

Development of biowaste treatment technology for conversion of EFB to high quality biofuel

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Abstract

Empty Fruit Bunch (EFB) is a residue of Palm oil production and generated more than 50 million tons a every year even in Malaysia and Indonesia. Since EFB includes oil contents and releases methane gas in rotten condition, it is illegal to dump and bury EFB recently. Most of the EFB has been treated for composting and soil mulch, and only small amount of EFB is consumed as pellet type biofuel. Direct combustion of EFB in large scale of boiler causes air pollution of fine particles, inefficiency of steam production and damage of boiler internal structure, because of incomplete combustion and clinker formation by its alkali contents. Even in case of EFB pellet combustion, same or less adverse effect is observed. In order to remove combustion problems from EFB, conversion technology of EFB to biofuel has been studied for a long time and a few treatment processes have been suggested by the result of small size and batch type experiments. There is no commercial size of production system based on the experimental processes yet because a few grams of treated EFB test hardly provide detail fuel characteristics and process performance of production system.

KEPRI and TNBR have jointly developed EFB treatment system which converts a ton EFB to biofuel in an hour to removes alkali contents forming clinker during combustion This system uses only water as a process material and byproduct of the system is potassium and chlorine rich water similar to liquefied fertilizer. They have already produced about hundred tons treated EFB and carried out various types of analysis and test. This presentation shows fuel characteristics of the treated EFB as well as process performance of the commercial size production system.