

**PEMBUATAN PULP DARI TANDAN KOSONG KELAPA SAWIT
UNTUK KARTON PADA SKALA USAHA KECIL
(Manufacture of Pulp from Empty Oil-Palm Fruit Bunches
For Paperboard at Small-Scale Endeavor)**

Oleh /By:

Dian Anggraini & Han Roliadi.

Pusat Litbang Keteknikan Kehutanan dan Pengolahan Hasil Hutan
Jl. Gn. Batu. No.5 Bogor 16610, Tlp. 0251-8633378, 8633413

Diterima 3 Mei 2011, disetujui 5 September 2011

ABSTRACT

Small-scale paperboard industries in Indonesia are currently faced with the procurement continuity of fibrous raw material (particularly pulp and waste paper). Wastes of palm-oil processing as empty oil-palm fruit bunches (EOPFB), inherently ligno-cellulosic fibers, are abundantly available; and as yet have not been utilized commercially, hence indicating their potential uses as raw material for such paperboard industries.

In relevant, the EOPFB has been experimentally pulped using hot soda semi-chemical process in the semi-pilot scale closed (pressurized) digester, employing the fixed cooking condition, i.e. soda (NaOH) concentration 10%, EOPFB to liquor ratio 1:5.5, and maximum temperature 120 C held for 2 hours. This digester serves as a part of equipment employed in small-scale paperboard manufacture. The EOPFB pulp yield reached 60.17%. Paperboard sheet was formed in a small-scale paperboard industry from EOPFB pulp (100%); and from its mixture with waste paper and paper-mill sludge (50%:25%:25%), each fiber stuffs incorporating the additives (i.e. 5% kaolin filler, 2% alum retention aid, and 4% tapioca binder).

Strength properties of paperboard from the mixed stuffs (EOPFB pulp, waste paper, and sludge) were somewhat lower than those of 100% EOPFB pulp, but better than those produced by small-scale paperboard industries that use raw material of waste paper - sludge mixture (50%:50%, without additives); and could mostly satisfy the standard requirement for commercial paperboard, except for burst index and tear index. These shortcomings can expectedly be improved through the use of rosin-soap sizing and greater amount of tapioca binder.

Keyword :Empty oil-palm fruit bunches, pulp, paperboard, small-scale paperboard industry

ABSTRAK

ABSTRAK

Industri karton skala kecil saat ini mengalami kesulitan kontinuitas pasokan bahan baku (khususnya pulp dan kertas bekas). Limbah pengolahan minyak kelapa sawit sebagai bahan serat berligno-selulosa jumlahnya berlimpah, dan sebegitu jauh belum banyak dimanfaatkan, sehingga berindikasi potensial sebagai bahan baku industri karton.

Pembuatan pulp tandan kosong kelapa sawit (TKKS) untuk karton dilakukan dengan proses semi-kimia soda panas pada ketel pemasak, dengan kondisi pemasakan TKKS tetap, yaitu konsentrasi soda (NaOH) 10%, perbandingan berat TKKS dengan larutan pemasak 1:5,5, dan suhu maksimum 120 C yang dipertahankan selama 2 jam. Ketel ini merupakan bagian peralatan pada pembuatan karton skala kecil. Rendemen pulp TKKS mencapai 60,17%. Lembaran karton dibentuk di industri rakyat dari pulp TKKS 100%, dan dari campurannya dengan kertas bekas dan sludge industri kertas (50%:25%:25%), masing-masing bahan serat tersebut diberi bahan aditif (kaolin 5%, alum 2%, dan perekat tapioka 4%). Rendemen dan sifat kekuatan karton dari campuran bahan serat (pulp TKKS, kertas bekas, dan sludge) sedikit di bawah sifat karton dari pulp TKKS 100%, tetapi masih lebih baik dari pada sifat karton buatan industri rakyat dari campuran kertas bekas - sludge (50%:50%, tanpa aditif); dan sebagian besar memenuhi persyaratan standar karton komersial, kecuali indeks tarik dan indeks sobek. Kekurangan tersebut diharapkan dapat diatasi dengan penggunaan bahan dan lebih banyak perekat tapioka.

Kata kunci ; Tandan kosong kelapa sawit, pulp, karton, industri skala usaha kecil