, wherein further fourth and fifth nozzles (28,29) are provided where the fourth and fifth nozzles (28,29) are arranged behind the item(s) (10) in the determined position (23,24,25) in order to direct impregnating mist towards the rear and outside left and right sides of the right item respectively left item.

3. Apparatus according to claim 1 wherein the nozzles (26,27,28,29,30) are arranged at oblique angles relative to the bottom (21) of the treatment chamber (10).

4. Apparatus according to any preceding claim, wherein at least the nozzles (26,27,28,29,30) are arranged on a common member, where said common member is moveable relative to the approximate determined position (23,24,25).

5. Apparatus according to claim 1 wherein each nozzle (26,27,28,29,30) is connected to a reservoir (52) of impregnating agent by means of a conduit, and that the impregnating agent is supplied under pressure to the nozzles (26,27,28,29,30), and where each nozzle (26,27,28,29,30) is provided with a valve device, where each valve is controlled independently, and where at least the respective valves controlling first and second nozzles are controlable to issue impregnating agent at different times.

6. Apparatus according to claim 3 wherein respective first and second nozzles (26,27) are adapted to issue impregnating agent in intervals of from 50 milliseconds to 2000 milliseconds, more preferred 100 milliseconds to 1500 milliseconds and most preferred 1500 milliseconds to 1300 milliseconds.

7. Apparatus according to claim 1 wherein the nozzles (26,27,28,29,30) are arranged such that the distance, when shoes are positioned in the determined position (23,24,25), between the surfaces to be treated and the nozzles is from 10 mm to 200 mm, more preferred 25 mm to 100 mm.

8. Apparatus according to any preceding claim **characterised in that** extraction means (50) are provided at the bottom (21) of the treatment chamber (20), where said extraction means (50) optionally may include an active filter unit, and where the extraction unit (50) in use creates a relative under-pressure inside the chamber (20) as compared to outside the apparatus.

9. Apparatus according to any preceding claim wherein a sixth nozzle is arranged in an upper forward part of the treatment chamber (20), where said nozzle is directed for issuing impregnating agent towards a rear part of the treatment chamber (20).

10. Apparatus according to any preceding claim wherein the apparatus (1) comprises communicating means for communicating with a remote computer server, and where each time the apparatus is started and/or a spraying routine is activated or at predetermined time intervals, the apparatus is adapted to transmit one or more of the following to said remote server: an internal check report, contents/level(s) in reservoir(s), identification of spraying routine, apparatus identification code, number of cycles, error codes.

11. Method of impregnating one or more shoes using an apparatus according to any of claims 1 to 10 wherein:

    i. One shoe or a pair of shoes is placed inside the treatment chamber on the appropriate determined position as indicated on the bottom of the chamber;

ii. The chamber is closed and the impregnating process is initiated;
v. Pump means connected to at least one reservoir comprising the impregnating agent and the nozzles inside the chamber, is activated, creating a pressure in the conduits leading from the pump to the nozzles;
vi. A pre-programmed spraying routine is executed by allowing a control unit in which control unit at least one spraying routine is pre-programme, to control the valves provided adjacent the nozzles to open and close according to the routine, and to activate the extraction means according to the spraying routine.

12. Method of impregnating one or more shoes according to claim 11 wherein after the pre-programmed spraying routine has been executed a drying routine is executed, before the door is opened, where said drying routine optionally may activate the extraction means and/or optionally may activate heating elements and/or optionally activate UV lights as part of the drying routine.

13. Method of impregnating one or more shoes according to claim 11 wherein after the pre-programmed spraying routine has been executed a drying routine is executed, before the door is opened, where said drying routine optionally may activate the extraction means and/or optionally may activate heating elements and/or optionally activate UV lights as part of the drying routine.

14. Method of impregnating one or more shoes according to any of claims 11 to 13 wherein communicating means for communicating with a remote computer server is activated each time the apparatus is started and/or a spraying routine is activated, the apparatus by means of the communicating means transmits one or more of the following to said remote server: time, date, an internal check report, contents/level(s) in reservoir(s), identification of spraying routine, apparatus identification code.