

**THE REDUCTION OF TOTAL SOLID SUSPENDED (TSS) AND FAT OIL
CONTENT OF LIQUID WASTE ON VCO (VIRGIN COCONUT OIL)
PRODUCTION USING DUAL BED FILTRATION OF ACTIVE CARBON
AND KAPOK**

*Luqman Hakim¹⁾, Andik Yulianto²⁾, Ardina Kusumawati³⁾
Environmental Engineering Department*

ABSTRACT

The water pollution occurs due to the side product or waste produced by the VCO Industry is not properly managed. The waste water as the side product of VCO process happened since it is assumed that the waterway system is used for waste water facility; the result of this makes most of the plants surrounding it found dead. In addition, with the substandard construction of water ways for waste water causes the water polluted. The domestic waste using dual filtration of active carbon and kapok is used in this research. The objective of this research is to prove the capability and efficiency of dual media filtration reactor in reducing TSS concentration and oil grease in the liquid waste of VCO Industry. And also to prove if there is any variation change of TSS concentration reduction and oil grease at each period of time against dual filtration of active carbon and kapok media.

The research is done using dual bed filtration of active carbon and kapok which has 0.3 meter and 0.15 meter thickness with length and width 25 each, total height 108 cm. The waste water is kept in the storage basin which is mixed with lime water. Then, the sample of waste water is run into the reactor which is gravitically dropped on the adsorbent (active carbon) then to kapok media. The variation of sample taking started from 0, 30, 60, 90, 120 and 150 minutes with debit 2,25 L per minute. The sample taking of waste water was done at the outlet I (active carbon) and outlet II (kapok) then to be analyzed at Laboratory, for TSS parameter is in line with SK SNI M-03-1990-F quality test method of water physics, for grease oil Standard 62 test method of oil content and grease in the water gravitically SK SNI M-68-1990-03.

Based on the result of laboratory analysis, it proves that there is a significant reduction of TSS concentration with average reduction efficiency 47.42% at the 90th minute till the 150th minute. For oil grease concentration goes on increasing with increase average efficiency 26.24% at the 90 till 150th minute. This is because of the kapok has reached its highest level.

Key words: Domestic waste, VCO, TSS and fat oil.

¹ Staf Pengajar, Jurusan Teknik Lingkungan, Fakultas Teknik Sipil dan Perencanaan - Universitas Islam Indonesia, Yogyakarta

² Staf Pengajar, Jurusan Teknik Lingkungan, Fakultas Teknik Sipil dan Perencanaan - Universitas Islam Indonesia, Yogyakarta

³ Mahasiswa, Jurusan Teknik Lingkungan, Fakultas Teknik Sipil dan Perencanaan - Universitas Islam Indonesia, Yogyakarta