

## PEMBUATAN PULP UNTUK KERTAS BUNGKUS DARI BAHAN SERAT ALTERNATIF (*The Manufacture of Pulp for Wrapping Paper from Alternative Fiber Stuffs*)

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### ABSTRACT

*Indonesia's paper consumption, including wrapping paper, might steadily increase in the future and create challenge for domestic wrapping-paper production due to the dwindling potency of conventional fibrous stuffs (e.g. natural-forest woods). Alternative ligno-cellulosic fibers should be introduced, such as pioneer-tree woods potential for plantation-forest (PF), e.g. jabon and terentang; sengon PF's logging wastes; pulp/paper mill's sludge; and pineapple-leaf fibers. In relevant, trial on pulp manufacture for wrapping paper was conducted using those alternatives. Initially, each alternative-fiber was examined for their basic properties (i.e. specific gravity, chemical composition, and fiber dimensions/their derived values). The fibrous pulping employed a hot alkali semi-chemical process (except sludge). The pulp-sheet with 60 g/m<sup>2</sup> basis-weight target was formed from the mixture of jabon-wood pulp, terentang-wood pulp, sengon-wood pulp, sludge, and pineapple-leaf pulp (w/w) in particular proportions; then to each proportion were added additives (alum 2%, clay 5%, wax emulsion 3%, tapioca starch 4%, and rosin soap 3%); and on the resulting pulp-sheets were tested their physical, strength, and optical properties. Results revealed that the proportion regarded as the most prospective for wrapping paper comprised terentang wood pulp (20%), jabon-wood pulp (20%), sengon-wood pulp (40%), and pineapple-leaf pulp (20%). The tolerable proportion for incorporating sludge should comprise sludge (20%), terentang-wood pulp (20%), jabon-wood pulp (20%), sengon-wood pulp (20%), and pineapple-leaf pulp (20%). The presence of harmful/toxic heavy metals in the sludge which have been strongly indicated should thoroughly be accounted; and hence further experiment on their removal prior to the sludge use for wrapping paper deserves carrying out.*

*Keywords: Wrapping paper, conventional fibrous stuffs, alternative fibers, additives, sludge*

### ABSTRAK

Konsumsi kertas Indonesia, termasuk kertas bungkus, diperkirakan meningkat di masa mendatang dan akan menimbulkan tantangan pada kemampuan produksi kertas bungkus domestik karena potensi bahan baku serat konvensional (kayu hutan alam) semakin langka. Diperlukan sumber serat alternatif lainnya yang tersedia berlimpah, antara lain jenis kayu pohon pionir yang berpotensi untuk hutan tanaman (HTI), seperti jabon dan terentang; limbah pembalakan HTI sengon; *sludge* (limbah padat industri pulp/kertas); dan serat daun nanas. Sebagai kaitannya telah dilakukan percobaan menggunakan pulp dari serat alternatif untuk bahan kertas bungkus. Mula-mula, tiap bahan serat alternatif diperiksa sifat dasarnya (berat jenis, komposisi kimia, dan dimensi serat/nilai turunannya). Pengolahan pulp bahan serat menerapkan proses semi-kimia soda panas (kecuali *sludge*). Lembaran pulp bergramatur target 60 g/m<sup>2</sup> dibentuk dari campuran pulp kayu jabon, pulp kayu terentang, pulp limbah kayu sengon, *sludge*, dan pulp serat daun nanas pada proporsi tertentu (b/b); lalu ditambahkan bahan aditif (alum/tawas 2%, pati tapioka 4%, kaolin 5%, emulsi lilin 3%, dan sabun rosin 3%) pada setiap proporsi; lembaran yang terbentuk diuji sifat fisis, kekuatan, dan optiknya. Hasil penelitian menunjukkan proporsi

campuran yang paling berprospek untuk kemas bungkus adalah pulp kayu terentang (20%), pulp kayu jabon (20%), pulp kayu sengon (40%), pulp serat daun nanas (20%). Untuk memanfaatkan *sludge*, proporsi yang bisa ditolerir adalah *sludge* (20%), pulp terentang (20%), pulp jabon (20%), pulp sengon (20%), pulp serat daun nanas (20%). *Sludge* telah diindikasikan kuat mengandung logam berat yang berbahaya/beracun sehingga perlu dilakukan penelitian lebih lanjut guna mengeliminir/menurunkan kandungan logam pada *sludge*, sebelum digunakan untuk kertas bungkus.

Kata kunci: Kertas bungkus, bahan serat konvensional, serat, alternatif, bahan aditif, *sludge*