

TAPPI Press

International Mechanical Pulping Conference 2007

May 6 – 9, 2007
Minneapolis, Minnesota, USA

Volume 1 of 2

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571
www.proceedings.com

ISBN: 978-1-60560-293-6

Some format issues inherent in the e-media version may also appear in this print version.

ISBN: 978-1-60560-293-6

Copyright (2007) by TAPPI Press.
All rights reserved.

For permission requests, please contact TAPPI Press
at the address below.

TAPPI Press
15 Technology Parkway South
Norcross, GA 30092

TAPPI Press

International Mechanical Pulping Conference
2007

TABLE OF CONTENTS

VOLUME 1

Simulation of Fatigue Related Variables in Wood Grinding	1
<i>T. Björkqvist, M. Tienari, M. Lucander</i>	
Microsoft Word - Laboratory Study and Mill Results from Bowater Calhoun New Peroxide Bleach Plant for Bleaching of Southern Pin	22
<i>N. V. Humphries, J. P. Bousquet</i>	
Effects of Wood Chip Characteristics on Refining Energy Consumption	55
<i>E. Dundar, F. Ding, L. Laperrière</i>	
Refining Mechanisms and Development of TMP Properties in a Low-Consistency Refiner	62
<i>O. Eriksen, L. A. Hammar</i>	
Fibre Development during Stone Grinding; Ultrastructural Characterization for Understanding Derived Properties	76
<i>D. Fernando, P. Rosenberg, E. Persson, G. Daniel</i>	
Differences on Fibre Level Between GW and TMP for Magazine Grades	87
<i>R. Ferritsius, M. Rautio</i>	
Ways to Measure the Bonding Ability Distribution of Fibers in Mechanical Pulps	97
<i>S. Reyier, O. Ferritsius, O. Shagaev</i>	
Power Cost Reduction Through Advanced Quality Control and Refiner Segment Change at Tembec Pine Falls	112
<i>G. Deer, G. Carello, B. Fox, D. Cloutier</i>	
Refiner Bleaching with Magnesium Hydroxide (Mg(OH)₂) And Hydrogen Peroxide	171
<i>R. Harrison, T. Parrish, A. Gibson, C. Knapp, M. Wajer, D. Johnson</i>	
Application of Refiner Plate Technology to Improve Pulp Quality and Reduce Energy	207
<i>R. Musselman, L. Gingras</i>	
Silicate-Free Peroxide Bleaching of Mechanical Pulps: Efficiency of Polymeric Stabilizers	215
<i>H. Hämäläinen, R. Aksela, J. Rautiainen, M. Sankari, I. Renvall, R. Paquet</i>	
Comparison of Oxalate Formation in Peroxide Bleaching of Softwood and Hardwood Mechanical Pulps	237
<i>Z. He, Y. Yang, Y. Ni</i>	
Strain Distribution in Wood During Chipping	251
<i>L. Hellström, P. Gradin, T. Carlberg</i>	
Alternative Alkalis in Peroxide Bleaching of Mechanical Pulp	256
<i>J. Tamper, T. Hietanen, H. Manner</i>	
Seasonal Extractive Variations in Tree, Chips and TMP	261
<i>L. Hildén, E. Persson</i>	

MILL TRIAL AND COMMERCIAL IMPLEMENTATION OF THE NEW BLEACHING AGENT - THPS	268
<i>T. Q. Hu, T. Williams, J. A. Schmidt, B. R. James, R. Cavasin, D. Lewing</i>	
NUMERICAL STUDY ON REFINER FLOWS: DETERMINATION OF REFINING EFFICIENCY AND PULP QUALITY BY MIXING ANALOGY	274
<i>J. P. Huhtanen</i>	
Power Consumption and Fibre Development in a TMP Refiner Plate Gap: Comparison of LE- and Standard Refiner Segments	288
<i>M. Illikainen, E. Härkönen, J. Niinimäki</i>	
The Effect of Extractives on the Disruptive Shear Stress in Pine Thermomechanical Pulps	315
<i>M. Illikainen, E. Härkönen, J. Niinimäki</i>	
Mill experiences of Evacuating Refiner Plates	342
<i>O. Johansson, R. Steed, R. Jones, N. Murray, A. Sundström</i>	
Three Steps to Improved TMP Operating Efficiency	356
<i>O. Johansson, M. Jackson, N. W. Wild</i>	
Energy Efficient High Quality CTMP for Paperboard	370
<i>N. Klinga, H. Höglund, C. Sandberg</i>	
Magnesium Hydroxide; an Alternative Alkali Source in Hydrogen Peroxide Bleaching of Wood Pulp	381
<i>J. Knecht</i>	
De-esterification and Sulfonation in CTMP: Effects on Pulp and Paper Properties	385
<i>J. Konn, L. Vähäsalo, A. Pranovich, B. Holmbom</i>	
Jack Pine TMP.: Earlywood Versus Latewood and Effect of Refining Temperature	418
<i>F. Huang, R. Lanouette, K. N. Law</i>	
Optimum Refining of TMP Pulp by Fractionation after the First Refining Stage	452
<i>A. Ferluc, R. Lanouette, J. P. Bousquet, S. Bussièrès</i>	
Do Separated Production Lines Affect Thermomechanical Pulping	485
<i>M. Lecourt, P. Nougier, M. Petit-Conil</i>	
Saving Energy by Application of Ozone in the Thermomechanical Pulping Process	494
<i>M. Lecourt, B. Struga, T. Delagoutte, M. Petit-Conil</i>	
On Mechanical Pulp Production for Wood-Containing High-Brightness Paper Grades	540
<i>T. Lind, N. Oksanen, J. Balac, B. Lönnberg, E. Persson, O. Tuovinen, A. Kvitvang</i>	
Selection of Raw Material Offers new Energy-Property Combinations for Mechanical Pulp	546
<i>S. Liukkonen, A. Vehniäinen, J. Sirviö</i>	

VOLUME 2

High-Temperature Bleaching of Mechanical Pulps from Spruce	580
<i>L. Logenius, R. Agnemo, H. Höglund</i>	
Frictional Impulse in Mechanical Wood Grinding	588
<i>B. Lönnberg, T. Lind, O. Tuovinen</i>	

Fatigue Treatment of Wood by High-frequency Cyclic Loading	595
<i>S. Panula-Ontto, M. Lucander, T. Pöhler, E. Saharinen, T. Björkqvist</i>	
The Suitability of Douglas Fir (Pseudotsuga menziesii) in Stone Groundwood Mechanical Pulping Operations for Supercalandered Magazine Paper Grades	615
<i>G. Martin, H. Grussenmeyer, G. Becker</i>	
Experiences with the Utilization of Bark-beetle-killed Norway Spruce (Picea abies) Pulp-wood in Mechanical Pulping Operations for Supercalandered Magazine Paper	623
<i>G. Martin, G. Becker, S. Fink</i>	
Tailoring Printing Paper Properties – Potential and Weakness of Mechanical Pulps in Multilayered Sheets	660
<i>K. Mörseburg, G. Chinga</i>	
Ultra High Pressure (10 - 12 Bar) TMP and It's Energy Recovery Options	693
<i>H. Muenster, A. A. Hansson</i>	
Low Energy Shive Separation Evaluation of a New Method of Fibre Processing	702
<i>K. Murton, J. Richardson</i>	
Moisture-Induced Surface Roughness in TMP Sheets	718
<i>S. Norgren; H. Höglund</i>	
Forces on Bars in High-consistency Mill-scale Refiners: Effect of Consistency	730
<i>D. Olender, P. Wild, P. Byrnes, D. Ouellet, M. Sabourin</i>	
Refiner Plate Clash Detection Using an Embedded Force Sensor	776
<i>D. Olender, P. Francescutti, P. Wild, P. Byrnes</i>	
The Origin and Control of Pulp Stress During High-Consistency Refining	827
<i>K. B. Miles, I. Omholt</i>	
The Effects of APMP Process Variables on Poplar Pulp Yields and Properties	834
<i>H. Resalati</i>	
Minimizing TMP Energy Consumption using a Combination of Chip Pre-treatment, RTS and Multiple Stage Low Consistency Refining	839
<i>M. Sabourin</i>	
Using the Refining Zone Temperature Profile for Quality Control	894
<i>D. Sikter, A. Karlström, P. Engstrand, J. Czmaidalka</i>	
Increasing Flexibility for Time of Day Pulping at Alberta Newsprint Company	903
<i>S. Singh, C. Mills, N. W. H. Wild</i>	
Reduce Energy Consumption through Plate Design in Thermo-Mechanical Pulp (TMP)	936
<i>A. Singhal</i>	
High Consistency Refining of Kraft Pulp for Reinforcing Paper Based onTMP Furnishes	943
<i>J. C. Sjöberg, H. Höglund</i>	
Surface Mechanical Treatment of Tmp Pulp Fibers Using Grit Material	954
<i>P. Somboon, H. Paulapuro</i>	
Interactions Among Components in the Primary Cell-Wall of Norway Spruce (Picea Abies (L.) Karst.); Effect of a Low Sulphonation Pretreatment	962
<i>J. S. Stevanic, L. Salmén</i>	

High Strain Rate Compression and Sliding Friction of Wood under Refining Conditions	982
<i>B. A. Svensson, S. E. Holmgren, P. A. Gradin, H. Höglund</i>	
Mill Scale Development Towards High-production, Low-energy TMP Refining Line	995
<i>S. Bussiere, P. Vuorio, M. Ullmar, E. Hensley, J. Aird, J. P. Huhtanen</i>	
Power Threshold Effect in Grinding – an Expression of Elastic Work?	1007
<i>O. Tuovinen</i>	
Shear/Compression Treatment of Wood Material – A Way of Reducing Energy Demand in TMP Processes	1038
<i>S. Viforr, L. Salmén</i>	
Synergistic Effects Between Chemical Mechanical Pulps And Chemical Pulps From Hardwoods	1045
<i>E. C. Xu</i>	
Evaluation of Various Mechanical Pulping Processes for Mature and Juvenile Loblolly Pine in Lightweight Coated Paper	1051
<i>Z. Yuan, C. Heitner, K. Miles, I. Omholt, P. McGarry, T. Browne</i>	
Improving TMP Rejects Refining Through Alkaline Peroxide Pre-treatment for Value-Added Mechanical Papers	1088
<i>Y. Bian, Y. Ni, Z. Yuan, C. Heitner, S. Beaulieu</i>	
Author Index	