TAPPI Kraft Recovery Course

January 11-14, 2010
St. Petersburg, Florida, USA

Special Benefits

• Increase your problem-solving skills through team activities and practical exercises
• Learn about new energy saving methods at the Energy Reduction Panel Discussion
• Learn from recognized kraft recovery experts from around the world
• Discover new ways to minimize costs, solve environmental problems and increase production

Register by December 15th and Save!
Visit www.tappi.org
Who Should Attend?
This course is designed for pulp mill operations personnel, including:
- Engineers and superintendents new to the area
- Senior operators
- Superintendents looking for a refresher course or new ideas
- Process engineers
Technical sales and support staff from chemical, equipment, and consulting companies will also benefit.

Learning Outcomes
After successfully completing the course, participants should be able to:
- Describe the kraft recovery process
- Describe the black liquor evaporator operation and list ways to improve it
- Identify causes and solutions for recausticizing problems
- Describe lime reburning principles and devise a means to improve kiln performance
- Identify causes and solutions for recovery boiler problems.
- List the main causes of corrosion in recovery boilers and ways to minimize them
- List ways to reduce energy consumption and to optimize energy utilization

Course Overview
The Kraft Recovery Course examines key recovery operations in a kraft pulp mill to help participants increase their ability to improve pulp production efficiency while minimizing operating costs and environmental problems. The course will cover chemistry, physics, and engineering principles relating to kraft recovery.

Course participants are encouraged to bring questions and specific problems to the experts! The expert faculty will provide practical day-to-day information through traditional workshops and team-based problem solving exercises. Teams will work on real-world problems and present their results to the class. The Kraft Recovery Course also features a panel discussion focusing on new ideas for energy reduction.

Course Faculty And Sponsor
Course Chairman Honghi Tran serves as Professor and Director of the P&P Centre at the University of Toronto. Tran has authored or co-authored over 200 publications, including chapters 9 and 10 in the TAPPI PRESS book Kraft Recovery Boilers, and has obtained eight U.S. patents. Through his company, Tran Industrial Research, Inc, Tran has served as a technical consultant to many companies and mills on problems related to recovery boilers, lime kilns and borate autocausticizing technology. He was named a TAPPI Fellow in 2000.

The faculty includes experts who are recognized leaders in their field and veteran instructors: Bob Bartholomew, Jim Brewster, David Clay, Doug Foran, James Frederick, Tom Gencarelli, Thomas Grace, Glenn Hanson, Mikko Hupa, Paul Johnson, Jean-Claude Patel, Dale Sanchez, Sandy Sharp, and Richard Wessel.

The course is sponsored by the Steam and Power/Energy Management Committee of TAPPI's Engineering Division and the Alkaline Pulping and Bleaching Committee of TAPPI's Pulp Manufacture Division.
## Preliminary Course Schedule

**MONDAY, JANUARY 11**

### Session 1: Introduction to the Course
- **8:00 a.m.** Honghi Tran  
  University of Toronto, ON, Canada
- **8:30 a.m.** Kraft Recovery Process  
  Honghi Tran

### Session 2: Recausticizing and Lime Kilns
- **9:00 a.m.** Recausticizing Principles and Practice  
  Dale R. Sanchez  
  Vector Process Equipment, Inc.  
  Burlington, ON, Canada
- **9:50 a.m.** Morning Break
- **10:10 a.m.** Recausticizing Principles and Practice (Continued)
- **11:00 a.m.** Lime Kiln Principles & Operations  
  Glenn Hanson  
  Metso Minerals, Atlanta, GA
- **11:40 a.m.** Team Conference
- **12:00 p.m.** Lunch on Your Own
- **12:20 p.m.** Lime Kiln Principles & Operations (Continued)  
  Glenn Hanson
- **1:20 p.m.** Lime Kiln Chemistry  
  Honghi Tran
- **1:50 p.m.** Afternoon Break
- **2:40 p.m.** Refractory Installation and Maintenance  
  Tony Gencarelli  
  Harbison-Walker Refractories, Pittsburgh, PA
- **3:00 p.m.** Kiln/Recausticizing Operations Workshop
- **3:30 p.m.** Evaporator Operations Workshop
- **4:30-5:30 p.m.** Homework/Networking Hour

**TUESDAY, JANUARY 12**

### Session 3: Black Liquor Evaporation
- **8:00 a.m.** Introduction & Team Presentation  
  Honghi Tran
- **8:30 a.m.** Liquor Properties/Evaporation Principles  
  David T. Clay  
  Jacobs Engineering, Portland, OR
- **9:10 a.m.** Black Liquor Droplet Burning  
  Mikko M. Hupa  
  Abo Akademi University, Turku, Finland
- **9:50 a.m.** Morning Break
- **10:10 a.m.** Evaporator Fouling Basics and Management  
  David T. Clay
- **10:50 a.m.** Recovery Boiler Equipment and Operation  
  Thomas M. Grace  
  T. M. Grace Company, Appleton, WI
- **11:30 a.m.** Team Conference
- **11:50 a.m.** Lunch on Your Own
- **1:10 p.m.** Black Liquor Sprays  
  Richard A. Wessel  
  Babcock & Wilcox, Barberton, OH
- **1:50 p.m.** Recovery Boiler Chemical Principles  
  Mikko Hupa
- **2:30 p.m.** Afternoon Break
- **2:50 p.m.** Fireside Deposits and Plugging Prevention  
  Honghi Tran
- **3:40 p.m.** Recovery Boiler Workshop
- **4:30-5:30 p.m.** Homework/Networking Hour

**WEDNESDAY, JANUARY 13**

### Session 4: Recovery Boilers
- **8:00 a.m.** Introduction & Team Presentation  
  Honghi Tran
- **8:30 a.m.** Recovery Boiler Equipment and Operation  
  Thomas M. Grace  
  T. M. Grace Company, Appleton, WI
- **9:10 a.m.** Black Liquor Droplet Burning  
  Mikko M. Hupa  
  Abo Akademi University, Turku, Finland
- **9:50 a.m.** Morning Break
- **10:10 a.m.** Recovery Boiler Air Distribution  
  Richard A. Wessel
- **1:10 p.m.** Recovery Boiler Safety and Audits  
  Thomas M. Grace
- **1:50 p.m.** Team Conference
- **2:30 p.m.** Afternoon Break
- **2:50 p.m.** Fireside Deposits and Plugging Prevention  
  Honghi Tran
- **3:40 p.m.** Recovery Boiler Workshop
- **4:30-5:30 p.m.** Homework/Networking Hour

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**Cost Savings, Process Improvements**

Several attendees of previous courses reported that they have improved efficiency and saved their mills money by implementing what they learned at the TAPPI Kraft Recovery Course.
THURSDAY, JANUARY 14

8:00 a.m.  Introduction & Team Presentation
    Honghi Tran

Session 5  Recovery Maintenance & Management
8:30 a.m.  Gas Emissions and Emission Control
    Mikko Hupa
9:00 a.m.  Recovery Boiler Water Treatment
    Bob Bartholomew
    Sheppard T. Powell Associates, Baltimore, MD
9:50 a.m.  Morning Break
10:10 a.m. Recovery and Utility Management
    Jim Brewster, Irving Pulp & Paper, Saint John, NB, Canada
10:50 a.m. Corrosion & Cracking in Recovery Equipment - I
    W. B. A. Sharp
    SharpConsultant, Columbia, MD
11:30 a.m. Team Conference
11:40 a.m. Lunch on Your Own
1:00 p.m.  Corrosion & Cracking in Recovery Equipment - II
    W. B. A. Sharp

Session 6  Emerging Issues
1:50 p.m.  Biorefineries and Potential Impacts
    W. James Frederick
    NREL, Golden, CO
2:30 p.m.  Afternoon Break
2:50 p.m.  Energy Optimization
    Jim Brewster
3:30 p.m.  Energy and Cost Reduction Workshop
4:15 p.m.  Concluding Remarks
    Honghi Tran

Past Participants Have Said...

“Now I will be better able to communicate with our customers and offer suggestions for improving recovery operations.”

“I really liked the team conferences and being able to talk to the instructors to ask individual questions.”

Hotel Information

Hilton St. Petersburg Bayfront
333 First Street South
St. Petersburg, FL 33701 USA
Phone: 1.800.445.8667 or +1.727.894.5000
Fax: +1.727.823.4797 •
www.stpetersburg.hilton.com

The Kraft Recovery Short Course will be held at the Hilton St. Petersburg Bayfront. Be sure to reserve your room by December 15, 2009 to take advantage of TAPPI’s special room rate of $139 plus tax per night.

AVIS

AVIS offers special discounts off regular rates for course participants. To reserve your car, call 1.800.831.8000 and refer to the code AWD: #U226800.

CEUs

The Education Project Center of TAPPI has been reviewed and approved as an Authorized Provider by the International Association for Continuing Education and Training (IACET), 1620 I Street, NW, Suite 615, Washington, DC 20006. TAPPI will award 2.8 CEUs to participants who attend at least 80% of the educational sessions and complete a final program evaluation.

Kraft Recovery continues to be one of TAPPI’s highest rated courses. The last time this course was held, 96% of the participants rated the overall quality as excellent or good.
Please circle: Mr.  Mrs.  Dr.  Sr.  Jr.  TAPPI Membership Number ________________

Last Name ___________________________ First Name ___________________________ Middle Initial _____

Badge Name ___________________________ Job Title ___________________________

Company Name ________________________

Address Line 1 __________________________________________________________

City ___________________________ State/Province ___________________________

Zip/Postal Code ___________________________ Country ___________________________

Work phone ___________________________ Work Fax ___________________________

Email ___________________________________________  Phone ___________________________

REGISTRATION FEE (Select only one)

On/Before 12/15/09 After 12/15/09 SUBTOTAL


Nonmember $US2095 $US3495 $US2295 $US2395

Multiple Registrant (3 or more TAPPI Members) $US995 $US1980

Multiple Registrant (3 or more, non-member) $US1570 $US2390

TAPPI Membership Fee

☐ Renew/Join TAPPI - Annual Membership $174

Non-US members please add US$14 for postage fee

REGISTRATION FEE

1. WHAT TYPE OF COMPANY DO YOU WORK FOR? (choose only one)

☐ Pulp and Paper/Paperboard Manufacturing (1)

☐ Paperboard Packaging Integrated Converting Plant (4AD)

☐ Paperboard Packaging Independent Converting Plant (4AD)

☐ Paperboard Packaging Headquarters (4AH)

☐ Independent Consultant: Engineering, Technical Production or Research (2)

☐ Manufacturer of Machinery, Equipment, Chemicals or Supplies (7)

☐ Woodlands Operation (3)

☐ Flexible Packaging Converting Plant (4BC)

☐ Flexible Packaging Headquarters (4BH)

☐ Dealer or Distributor of Supplies (8)

☐ University Professor (6A)

☐ Full Time Student (6B)

☐ Library (9C)

☐ Press (10A)

☐ Association (10C)

☐ Government (10D)

☐ Retired (13)

☐ Nonwovens (14)

☐ Printing/Graphic Arts (15)

☐ Industry Customer (End User) (16)

☐ Allied to the Industry (12)

2. WHAT IS YOUR PRIMARY JOB FUNCTION? (check one)

☐ Librarian – Corporate (A)

☐ Corporate Management (B)

☐ Production (C)

☐ Technical/Research & Development (D)

☐ Engineering (E)

☐ Purchasing (F)

☐ Marketing & Sales (G)

☐ Traffic & Shipping (H)

☐ Other Management & Administrative Personnel (I)

☐ Other (J)

3. WHAT IS YOUR PRIMARY INDUSTRY? (check one)

☐ Technical/Research & Development (D)

☐ Production (C)

☐ Conversion Plant (4AO)

☐ Technical/Research Facility/Headquarters (H)

☐ Pulp/Paper/Paperboard Mill Only (R)

☐ Integrated Pulp/Paper/Paperboard Mill (D)

4. HOW DID YOU HEAR ABOUT THE CONFERENCE?

☐ Tappi.org website

☐ Email

☐ Brochure

☐ Newsletter

☐ Colleague/Co-worker

☐ Other ___________________________

5. WHEN CHOOSING A CONFERENCE THE MOST IMPORTANT FACTOR TO ME IS:

☐ Registration Fee

☐ Travel Costs

☐ Program Content

☐ Meeting Location

☐ Networking/Peer Interactions

☐ Access to new technology

☐ Access to customers

METHOD OF PAYMENT

(All fees must be paid in U.S. Dollars and must accompany registration forms)

☐ Enclosed is check number ________________ for the full amount of $___________________. Please make checks payable to TAPPI in U.S. Dollars and mail to: TAPPI, P.O. Box 933644, Atlanta, GA 31193-3644, USA.

☐ Wire Transfer: $__________________ was wired as payment on ______________________ (date)

☐ Please bill my credit card. (Complete credit card information below)

☐ AMEX

☐ Diner’s Club

☐ Visa

☐ MasterCard

☐ Discover

Credit Card # ___________________________ Exp__________________

Signature ____________________________ Date ______________________

☐ Check here if you have special requirements, and we will contact you.

The contact information you provide may be used by TAPPI or its business associates to notify you of items that may be of interest to you. I understand that under certain laws and regulations, TAPPI must have written permission in order to communicate with me via fax or email. I hereby give TAPPI, TAPPI’s business associates, the TAPPI Foundation, and TAPPI’s Local Sections written permission to communicate with me via fax and/or email.

Signature ____________________________ Date ______________________
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AMEX

Diner’s Club

Visa

MasterCard

Discover

Credit Card # Exp

Signature

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and TAPPI’s Local Sections written permission to communicate with me via

fax and/or

e-mail.

Signature Date

TAPPI Kraft

Recovery Course

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• Discuss energy savings with suppliers during the new Emerging Issues session
• Learn from recognized kraft recovery experts from around the world
• Discover new ways to minimize costs, solve environmental problems and increase production

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