THE EFFECT OF VELOCITY GRADIEN AND F/M (Food/Mass) RATIO TO SVI (Sludge Volume Index) IN ACTIVATED SLUDGE SYSTEM

Novieta WI, Sudarno, Junaidi

Abstract

The objective of biological wastewater treatment is to tranform dissolved, colloid, and suspended organic matter in wastewate to be biofloc. Charactiristic of floc will influence to performance of activated sludge processes. The settling characteristic activated sludge are sludge Volume Index (SVI). The objective of this research are to know the effect of velocity gradient and F/M ratio to SVI value.

activated sludge system consist of aeration tank volume 5 l and clarifier tank volume 2, l were used in this research. Concentration of organic matter that used in this research are 1014.92 mg/l and 507,46 mg/l. The independent variable of this research are F/M ratio(g COD/g MLSS.day) : (0.0001-0.12), (0.12-0.24), (0.24-0.36), (0.36-0.48), (0.,48-0.60) and Velocity gradient: 63,29, 116,60, 161,98, 217,17 second^{-1}.

The result of this research are velocity gradient 116,60/s and ratio F/M (0.48-0.6) (g COD/g MLSS.day) result the most lowest SVI value. Deflocculation in biological floc is caused by velocity gradien more then 116.60/s. Higher SVI value when F/M ratio less then 0.2(g COD/g MLSS.day) is caused by filament growth. High SVI value result high COD concentration in effluent and low efficiency COD removal in activated sludge system.

Key Word : Velocity Gradient, Activated Sludge, F/M ratio, SVI