CLAIMS:

1. A method for operating a separator to reduce cross-contamination in the processing of products, wherein

a separator insert is provided as a preassembled, exchangeable unit for insertion into stator units on a frame or in a housing of the separator, and wherein the separator insert has at least the following:

i. a rotor rotatable about an axis of rotation (D) with a drum and a drum wall,
ii. preferably a separating means arranged in the drum,
iii. at least one product feed line and two product discharge lines;
iv. wherein the product-contacting areas of the separator insert are partially or completely made of plastic;

characterized by the following steps of:

a) providing the separator with a first separator insert mounted on the frame or in the housing,

b) introducing a starting product to be separated into the separator;
c) discharging a first and second product flow (LP, HP), which are separated from the product mixture, out of the separator through the two separate product discharge lines during a separation operation of the separator;
d) stopping the separation operation and draining residual liquid remaining in the drum;
e) exchanging the emptied contaminated separator insert from the frame or housing of the separator with an unused separator insert.

2. The method according to claim 1, characterized in that the drum wall is of closed-walled design in a central region of the drum.

3. The method according to claim 1 or 2, characterized in that the separator insert has an additional drainage discharge line for draining the residual liquid remaining in the drum in step d).

4. The method according to claim 1-3, characterized in that the residual liquid remaining in the drum is drained off in step d) by collecting the residual liquid outside the separator insert in a collecting container, preferably a drainage bag.

5. The method according to claim 1, 2 or 4, characterized in that the residual liquid remaining in the drum is emptied by draining in step d) via a product feed line.

6. The method according to claim 5, characterized in that the product feed line or a downstream line element connected thereto, preferably a hose or pipe, has a changeover valve for changing between a residual liquid collection container and an output product container, wherein the changeover valve is actuated during draining in step d).

7. The method according to one of the preceding claims 5 or 6, characterized in that an exchangeable, rotatably mounted rotor is formed within the housing of the separator, wherein the introduction of the starting product (S) in step b) and the discharge of the residual liquid in step d) take place via the product feed line, wherein an exchange of a feed element connected to the product feed line for a discharge element with collecting container takes place before the discharge of the residual liquid in step d).

8. The method according to claim 2, characterized in that the central region of the drum wall extends over 20-80% of the axial extension of the drum.

9. The method according to one of the preceding claims, characterized in that at least one product discharge line, in particular the product discharge line of a heavy product flow, is connected to a pump, wherein the pump is used to adjust the pressure in the product discharge line.

10. The method according to claim 9, characterized in that the pump is switched off during the discharge in step d) or operates at a reduced pressure compared with step c), or in that the product discharge line or a line element connected thereto has a regulating element for reducing the pressure and/or flow rate, preferably a valve, particularly preferably a shut-off valve.

11. The method according to one of the preceding claims, characterized in that the separator insert is designed for separating a flowable suspension (S) as starting product in a centrifugal field into at least two flowable phases (LP, HP) of different density and forms a preassembled, exchangeable unit for insertion into stator units on the frame of the separator and comprises at least the following:

i. a housing which is stationary during separation operation and is designed in the manner of a container which is closed except for one or more openings,
ii. a rotor arranged inside the housing and rotatable about an axis of rotation (D) with a drum which has one or more openings,
iii. preferably a separating means arranged in the drum,
iv. at least two rotor units for magnetic bearing devices at two axially spaced locations of the rotor with the drum, with which the rotor with the drum can be held in suspension, rotatably mounted and set in rotation within the housing during separation operation,

wherein, furthermore, mutually spaced apart receptacles with stator units of the bearing devices are formed on the frame, between which the housing of the separator insert is held in a rotationally fixed manner, so that the rotor rotates with the drum in separation operation in step c),

wherein the housing has the drainage discharge line via which the residual liquid is drained from the drum in step d).

12. The method according to claim 11, characterized in that in step d) both the residual liquid is drained from the drum and from the housing.

13. The method according to one of the preceding claims 11 or 12, characterized in that the contaminated first separator insert is removed in step e) for replacement by a new second separator insert by changing the relative position of the receptacles with the stator units of the bearing devices.

14. The method according to one of the preceding claims, characterized in that the discharge of a first and second product flow (LP, HP) separated from the suspension (S) through the two separate product discharge lines from the separator takes place during a separation operation of the separator in such a way that there are no connections between the product feed system (PZS) and the product discharge system (PAS) outside the separator insert.

15. The method according to one of the preceding claims, characterized in that the discharge of a first and second product flow (LP, HP) separated from the suspension (S) through the two separate product discharge lines from the separator takes place during a separation operation of the separator in such a

way that there are no connections between the product discharge system (PAS) and drainage discharge system (DS) outside the separator insert.

16. The method according to one of the preceding claims 1-3 and 7-14, characterized in that the draining of residual liquid from the separator takes place when the separating operation of the separator is stopped in such a way that there are no connections between the product feed system (PZS) and the drainage discharge system (DS) outside the separator insert.

17. The method according to one of the preceding claims, characterized in that the drainage discharge line comprises a nozzle which is formed on the housing in a medium-tight manner and has a surface which comes into contact with the product and which projects relative to the adjacent outer wall of the housing, and a line element, in particular a pipe or hose line, which is connected thereto, preferably hermetically, for discharging the residual liquid into the collecting container.

18. The method according to one of the preceding claims, characterized in that the housing has a product feed with a feed line and a first and a second product discharge, wherein the drainage discharge line is arranged as a separate line opposite the product feed and product discharge.

19. The method according to one of the preceding claims, characterized in that the feed line has a feed nozzle projecting into the interior of the housing

20. The method according to one of the preceding claims, characterized in that the product feed system (PZS), the product discharge system (PAS) and the drainage system (DS), as exchangeable systems, especially comprise hose or pipe lines plugged onto or at the product feed line, the product discharge lines and/or the drainage discharge lines.

21. The method according to claim 18, characterized in that the hose or pipe lines have a sterile coupling at the end.

22. The method according to one of the preceding claims, characterized in that the product feed system (PZS) comprises a pump, preferably a centrifugal pump, which is preferably exchanged after the stop in step d).

23. The method according to one of the preceding claims 20 or 21, characterized in that a flow rate of the product feed or a physical measured value equivalent to the flow rate is determined for regulating the pump output, in particular by a measurement without medium contact.

24. The method according to one of the preceding claims, characterized in that the pump and the flow meter are arranged in a riser of the product feed system (PZS).

25. The method according to one of the preceding claims, characterized in that a discharge line of a heavy phase (HP) of the product discharge system (PAS) comprises a pump, preferably a peristaltic pump, which remains as part of the separator after the stop in step d), while the line element connected to the pump is exchanged.

26. The method according to claim 24, characterized in that the discharge line of the heavy phase (HP) has a flow meter and/or a pressure sensor for adjusting the pressure in the discharge of the heavy phase (HP) on the basis of the rotational speed of the pump, wherein at least the flow meter is arranged along a riser.

27. The method according to one of the preceding claims, characterized in that a container in which the light phase (LP) is temporarily stored is arranged in a discharge line of the light phase.

28. The method according to one of the preceding claims, characterized in that an optical sensor for quality control is arranged, preferably in a fluid-mechanical manner downstream of the container, in the discharge line of the light phase (LP).

29. The method according to one of the preceding claims, characterized in that a pump is arranged in the discharge line of the light phase, preferably in a fluid-mechanical manner downstream of the container.

30. The method according to claim 28, characterized in that the pump output is controlled by acquiring the weight of the container by measurement, preferably by means of a filling level measuring device.

31. The method according to one of the preceding claims, characterized in that the amount of residual liquid drained in step d) is measured.

32. The method according to one of the preceding claims, characterized in that before or during steps b) and c) a protective gas, preferably nitrogen or an inert gas, is introduced into the separator insert, in particular through one or more connection pieces arranged on the housing of the separator insert separately from the product feeds and drains and the drainage discharge.

33. The method according to one of the preceding claims, characterized in that, before step b), air is sucked out of the separator insert through the connection piece(s).

34. The method according to one of the preceding claims, characterized in that during the emptying of the separator insert according to step c), gas is introduced into the separator insert through the connection piece or pieces.

35. The method according to one of the preceding claims, characterized in that the separating process is controlled and/or regulated by the separator by means of a regulating element in or on the product feed system (PZS) and/or the product discharge system (PAS), preferably by means of a pinch valve which acts from the outside on a hose line of the product feed system (PZS) and/or the product discharge system (PZS).