



Research Articles

Most journals and magazines devoted to the paper industry contain a mixture of news, features and some technical articles. However, very few contain research items, and even fewer of these are peer-reviewed.

This listing contains the most recent articles from the five main journals that publish original research:

- *APPITA JOURNAL*
- *IPPTA JOURNAL*
- *J-FOR*
- *NORDIC PULP & PAPER RESEARCH JOURNAL*
- *TAPPI JOURNAL*

The Paper Industry Technical Association (PITA) is an independent organisation which operates for the general benefit of its members – both individual and corporate – dedicated to promoting and improving the technical and scientific knowledge of those working in the UK pulp and paper industry. Formed in 1960, it serves the Industry, both manufacturers and suppliers, by providing a forum for members to meet and network; it organises visits, conferences and training seminars that cover all aspects of papermaking science. It also publishes the prestigious journal *Paper Technology International* and the *PITA Annual Review*, both sent free to members, and a range of other technical publications which include conference proceedings and the acclaimed *Essential Guide to Aqueous Coating*.



APPITA JOURNAL, Vol.71, No.4, October-December 2018

1. Comparison of polyvinyl alcohol and oxidised starch as surface sizing agents
2. Development and evaluation of suspension-polymerised latex additive for surface sizing of paper
3. Improvement in pulp quality and effluent properties using methanol as carbohydrate protector during ozone bleaching of wheat straw pulp
4. Analysis of sulfolane in biochar

APPITA JOURNAL, Vol.72, No.1, January-March 2019

1. Editorial - New directions for Appita Journal
2. Impact of dissolved organic matter in hydrogen peroxide reinforced alkaline extraction stages
3. Colloidal stability of Pinus radiata wood extractives Part 1: Effect of extractives composition and process variables
4. Grammage dependence of paper thickness
5. Neutral/alkaline sizing of paper with fortified, saponified wood rosin premixed with alum and retained using cationic polymer
6. Transferring science to industrial application: Challenges in running commercial trials

IPPTA JOURNAL, Vol.30, No.3, July-September 2018

1. Advanced Analytics for Optimization of Stage-Wise ISO Brightness Gain in Kraft Pulp Bleaching
2. Advanced Analytics Improve Mill Performance and Reliability
3. Automation in Papermill Finishing House
4. Automation Solutions in Process, Productivity, and Quality in Pulp & Paper Industry for Sustainable Paper Making
5. Business Process Automation for Process, Productivity, Quality & Marketing Optimization at TNPL Board Machine Finishing House
6. Collection and Incineration of Non Condensable Gases (NCG) Through Automation
7. Continuous Improvements in Paper Manufacturing Automation at TNPL
8. Improving Papermaking with Integrated Web Monitoring and Web Inspection Camera Systems
9. Inception of In-House Automation: A March Towards Industry 4.0
10. Increasing Productivity Through Automation
11. Nalco Water, an Ecolab Company Uses Automation and Online Real Time Monitoring to Help on Productivity, Water and Energy Conservation
12. Optimized Automation and Centralized Mill Data Acquisition Techniques for Paper Making
13. Optivision Centerline – Solution Note
14. Paper Mill Automation for Customer Satisfaction and Profit Maximization – Case Studies of Paper Mills in India
15. Papermaking 4.0 by Voith
16. Reduction in Cost of Poor Quality (COPQ) due to Blotches in Paper Machine using Advanced Analytics
17. The Conception of Industry 4.0 in the Environment of Pulp and Paper Companies in India
18. Yokogawa's Synaptic Business Automation – An Approach to the Oprex Profit Driven Operation Including IIOT and Digital transformation



J-FOR, Vol.7, No.4, 2018

1. Non-covalent Surface Modification of Cellulose Nanocrystals by Polyethyleneimine
2. Apparent Structural Hydrophobicity of Cellulose Nanocrystals
3. Partnering for Lignin Biorefinery: Partner Evaluation and Selection Criteria
4. Production of Hydrocarbons from Fast Pyrolysis of Kraft Black Liquor: Integration with a Kraft Mill
5. Biomimetic Adhesion of Phages on Cellulosic Fibres: A Feasibility Study
6. Exploring New Forms of Intermediation in the Forest Value Chain

NORDIC PULP & PAPER RESEARCH JOURNAL, Vol.33 No.4, December 2018

1. Paper technology: Through air drying assisted by infrared radiation: the influence of radiator power on drying rates and temperature
2. Paper technology: New strength metrics for containerboards: influences of basic papermaking factors
3. Paper technology: Selection of filler particle size for maximizing the critical properties of cellulosic paper by filler pre-flocculation
4. Nanotechnology: Detection of iron and iron-cobalt labeled cellulose nanofibrils using ICP-OES and X μ CT
5. Paper physics: Variations of fiber structure and performance of ONP delinked pulp after modified-laccase/glutamate treatment
6. Paper chemistry: On-line monitoring of cationic starch gelatinization and retrogradation by ¹H NMR-relaxometry
7. Paper chemistry: Wet-peel: a tool for comparing wet-strength resins
8. Paper chemistry: Improved dispersibility of once-dried cellulose nanofibers in the presence of glycerol
9. Recycling: Recycled fiber treated with NaOH/urea aqueous solution: effects on physical properties of paper sheets and on hornification

NORDIC PULP & PAPER RESEARCH JOURNAL, Vol.34 No.1, March 2019

1. Lignin: Method for predicting lignocellulose components in jute by transformed FT-NIR spectroscopic data and chemometrics
2. Biorefinery: Short-term steam treatment of MFC gel with and without water-soluble cellulose derivative
3. Chemical pulping: Method for analysis of ClO₂ and Cl₂ air emissions from pulp mill
4. Chemical pulping: Consequences in a softwood kraft pulp mill of initial high alkali concentration in the impregnation stage
5. Mechanical pulping: Power-gap relationships in low consistency refining
6. Mechanical pulping: Theoretical analysis of LC-refining – pressure screening systems in TMP
7. Paper technology: Calcination-carbonization two-step process to improve the brightness of fly ash and its application in paper filling
8. Paper technology: Energy efficiency in low consistency refining: a study using a Valley beater
9. Paper physics: Principles of developing physical test methods for disposable consumer products
10. Paper chemistry: Switching off PAE wet strength
11. Coating: Improving fire retardancy of cellulosic thermal insulating materials by coating with bio-based fire retardants
12. Printing: Time-dependent mechanical response of paper during web-fed high-speed inkjet printing



13. Packaging: Model to predict the top-to-bottom compressive strength of folding cartons
14. Environmental impact: A solution for a treatment of bottom sludge from a log-soaking pond for separation of sand
15. Environmental impact: Effects of temperature on white water treatment by the dominant bacteria
16. Environmental impact: Performance of microaerobic granular sludge system for pentachlorophenol (PCP) degradation responding to PCP loading shock
17. Miscellaneous: Potential of kraft lignin as an additive in briquette production
18. Miscellaneous: Effect of wood flour and naphthenic oil on morphology, rheological and mechanical properties of EPDM/PP/AL composite

TAPPI JOURNAL, November 2018

1. Editorial: 2018 TAPPI Journal features diverse content
2. Understanding the risks and rewards of using 50% vs. 10% strength peroxide in pulp bleach plants,
3. Does the kappa number method accurately reflect lignin content in nonwood pulps?
4. Using multistage models to evaluate how pulp washing after the first extraction stage impacts elemental chlorine-free bleach demand
5. Understanding the pulping and bleaching performances of eucalyptus woods affected by physiological disturbance

TAPPI JOURNAL, January 2019

1. Editorial: Lignin: Nature's versatile polymer as a potent chemical platform for 21st century challenges
2. Adsorption performance of magnetic aminated lignin for the removal of Cu(II) and Cd(II)
3. Magnetization of aminated lignin and characterization
4. Structural analysis of poplar and Masson pine lignocresols and comparison of their bovine serum albumin adsorption characteristics
5. Synthesis and characterization of novel foams by pyrolysis of lignin
6. Characterization and evaluation of antioxidation of lignin from bamboo powder using a formic acid-catalyzed ethanol organosolv process
7. Nano-magnesium oxide as hard template synthesis of lignin carbon-based solid acids and its application for cellulose hydrolysis
8. Graft copolymerization of acrylic acid of kraft lignin to enhance aniline adsorption from aqueous solution

TAPPI JOURNAL, February 2019

1. Editorial: Historical and evolving challenges in the coated paper industry
2. Discrete element method to model cracking for two layer systems
3. Optimazation of coating with water-based barriers
4. Operational limits of blade coating associated with high aspect ratio pigments: Part I – bench top blade coater
5. Operational limits of blade coating associated with high aspect ratio pigments: PartII – cylindrical laboratory coater
6. Improving the inkjet codability of folding boxboard
7. Cracking at the fold in double layer coated paper: the influence of latex and starch composition



TAPPI JOURNAL, March 2019

1. Editorial: TAPPI Journal 2018 Best Research Paper delves deeper into press section rewet to address drying efficiency
2. Evaluating hardness and the S-test
3. Controllable anisotropic properties of wet-laid hydroentangled nonwovens
4. Size distribution analysis of microstickies treated by enzyme mixtures in papermaking whitewater
5. A study of the softness of household tissues using a tissue softness analyzer and hand-felt panels