EFFECT OF BEATING, POLYVINYL ALCOHOL AND KAOLIN ON PROPERTIES OF PAPER FROM OIL PALM EMPTY FRUIT BUNCH

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by

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%	Percent
°C	Degree celcius
ASEAN	Association of Southeast Asian Nations
BW	Basis Weight
EFB	Empty fruit bunch
FFB	Fresh fruit bunch
kPa	kilo Pascal
MC	Moisture content
mm	millimeter
MPOB	Malaysian Palm Oil Board
N	Newton
OPEFB	Oil palm empty fruit bunch
OPF	Oil palm frond
OPT	Oil palm trunk
POME	Palm oil mill effluent
PVA	Polyvinyl alcohol
SEM	Scanning Electron Microscopy
T	Breaking length

TAPPI	Technical Association of the Pulp and Paper Industry
TEA	Tensile Energy Absorbed
TI	Tensile Index
TKKS	Tandan kosong kelapa sawit

KESAN PEMUKULAN, POLIVINIL ALKOHOL (PVA) DAN KAOLIN TERHADAP SIFAT –SIFAT KERTAS DARIPADA TANDAN KOSONG KELAPA SAWIT

ABSTRAK

Kesan memukul, polivinil alkohol (PVA) dan kaolin pada sifat-sifat kertas daripada tanda kosong kelapa sawit (TKKS) telah dikaji. Kesan pulpa mekanikal TKKS terpukul dan tidak terpukul, peratus PVA yang ditambah dan peratus kaolin yang ditambah ke dalam stok pulpa terhadap sifat-sifat kertas daripada pulpa mekanikal TKKS telah dibentangkan. Pemukulan oleh pemukul PFI pada 15000 revolusi secara ketara meningkatkan sifat-sifat pulpa mekanikal TKKS dengan meningkatkan sifat-sifat fizikal, mekanikal dan optik bagi kertas dihasilkan. 3% PVA ditambah dalam pulpa mekanikal terpukul tandan kosong kelapa sawit (TKKS) memberi kekuatan optimum ke atas sifat mekanik. Walau bagaimanapun, disebabkan kehadiran lignin dalam pulpa mekanikal terpukul TKKS, penambahan kaolin ke dalam stok pulpa pulpa mekanikal dengan 3% PVA tidak memberi kesan yang banyak kepada kecerahan kertas. Secara ringkasnya, dengan 3% PVA dan 6% kaolin ditambah ke dalam stok pulpa daripada pulpa mekanikal terpukul TKKS menunjukkan pulpa kesan yang penting ke atas sifat mekanik kertas.

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ABSTRACT

Effect of beating, polyvinyl alcohol (PVA) and kaolin on properties of paper from oil palm empty fruit bunch were investigated. The effect of unbeaten and beaten OPEFB mechanical pulps, percentage of PVA addition and percentage of kaolin added into pulp stock toward properties of paper from OPEFB mechanical pulp were presented. Beating by PFI mill at 15000 revolutions significantly improves properties of OPEFB mechanical pulp by enhancing the physical, mechanical and optical properties of handsheets produced. 3% of PVA added into beaten mechanical pulp of oil palm empty fruit bunch (OPEFB) gives optimum strength on mechanical properties. However, due to lignin present in beaten OPEFB mechanical pulp, addition of kaolin into pulp stock of mechanical pulp treated with 3% of PVA does not affect much on brightness of handsheets. In a nutshell, with 3% of PVA and 6% of kaolin added into the pulp stock of beaten OPEFB mechanical pulp shows excellent effects on mechanical properties of handsheet.