



Pacific Local Section

INVITES YOU TO

“KILNCON 2019”

The preeminent event:

Gathering experience and skill combined into workshops, technical sessions and social opportunities for anyone & everyone involved with Lime Kilns/Recaust

Wednesday & Thursday

DECEMBER 4th & 5th, 2019

Holiday Inn Express & Suites Tacoma Downtown

2102 South C Street, Tacoma, WA 98402

(253) 272-2434

TO REGISTER FOR THE MEETING GO TO:

<https://www.eiseverywhere.com/ereg/imis.php?eventid=466978&t=eventid=466978&>

FOR AGENDA & MORE DETAILS SEE ATTACHED or GO TO:

<https://www.tappi.org/members/local-section/pacific-tappi/>

FOR FURTHER QUESTIONS CONTACT GLENN HANSON

glenn.hanson@metso.com Cell 717/578-9610

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WORKSHOP SESSIONS WEDNESDAY, DECEMBER 4th, 2019

WORKSHOP #1 - 8:00AM -12:00PM

LIME KILN & RECAUST – PROCESS & OPERATIONS

“Turnin’, Burnin’ & Churnin’ - from Mud to Reburn & Green to White”

8:00 – 10:00 AM - LIME KILN PROCESS/OPERATIONS WORKSHOP

WORKSHOP FACILITATOR:

- *GLENN HANSON, Pyro Sales Support Engineer, Metso Minerals Industries, Inc.
Present and facilitate discussions on lime kiln process & operations*

Preliminary Agenda

- *The Lime Kiln Process*
- *Types of Kilns*
- *Combustion & Heat Transfer in the Lime Kiln*
- *Different Fuels & the effects on Lime Kiln Operations*
- *Improving Lime Kiln Efficiency; basic optimization & major projects*
- *Lime Kiln Quality Considerations & Related Process Concerns*
- *General Guidelines for Lime Kiln Operation*

10:00 AM– 12:00 PM - RECAUST PROCESS/OPERATIONS WORKSHOP

WORKSHOP FACILITATOR:

- *JOHN JOHNSON – Product Manager, Valmet, Norcross, GA
Any experienced chef will tell you, the best quality ingredients are necessary to make the recipe work. To make good white liquor & have the least problems in recausticizing, it is essential to have clean green liquor, high quality reburned lime & good causticizing control. This presentation will cover these topics and relate the importance of each step & the equipment involved in the recausticizing process. John Johnson with +25 years in this process area, a true “Recaust Ranger” will discuss green & white liquor handling in both sedimentation & filtration based systems, lime mud & dregs filtration. Included will be functional descriptions, current sizing standards and troubleshooting problems in recausticizing operations.*

12:00 PM – 1:00 PM LUNCH (Provided by Pacific TAPPI)

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WORKSHOP SESSIONS WEDNESDAY, DECEMBER 4th, 2019

WORKSHOP #2 – 1:00PM – 4:00PM

LIME KILN MAINTENANCE “As the kiln turns & keeps turning”

WORKSHOP FACILITATORS:

- *JP ASPINWALL, Sales Manager, A-C Equipment Services Corporation, Milwaukee, WI*
- *GLENN HANSON, Pyro Sales Support Engineer, Metso Minerals Industries, Inc.*

Two gentlemen from distinguished & experienced kiln design, manufacture & service companies will share their knowledge & discuss maintenance concepts for the lime kiln.

Preliminary Agenda

- *Basic Lime Kiln Mechanical Design*
- *Tires/Riding Rings, Carrying/Support/Trunnion Rollers, Bearings*
- *General Lime Kiln Inspections; Daily, Monthly, Annually*
- *The Importance of Kiln Alignment*
- *Ovality; what is it & why is it critical to monitor*
- *Lime Kiln Drive Systems*
- *Lubrication*
- *Other General Lime Kiln Maintenance Concerns; Chain Systems & Refractory*
- *Open discussion, Q&A on Lime Kiln Maintenance*

“A Review of Designs and Opportunities for Lime Kilns with Direct Shell Mounted Riding Rings”

ANDREW WISNER, Global Pyro Sales Support Engineer, Metso Minerals Industries, Inc.

Upgrades to the rotary lime kiln are a necessity to increase capacity, reduce energy, and become more competitive. A unique cost cutting feature that was introduced to rotary kilns in the late 1970s and early 1980s was mounting the tire directly on the kiln shell versus the traditional method of mounting plates between the inside diameter of the tire and the outside diameter of the kiln shell called filler bars or support pads. After decades of operation the rotary kilns that have the tire(s) mounted directly to the kiln shell are requiring larger repairs and upgrades to continue operation into the future. This paper will examine the design differences, maintenance required, and upgrade and replacement options for these units.

6:00 - 7:00 PM – Reception & Social Hour

7:00 PM – Dinner on your own

**We especially want to invite participation in the future of Pacific TAPPI
WE NEED YOU to provide input, support & participation to continue with more
programs like KILNCON focused on other mill areas, contact any Pacific TAPPI
Board member for more info**

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TECHNICAL SESSIONS THURSDAY, DECEMBER 5th, 2019

8:00 – 9:30 AM TECHNICAL SESSION 1

“A General Overview of the Kiln/Recaust Area at WestRock Tacoma Mill

TAYLOR BRYANT – *Operations Maintenance Coordinator (OMC), WestRock, Tacoma, WA*

Taylor will provide a general overview of the WestRock Tacoma mill operations with a focus on the lime kiln/recaust area. Topics may include equipment descriptions, current operations & associated issues, recent & planned projects.

“Mill Study on Increasing Lime Kiln Efficiency”

PETER HART - *Director: Fiber Technology and Innovation, WestRock Corporation, Richmond, VA*

Optimization of the lime kiln requires a review of the entire lime cycle. To increase the energy efficiency of the kiln, all auxiliary unit operations must function properly. It is also imperative that the lime & liquor in the system is of acceptable quality. We detail a kiln energy efficiency study performed at the WestRock Covington, VA mill. From a recausticizing standpoint, lime quality is much easier to control than liquor quality because liquor passes through many operations that are not under the lime kiln operator’s control. Recausticizing is a fairly closed cyclical process where lime is concerned, so saturation of impurities to the point of operational issues must be considered. Specific cycle performance indicators (e.g.; lime mud solids entering the kiln) must be viewed from a perspective that does not exclude their potential impact. To get a true picture of the cost of operating the lime cycle, all inputs must be considered. The four main inputs are; power, (electrical & fuel), fresh lime, caustic & water. Process engineers can use this detailed troubleshooting approach to help optimize various parts of a mill.

“High Efficiency Cyclone System – A Mill Case Study”

TODD LEWICK – *Project Manager, Andritz, Roswell, GA*

This presentation will present a mill case study describing a project where a high efficiency cyclone system was installed on a kiln. This case study is a follow up to a paper presented at the 2016 TAPPI Peers meeting where the theoretical basis was presented for increasing kiln efficiency and capacity by installation of a properly designed high efficiency cyclone system to encourage kiln internal dust recycle. Mill operating data and operational experience is presented showing the “real world” benefits that can be obtained when a properly designed cyclone system is installed.

9:30 – 10:00 AM - BREAK

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TECHNICAL SESSIONS

WEDNESDAY, DECEMBER 5th, 2019

10:00 – 12:00 PM TECHNICAL SESSION 2

“Coosa Pines Lime Kiln Vertical Discharge and Dust Collector Retrofits”

GREG ANDRIJESKI, Operations Coordinator, Utilities, Resolute Forest Products, Coosa Pines, AL

Presented by: **GLENN HANSON** – Pyro Sales Support Engineer, Metso Minerals Industries, Inc.

Coosa Pines developed and implemented this project due to the inability to operate the kiln a minimum of twelve continuous weeks. During the very short lead time of the project implementation, the team developed a total solution to eliminate the need of six-week outages to clean the Kiln duct work. This presentation will cover how we choose the solution, the solution and results.

“Increasing Lime Production while Decreasing Kiln Pluggage through the Installation of the First LimeFlash™ Lime Kiln Feed System in North America”

PETER HART - Director: Fiber Technology and Innovation, WestRock Corporation, Richmond, VA

Several years ago, the Evadale, TX mill engaged in a major lime kiln and recausticizing upgrade. The centerpiece of the project was to upgrade the existing lime kiln feed system to a new LimeFlash™ feed system supplied by Andritz. The feed system in Evadale, was the first installation in North America and the second installation in the world. The feed system increased the capacity of the LMD fed kiln from 350 TPD of lime product to 480 TPD of kiln product with less than 3% carbonate. The system mixes hot flue gasses with the lime mud before the gas enters the feed end housing, which allows the kiln to operate with a higher feed end temperature without plugging and lime splitting. At start-up and low capacity situations lime mud is fed directly into the kiln rotating part which eliminates potential plugging problems. Start-up and operational experience, along with selected environmental performance is reviewed.

“Pokin’, Chokin’, Shootin’ & Shutdowns – REVISITED – Where Are They Now?”

GREG PARTEN - P/R/U Day Forman, WestRock Demopolis, AL

Presented by: **GLENN HANSON** – Pyro Sales Support Engineer, Metso Minerals Industries, Inc.

This presentation will review common causes and contributing factors to kiln build-up. Often kiln internal buildup must be removed as it limits production &/or the excessive loading effects the kiln mechanical operation. A mill with chronic issues looked at more unusual areas &/or deeper into overall area processes to find root contributors and develop solutions. Areas addressed, data gathered & remedial steps taken will be presented. Presentation will include updates on their work which has continued to the point of near elimination of kiln build-up issues and the associated operational problems & costs.

“Proactive Ring Removal at Resolute Forest Products Catawba, South Carolina Mill, a Case Study”

JIM CONOVER – Technical Sales/Business Development, Mole-Master Services, Marietta, OH

Ring formation occurs in the rotary kilns used by the pulp and paper industry to regenerate the lime. The presence of rings can restrict the movement of material through the kiln. Even if the root cause of ring formation is known, from a practical standpoint, it can be difficult to eliminate rings. In mills where ring formation is a recurring problem, mechanical ring removal systems should be considered. This presentation will present a current successful case study on the use of a CO₂ system for ring mitigation.

12:00 – 1:00 PM - LUNCH (Provided by Pacific TAPPI)

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TECHNICAL SESSIONS

THURSDAY, DECEMBER 5th, 2019

1:00 – 2:30 PM TECHNICAL SESSION 3

“Reducing Downtime and Event Frequency of Lime Kiln I.D. Fan Scaling & Cleaning Through Fan Operation Evaluation & Upgrade with Increased Efficiency I.D. Fan Rotor Design”

ANDREW WEBSTER, Technical Sales, AirStream Systems Inc., Waterloo, ON, Canada

The heavy dust load passing through the ID fan represents a major problem for mills, as the dust sticks to the fan blades. Over time this build-up accumulates and eventually a piece breaks off putting the rotor out of balance. Operators are forced to shutdown the lime kiln to clean the fan. We've successfully solved severe build-up problems in many lime kiln applications with our high-efficiency rotor upgrade approach. In addition to solving build-up, these projects have been able to provide significant power savings. Efficiency improvements of 20-30% are common. Project payback periods are very low, as we re-use existing housing, motor, bearings, and coupling. This presentation will review several actual case studies on lime kilns demonstrating the problems solved & benefits seen from I.D. fan retrofits.

“Modern Lime Kiln Burner Designs to Better Control Thermal Profile When Firing Natural Gas”

MARTIN BEDDOWS, Sales Director, Kiln Flame Systems, Ltd. (KFS), High Wycombe, U.K.

Many mills have switched from fuel oils &/or solid fuels to natural gas due to the dramatic decrease in pricing in recent years. Unfortunately, natural gas burns differently and with not as much radiant intensity resulting in reduced product quality control, decreased kiln production and exit gas volume & temperature constraints. Several burner companies have developed design modifications and changes to allow thermal profiles more similar to liquid fuels when firing natural gas. This presentation will offer before & after operational data showing the benefits & value of these new designs.

“Design and Performance of Chain Systems in Rotary Kilns Used to Regenerate Lime in the Pulp and Paper Industry”

PETER GORAG – Principle, Houghton Cascade Holdings, LLC., Auburn, WA

As with any heat exchanger, it is the heat transfer surface area that is the most important aspect of chain system design. Increasing the chain surface area always lowers the heat rate while at the same time increasing the gas temperature at the hot end of the chain section. In addition, increasing the density of the chains lowers the gas temperature at the hot end of the chain section. In the end, it is a combination of the area, chain density and economics that determine the amount of chain that can be effectively hung in the kiln. This presentation will discuss how the fuel type, mud moisture, excess air, shell heat losses, and other operating parameters impact the optimum design of the chain system for a given kiln.

2:30 – 2:45 PM - BREAK

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TECHNICAL SESSIONS

THURSDAY, DECEMBER 5th, 201

2:45 – 3:45 PM TECHNICAL SESSION 4

“Selection of Lime Kiln Refractories to Balance Cost and Efficiency”

CHRIS MACEY, Market Manager, Resco Products, Pittsburgh, PA

Kilns used to regenerate lime in the Kraft process are highly energy intensive. Due to the dramatic decline in the price of natural gas over the last decade, in combination with mounting pressures to increase production of existing assets, many mills are currently focusing more on increasing uptime and capacity as opposed to energy savings. This presentation provides recommendations to aid mill personnel in the design of optimized refractory linings for specific situations.

“Refractory Brick Installation Guidelines for Increased Kiln Reliability”

CHRIS HERSH, Sr. Application Specialist, Harbison-Walker International, Pittsburgh, PA

The refractory brick lining in a lime recovery kiln is a critical element to overall kiln reliability and uptime. Refractory life is influenced by installation practices, kiln design and condition, refractory technology, and other operational factors. This presentation provides kiln owners and operators installation best practices to monitor installations, identify abnormal wear mechanisms, and troubleshoot potential refractory brick problems.

3:45 – 4:00 PM - BREAK

4:00 – 5:00 PM TECHNICAL SESSION 5

“Startup of a Green Liquor Cross-flow filter to provide additional filtration capacity at the Ence Pontevedra kraft mill”

JON FOAN - Manager, Pulp and Paper Group, Noram Engineering, Vancouver, BC

The CleanFlow system is a crossflow membrane filter designed to provide mills with additional filtration capacity or improved liquor quality and can be installed in parallel to provide additional capacity, or in series to provide improved quality. The first system has been operating at the Aspa Bruk mill in Sweden since 2013. The system is modular and can easily be expanded to handle future capacity increases.

This presentation discusses the startup of a new system installed at the Ence kraft mill in Pontevedra, Spain. The system treats 440 gpm of green liquor to virtually particle free, allowing Ence to debottleneck the recaust area and increase pulp production.

“Optimizing Recaust and Lime Kiln operations with a on line chemical titrator and advanced process controls”

JEFF BUTLER – Product Manager, Valmet, Norcross, GA

The presentation will outline the measurement capabilities of an on line chemical titrator. Utilizing the results from the analyzer, advanced process controls are able to fine tune the addition of lime to the slaker. By optimizing the lime to green ratio, the lime kiln demand can be reduced.

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Meeting and Session Chair: Glenn Hanson, Metso Minerals Industries, Inc.,
717/578-9610, glenn.hanson@metso.com
Local Arrangements: Vince Hochanadel, EDT Enzymes,
+1-360-901-1680, VHochanadel@EDT-enzymes.com

HOTEL INFORMATION:

Primary Host Hotel:

**Holiday Inn Express & Suites
Tacoma Downtown
2102 South C Street
Tacoma, WA 98402**

SUPPLIERS / VENDORS Note:

**TABLETOP SPONSORSHIPS ARE
AVAILABLE BUT LIMITED,
FIRST PAY, FIRST SERVED,
SEE REGISTRATION TO RESERVE**

Hotel reservations should be made by
directly calling;

**Holiday Inn Express & Suites –
Tacoma Downtown
CALL ASAP**

Phone: 253/272-2434

Mention TAPPI KilnCon rates

Other Area Hotels;

**Courtyard by Marriott Tacoma
1515 Commerce St., Tacoma, WA
253/591-9100**

**Best Western Plus Tacoma
2611 East E Street, Tacoma, WA
253/272-7737**

**Hotel Murano
1320 Broadway, Tacoma, WA
253/238-8000**

MEETING PARTICIPATION FEES:

Registration (TAPPI Member-mill)*	\$175
Registration (Non-Member-mill)	\$195
Registration (TAPPI Member-vendor)*	\$225
Registration (Non-Member - vendor)	\$250
Supplier Speaker	No Fee
Student	\$75
Retired	\$75
Mill Speaker	No Fee
Reception Sponsorship	\$150
Tabletop Sponsorship	\$150

* rate applies to members of national TAPPI

*** three (3) or more attendees from the same plant
site will receive a \$20 discount from the listed fee

REGISTER ONLINE AT:

<https://www.eiseverywhere.com/ereg/imis.php?eventid=466978&t=eventid=466978&ventid=466978>

Further Details On-line at:

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TAPPI'S ANTITRUST POLICY STATEMENT

The Technical Association of the Pulp and Paper Industry, Inc. is a professional and scientific association organized to further the application of the sciences in the pulp and paper industry. Its aim is to promote research and education in the practice of pulp and paper manufacture. TAPPI is not intended to, and may not, play any role in the competitive decisions of its members or in any way restrict competition in the pulp and paper industry.

Please note that TAPPI policy prevents the scheduling of business or social activities between and among participants during times of scheduled functions.

PACIFIC TAPPI 2019 TECHNICAL PROGRAM

“KILNCON 2019”

Operations & Maintenance of Lime Kilns/Recaust

REGISTRATION/APPLICATION FORM

Please Print or Type

Name:		Title:		Name for Badge:	
Company:					
Address:					
City:		State:		Zip	
Work Phone:		Cell:		Email:	
National TAPPI Member? Yes / No		Category: Mill / Supplier / Consultant / Educator / Retired / Student			

Plan to attend Wednesday, December 4th Workshops (no extra charge but must register): ()no ()yes

Payments for Thursday, December 5th Technical Sessions:

___ Technical Session, Mill & Educator *	8:00 AM-5:00 PM	\$175***
___ non-TAPPI Mill Person, Educator	8:00 AM-5:00 PM	\$195***
___ Technical Session, Students	8:00 AM-5:00 PM	\$75
___ Technical Session, Retired	8:00 AM-5:00 PM	\$75
___ Technical Session, Supplier & Consultant *	8:00 AM-5:00 PM	\$225
___ non-TAPPI Supplier, Consultant	8:00 AM-5:00 PM	\$250
___ Speaker (mill representative)	8:00 AM-5:00 PM	\$0
___ Speaker	8:00 AM-5:00 PM	\$0
___ Reception Sponsorship	6:00 PM-7:00 PM (Wed Only)	\$150
___ Supplier Tabletop Sponsorship**		\$150

* rate applies to members of national TAPPI

** tabletop requires one member from the Supplier to also register for technical program

*** three (3) or more attendees from the same plant site will receive a \$20 discount from the listed fee

TOTAL FEES PAID \$ _____

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