

COMPARISON OF SPECIFIC METHANOGENIC ACTIVITIES IN AN ANAEROBIC FILTER WITH DIFFERENT FEEDING REGIMES

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RESUMO

In the anaerobic filter system the waste passes through a bed of biological solids, either supported as a biofilm on a fixed media, or suspended as a mass of flocs retained in the void space of the bed. It is observed that the majority of waste treatment takes place at the bottom of the reactor. Therefore the biomass at the top is always in contact with low substrate concentrations.

In this work the specific methanogenic activity at several heights of the reactor has been determined in three distinct situations:

- I) Organic Loading Rate = 10 KgCOD/m³.day - one feed at the bottom;
- II) Organic Loading Rate = 10 KgCOD/m³.day - 2/3 of the feed rate at the bottom and 1/3 of the feed rate at 1/3 of reactor's height;
- III) Organic Loading Rate = 10 KgCOD/m³.day - 1/3 of the feed rate at the bottom, 1/3 of the feed rate at 1/3 of reactor's height, and 1/3 of the feed rate at 2/3 of reactor's height.

The average specific methanogenic activity, considering the biomass analysis at five heights of the reactor, has improved 18% from situation I) to II), and 70% from situation I to III).