treatment plant and thereby providing an improved method for controlling a treatment plant. A basic object of the invention is to provide an improved method of initially defined type, which entail that the total power consumption, and thereby the cost, is reduced in relation to known methods for controlling a treatment plant at the same time as the required oxygen transfer rate to the liquid or the dissolved oxygen level in the liquid is achieved/maintained.

Summary

In an aspect, there is provided a method for controlling a treatment plant suitable for treatment of liquid such as waste water, the treatment plant (1) comprising:
- a circulation channel (2) adapted to house a liquid,
- an aeration arrangement (5) adapted to supply a gas flow Q comprising oxygen to the liquid, and
- at least one flow generating machine (10) arranged in the circulation channel (2) and adapted to generate a liquid flow along the circulation channel (2), the at least one flow generating machine (10) being constituted by a submersible mixer machine,
the method being **characterized** by the steps of
- providing a gas flow Q to the liquid by means of the aeration arrangement (5),
- operating the flow generating machine (10) at an operational speed f to generate a liquid flow having a flow rate v along the circulation channel (2),
- measuring at least one process parameter at at least one location in the circulation channel (2), which process parameter, directly or indirectly, provide an indication of the oxygen transfer rate to the liquid in the treatment plant (1),

- comparing the measured value of said at least one process parameter with a set value,
- adjusting the oxygen transfer rate to the liquid in the treatment plant (1) if a difference between the measured value of the process parameter and the set value is determined, the oxygen transfer rate of the treatment plant (1) being adjusted by adjusting the gas flow Q provided by the aeration arrangement (5) as well as adjusting the operational speed f of the flow generating machine (10) and thereby the flow rate v of the liquid flow, in order to guide the value of said at least one process parameter towards said set value.

In another aspect, there is provided a treatment plant suitable for treatment of liquid such as waste water, comprising:
- a circulation channel (2) adapted to house a liquid,
- an aeration arrangement (5) adapted to supply a gas flow Q comprising oxygen to the liquid,
- at least one flow generating machine (10) arranged in the circulation channel (2) and adapted to generate a liquid flow along the circulation channel (2), the at least one flow generating machine (10) being constituted by a submersible mixer machine, and
- a control unit (11),

characterized in that the flow generating machine (10) is adapted to be driven at an adjustable operational speed f to generate a liquid flow having a flow rate v along the circulation channel (2), in that the treatment plant (1) comprises means for measuring at least one process parameter at at least one location in the circulation channel (2), which process parameter, directly or indirectly, provide an indication of the oxygen transfer rate to the liquid in the treatment plant (1), and in that the control unit (11) is

adapted to adjust the oxygen transfer rate of the treatment plant (1) by adjusting the gas flow Q provided by the aeration arrangement (5) as well as adjusting the operational speed f of the flow generating machine (10) and thereby the flow rate v of the liquid flow, in order to guide the value of said at least one process parameter towards a set value.

Brief description of the Invention

According to the invention at least the basic object is obtained by means of the initially defined method, having the features defined in the independent claim. Preferred embodiments of the present invention are further defined in the dependent claims.

According to a first aspect of the present invention it is provided a method of the initially defined type, which method is characterized be the steps of providing a gas flow Q to the liquid by means of the aeration arrangement, operating the flow generating machine at an operational speed f to generate a liquid flow having a flow rate v along the circulation channel, measuring at least one process parameter at at least one location in the circulation channel, which process parameter, directly or indirectly, provide an indication of the oxygen transfer rate to the liquid in the treatment plant, comparing the measured value of said at least one process parameter with a set value, adjusting the oxygen transfer rate to the liquid in the treatment plant if a difference between the measured value of the process parameter and the set value is determined, the oxygen transfer rate of the treatment plant being adjusted by adjusting the gas flow Q provided by the aeration arrangement as well as adjusting the operational speed f of the flow generating machine and thereby the flow