

CLAIMS

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1. Method for biological purification of waste water in a continuous process comprising
 - a) receiving a pretreated waste water in-let stream (1) in an anaerobic zone (A) of a reactor wherein micro-organism culture exist on free flowing biofilm carriers,
 - 10 b) letting the waste water stream with the biofilm carriers into an aerobic zone (C) aerating the waste water stream and carriers received from the anaerobic zone,
 - c) at the end of the aerobic zone (C) transferring the biofilm carriers to the anaerobic zone (A) without transfer of water (5), and
 - 15 d) discharge the water through an outlet (2) to a sludge separation process
 2. Method according to claim 1 comprising an anoxic zone (B) between the anaerobic and aerobic zone.
 - 20 3. Method according to any one of claims 1 to 2 comprising mechanical transfer (3, 4) of the biofilm carriers between zones/chambers.
 4. Method according to any one of claims 2 to 3 wherein a part of the out-let stream (6) is re-introduced into the anoxic zone.
 - 25 5. Method according to any one of claims 1 to 4 wherein the filling ratio of carrier media is between 1% and 100%, preferably between 30 % to 75 %, of the wet volume of the reactor.
 - 30 6. Method according to any one of the preceding claims wherein the out-let stream (2) proceed to a separation step for collection of sludge for further treatment and discharge of purified water to recipient.
 - 35 7. Reactor for continuous biological purification of waste water, ~~characterized in that it comprises~~ an in-let (1) to an anaerobic zone (A), ~~optionally an anoxic zone,~~ followed by an aerobic zone (C), one or more device (5) for transfer of biofilm carriers from the aerobic zone (A) to the anaerobic zone (C), and an out-let (2) ~~characterized in that the one or more transport devices (5) for transfer of biofilm carriers allow water to drain off.~~

8. Reactor according to claim 7, wherein the reactor further comprises an anoxic zone (B) between the anaerobic (A) and the aerobic zone (C). ~~the one or more transport devices for transfer of biofilm carriers allowing water to drain off.~~

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9. Reactor according to claims 7 or 8, wherein the one or more transport devices (5) are elevators, transport screws, belt conveyers or the like.

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