ABSTRAK

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Program Studi : Teknik Lingkungan
Judul : Kajian Awal *Sludge* IPAL PT. TCI Sebagai Bahan Baku Bahan Bakar Briket
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Sludge Industri Tekstil merupakan hasil samping dari proses Instalasi Pengolahan Air Limbah (IPAL) yang tergolong kedalam limbah B3. *Sludge* dihasilkan setiap hari dapat menimbulkan masalah di lingkungan pabrik berupa berkurangnya ruang penyimpanan serta menganggu estetika lingkungan pabrik. Kajian ini membahas penggunaan *sludge* industri tekstil sebagai bahan baku bahan bakar briket ditinjau berdasarkan analisis proksimat, nilai kalor, total sulfur, kandungan logam berat serta potensi terjadinya *slagging* dan *fouling* menggunakan metode ASTM, AAS, spektrofotometri dan gravimetri. Selanjutnya dilakukan percobaan pembuatan briket berbahan baku *sludge* dengan penambahan bahan baku *bottom ash* dan biomassa yang kemudian kualitas briket tersebut dibandingkan dengan Peraturan Menteri Lingkungan Hidup No 18 Tahun 2020, SNI 4931 Tahun 2010 dan SNI 01-6235 Tahun 2000. Berdasarkan kajian yang dilakukan *sludge* memiliki kandungan kadar air, kadar abu, *volatile matter*, *fixed carbon*, nilai kalor, dan total sulfur secara berturut-turut 2,57%, 79,2%, 4,76%, 13,47%, 1.172 kkal/kg dan 0,98%. Selain itu penggunaan *sludge* memiliki potensi *slagging* dan *fouling* terindikasi sedang dan rendah dengan indeks secara berturut-turut 0,310 dan 0,412. Berdasarkan kajian, briket terbaik terdapat pada briket dengan komposisi 40%BA:40%BM:20%SL dengan nilai kalor sebesar 2.836 kkal/kg yang telah memenuhi kualitas yang diharapkan berdasarkan PerMenLH 18/2020.

Kata kunci: *bottom ash*, briket, industri tekstil, *sludge*.

ABSTRACT

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Program Study : *Environmental Engineering*
Title : *Study of PT. TCI Sludge as Raw Material for Briquettes*
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The sludge textile industry was a by-product from wastewater treatment plant (WWTP) that categorized as toxic and hazardous waste, sludge produced every day from WWTP could cause problems in the factory environment such as reduce the storage space, and aesthetic of factory environment. This study discussed sludge that will be used as raw materials for briquettes. The analysis of study was based on proximate analysis, calorific value, total sulfur, heavy metals, and slagging and fouling potential which used method ASTM, AAS, Specthrophotometry dan Gravimetry. Further, the briquettes were experimented by using sludge and additional raw material bottom ash and biomass, the quality of briquettes furthermore will be compared to Ministry of Environmnetal Regulation Number 18 of 2020, Indonesia National Standard Number 4931 of 2010 and Indonesia National Standard Number 01-6235 of 2000. The analysis of sludge material for briquette had moisture content, ash content, volatile matter, calorific value, and total sulfur of 2,57%, 7,92%, 4,76%, 13,47%, 1.172 cal/gram, and 0,98% respectively. Moreover, the slagging and fouling potential indicated moderate and low classification with the impact value index of 0,310 and 0,412 respectively.The results of study also showed that the best briquette was a briquette which using composition of 40%BA:40%BM:20%SL. This briquette had calorific value of 2.836 kcal/kg and it has met the provisions of Ministry of Environmnetal Regulation Number 18 of 2020

Keywords: *bottom ash, briquette, textile industry, sludge.*