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Title: Effects of bagasse microfibrillated cellulose and cationic polyacrylamide on key properties of bagasse paper

Author: Seyed Rahman Djafari Petroudy Kristin Syverud
Gary Chinga-Carrasco Ali Ghasemain Hossein Resalati



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1 **Effects of bagasse microfibrillated cellulose and cationic polyacrylamide on**
2 **key properties of bagasse paper**

3 Seyed Rahman Djafari Petroudy^{a,b*}, Kristin Syverud^{a,c}, Gary Chinga-Carrasco^c,
4 Ali Ghasemian^b, Hossein Resalati^b

5 ^aNorwegian University of Science and Technology(NTNU), Trondheim, Norway.
6

7 ^bDepartment of Pulp and Paper Industries, Faculty of Wood and Paper Engineering, Gorgan
8 University of Agricultural Sciences and Natural Resources, Gorgan, IRAN.
9

10 ^cPaper and Fiber Research Institute (PFI), Høgskoleringen 6b, Trondheim, 7491, Norway.
11

12 *Corresponding author.

13 Address:

14 Tel.: +4795970265; fax: +47 73 55 09 99.

15 E-mail: seyed.r.djafaripetroudy@ntnu.no (S.R. Djafari Petroudy).
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18 **Abstract**

19 This study explores the benefits of using bagasse microfibrillated cellulose
20 (MFC) in bagasse paper. Two different types of MFC were produced from DED
21 bleached soda bagasse pulp. The MFC was added to soda bagasse pulp
22 furnishes in different amounts. Cationic Polyacrylamide (C-PAM) was selected
23 as retention aid. The results show that addition of MFC increased the strength of
24 paper as expected. Interestingly, 1% MFC in combination with 0.1% C-PAM
25 yielded similar drainage time as the reference pulp, which did not contain MFC.
26 In addition, the samples containing 1% MFC and 0.1% C-PAM yielded i) a
27 significant increment of the tensile index, ii) a minor decrease of opacity and iii)
28 preserved Gurley porosity. Hence, this study proves that small fractions of MFC
29 in combination with adequate retention aids can have positive effects with
30 respect to paper properties, which is most interesting from an industrial point of
31 view.
32

33 **Keywords**

34 Bagasse, microfibrillated cellulose (MFC), endoglucanase, homogenization,
35 cationic polyacryamide (C-PAM).
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