Claims

1. An apparatus comprising

i) one or more mixing sectors, wherein the mixing sectors is placed on top of the apparatus as a whole and further comprises at least 4 or more plates or weirs that are tilted at an angle of of about 5^{o} to about 20°,

ii) one or more liquid distribution sectors, wherein a liquid distribution sector is placed between the one or more mixing sectors and the one or more liquid retention sectors,

iii) one or more liquid retention sector, wherein the retention sector is placed at the bottom of the apparatus and further divided in subsectors in fluid connection with one another, wherein the subsectors are chambers or pipes, wherein the liquid retention sector is further equipped with vertical pipes,

c h a r a c t e r i z e d in that the liquid distribution sector comprises at least three or more trays or plates, or such as e.g. at least four or more trays, or plates, wherein one tray is positioned at the lower part of the liquid distribution sector and placed in a horizontal position and may be regarded as a liquid distributor, and wherein the liquid distribution sector comprises a second additional plate, which may be denoted as a third plate, which is placed in between the said liquid distributor and said trays or plates and wherein the third plate or tray is placed between the lower and upper plates or trays and tilted to an angle of about 5^{o} to about 20^{o}, and wherein the liquid distribution sector comprises a plate or tray position above the liquid distributor and wherein the plate or tray is horizontal

and further **c h a r a c t e r i z e d** in that the liquid retention sector is in fluid connection with at least the liquid distribution sector and placed downstream of both the liquid distribution sector and the mixing sector.

2. The apparatus according to claim 1, wherein the one or more mixing sectors consist of mixing plates or weirs, such as e.g. at least 5 or more plates or weirs, at least 6 or more plates or weirs, at least 7 or more plates or weirs, at least 8 or more plates or weirs, at least 9 or more plates or weirs, at least 10 or more plates or weirs, at least 15 or more plates or weirs, at least 20 or more plates or weirs.

3. The apparatus according to any one of claims 1-2, wherein the mixing plates or weirs are tilted at an angle of about 5 to about 15°, or about 5°, such as e.g. about 10°, such as e.g. about 15°, such as e.g. about 20° in relation to the horizontal plane.

4. The apparatus according to any one of the preceding claims, wherein the mixing sector comprises a means to ensure even distribution of feedstock entering the apparatus, by having incorporated a plate or weir placed above the shower deck plates, and comprises one or more collision plates.

5. The apparatus according to according to claim 4, wherein at least one collision plate is vertical.

6. The apparatus according to any one of claims 4-5, wherein at least one collision plate is tilted at any angle of about 5 degrees to about 20 degrees.

7. The apparatus according to any one of the preceding claims, wherein the one or more mixing sectors are in fluid connection with the liquid with the liquid distribution sector and the liquid retention sector.

8. The apparatus according to any of the preceding claims, wherein the liquid distribution sector is placed in between the mixing sector and the liquid retention sector, and which is in fluid connection with the mixing sector and the liquid retention sector.

9. The apparatus according to claim 1, wherein at least one subsector is in fluid connection with the mixing sector.

10. The apparatus according to any of claims 1 or 9, wherein the apparatus comprises three subsectors.

11. The apparatus according to any of claims 1 or 9-10, wherein the subsector 1 is in fluid connection with subsectors 2 and 3.

12. The apparatus according to any of claims 1 or 9-11, wherein the subsector 1 is in fluid connection with one outlet suitably being the product flow with finished and fully processed product.

13. The apparatus according to any of claims 1 or 9-12, wherein the vertical pipes connecting subsector 2 and 3 with one another.

14. The apparatus according to any of claims 1 or 9-13, wherein subsector 3 is in fluid connection with an outlet suitably being the circulation flow outlet, circulating material back to the mixing sector.