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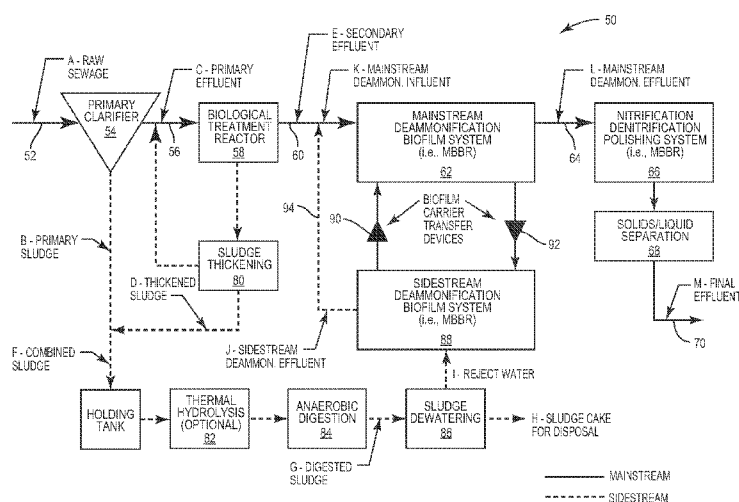
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(54) Title: PROCESS COMPRISING ANAMMOX BACTERIA ON BIOFILM CARRIERS FOR REMOVING AMMONIUM FROM A WASTEWATER STREAM



(57) Abstract: A process that utilizes ammonium oxidizing bacteria (AOB) and anaerobic ammonium oxidizing (ANAMMOX) bacteria to remove ammonium from a wastewater stream. Sludge separated from the wastewater in a mainstream is processed in a sidestream that includes an anaerobic digester, a dewatering system, and a biofilm reactor. The anaerobic digester produces digested sludge that is dewatered, producing reject water that includes a relatively high ammonium concentration and a relatively low organic carbon concentration and a relatively high temperature. The reject water is treated in a sidestream deammonification biofilm reactor that includes biofilm carriers seeded with AOB and ANAMMOX bacteria that are effective to remove ammonium from the reject water. In order to remove ammonium from the wastewater in the mainstream, the AOB and ANAMMOX bacteria on the media carriers is utilized to contact the wastewater in the mainstream and to remove ammonium therefrom. Because of the conditions in the mainstream, after a period of time, the AOB and ANAMMOX bacteria does not efficiently remove ammonium. To rejuvenate the AOB and ANAMMOX bacteria on the biofilm carriers, the AOB and ANAMMOX bacteria is again contacted with the reject water in the sidestream biofilm reactor where conditions are favorable for the growth and proliferation of the AOB and ANAMMOX bacteria.

**Declarations under Rule 4.17:**

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

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