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KEY WORD: BIOLOGICAL TREATMENT / ACTIVATED SLUDGE / EMULSION

PORNSAK TAWEEMAHAKAET : COST REDUCTION AND CONTROL FOR WASTE WATER TREATMENT SYSTEM IN THE VEGETABLE OIL INDUSTRY. THESIS ADVISOR : ASSIT. PROF. SUTHAS RATANAKUAKANGWAN. THESIS ADVISOR : MR. ADUL PREMPRASERT. 198 pp. ISBN 974-636-410-3

The process of waste water treatment in the vegetable oil industries mainly is Biological treatment method, which there is a feeding micro-organism in order to digest organic matter in waste water. Finally, the popular system to be used is The Activated Sludge System. The characteristics of waste water from vegetable oil industry are the followings, for the first there are some vegetable oil mixed with the waste water in the form of emulsion. The second, the waste water has 2 different quality, which ones are composed of acid waste water and the others are alkali waste water. These waste water have been produced in different time and quality. It makes waste water treatment consume chemicals for adjusting the quality before treatment. So, the objective of this research is to reduce and control the waste water treatment cost. The cost of waste water treatment cost can separate to 3 items such as a fixed cost, variable cost and others cost. The main cost is a variable cost, which is composed of chemical cost and electrical cost. The chemical to be used are alum, caustic soda, urea and lime. Also, the main points to reduce the variable cost by making the pond to keep the different quality of waste water separately by acidic pond and alkali pond. After that bring 2 kinds of it mix together in an enough ratio. This method can reduce the amount of caustic soda. Which are used for adjust pH of waste water. For the reduction of the amount of urea, researching about the actual nitrogen which wanted by micro organism and add it for actually requirement. The amount of urea can be reduced. And electrical cost, researching about quantity of oxygen which are consumed by micro organism and then add an enough oxygen. The electrical consumption can be reduced.

The result of this research, the variable cost has been reduced from 62.29 baht/cubic meter in 1992 to 13.18 baht/cubic meter in 1996 and total cost has been reduced from 85.00 baht/cubic meter in 1992 to 56.24 baht/cubic meter in 1996. After that, this research have research about cost controlling by using the work controlling tools. In order to maintain the waste water treatment cost

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