

PAPTAC Bleaching Committee
Mill Updates and Problems Roundtable
Pointe Claire, QC – May 4-6, 2015

Chemstone

- Will be sending out a Digester Survey to the Committee to gather data on digester operations

Paper Excellence - Skookumchuck

- Paper Excellence continuing to invest heavily in Mill. Projects proposed or in planning stage
 - 3-stage O2D
 - Conversion of Do to MC
 - ClO2 HX
 - FTNIR for Digester and R-8
- Production target 800,000 ADMTPY
- Have installed 4 wells to supply water to the Mill. Ready to commission in 1-2 weeks
- Focusing on reliability

Question: Does anyone have data showing the ClO2 demand in shower waters?

- Brian Collins – depends upon stripper
- Paul Earl – COD not a good measurement for condensate. Methanol can have a high COD, but no ClO2 demand. D1 filtrate can have a high ClO2 demand when the kappa# to D1 is high
- PAPPICAN studies – Dirty condensate can be used further back in BSW
- Castlegar may have data - Laurier suggests contacting them. They have seen ClO2 increase.
- Norm Liebergott – pulp contains UV and Klason lignin, UV lignin can consume much more lignin

Question: Does anyone have a good design for a Chip Silo?

- SAPPI Sommerset - Hwd has a screw which feeds better than the softwood silo which has a stoker. Screw provides a more uniform flow.
- Irving struggles with their silos bridging during the winter
- Verso – Androscoggin – 80 ft silos with a cone at the bottom. Run silos to lower levels in winter, must cycle the feed rate to keep from bridging, trialing a sonic level detector
- Fortress Specialty Cellulose runs a lower level in the winter and uses air cannons
- Resolute – St. Felicien – No problem with their chip silos during winter operation
- Texo – Keep the silos cold or warm, in between is where they freeze up
- Jim Collins – Excessive steaming can result in fires in chip silos

Question: Are seeing pitch on shower bars using E2 filtrate. Any Ideas on what is causing this?

- Irving – Take end caps off and flush showers bars
- GL&V – Put end caps on bars to allow for flushing

Clearwater Paper – Lewiston

- Engineering and permitting a 1400 TPD Valmet continuous digester
- Purchased a FTNIR in 2015 for Kiln
- New 1000 ADT bleached HD in 2016
- Evaluating pressurizing Eop and evaluating a Precipitator Dust Purification™(PDP) for chloride removal
- **Question: Who is running a WL Sock Pressure Filter and have you seen any changes in sock design?**
- 4 mills are running sock type filters.
- Terrance Bay – Need to buy OEM socks, had similar issues with non-OEM socks

Question: Does anyone add emulsified sulfur?

- Jim Collins- Marathon tried it but abandoned due to corrosion concerns

Question: Does anyone run reverse cleaners in their bleach plant?

- Quinnesec tried them and they are a pain to operate

Irving Pulp

- New Valmet digester to start-up in 2016
- Working on upgrade project for replacing 3 old pulp machines with 1

Question: Is anyone doing NDT on Kynar lined pipe and FRP? Having failures on acid piping.

- Quinnesec inspects lined acid pipe yearly and replaces a section with several bends
- Laurier – Be careful of over-tightening flanges and cutting the rolled over liner

Question: What are people doing to calibrate/check their Kappa Analyzers?

- Resolute – St. Felicien – Weekly checks by Central Lab and charted
- Harmac-Pacific – Check every 6 months by testing samples
- Laurier – Discussed using kappa standard samples to check. Check unit grounding. Clean sample lines to remove biological growth.
- Metso – Discussed how they calibrate
- Several folks mentioned making sure testers are using a solid procedure
- Paul Earl – Calibrate on Kappa, not K#. K# is not linear, but Kappa is
- Jim Collins – Use a autotitrator for Kappa tests

Question: can high K# contribute to Barium Sulfate scale on Do?

- Paul Earl and Doug Pryke – high K# will not cause BaSO₄
- Paul Earl – Let terminal Do pH come up to 3.5 to minimize acid use and therefore sulfate addition

Harmac Pacific

Question: Had scale on the D100 washer – Initial testing is 80-96% Organic – don't know exact identification yet. It dissolved in caustic and EDTA. What could it be?

- Norm Liebergott – Could be phenolic oxalate, it's soluble in caustic. Has wood supply changed?
- Use defoamer to help carry material out of seal tank
- Shree-Prakash – Could be a pitch co-deposit
- Brian – Verso – Is an oil base defoamer being used?
- Scott Charban – Chemstone – Has wood supply changed to interior BC? Could be calcium loading.

Question: Using both pre-bleach kappa measurement as well as residual and brightness measurements for Do. The brightness and residual instruments are old and expensive to maintain. Has anyone gone to just KF control?

- David Trzil – Clearwater – Keep both brightness and residual. If you can have only 1 keep residual.
- James Goldman – Valmet – Residual measurement is key, keep it.
- Laurier – Texo – Relationship of brightness and kappa changes with species. Addition of peroxide will also change this relationship.
- Skookumchuck – Now use feed forward KF only

Verso Paper – Phil Sekerak

- Integration of 6 new facilities into Verso
- By-Passing Peroxide stage at Luke, Maryland Mill and E2 stage at Escanaba, Michigan Mill

Question: Are people still using FRP for ClO₂ piping and how do you inspect it?

- Terrace Bay uses core sampling
- Skookumchuck – Mark Cameron – Fiber optic and robotic inspections on FRP
- Most mills still using FRP

Verso Paper – Androscoggin

- Installed a FTNIR on ClO₂ Generator
- Switched to natural gas on lime kiln
- Using model based control for D1 pH
- Installed a kappa analyzer for softwood

Question: Anyone using a Mettler-Toledo pH probe in Bleach Plants?

- Jim Collins – Terrace Bay – Evaluating TBI and ABB

Verso Paper Quinnesec

- Installed a new Turbo chip meter. Installed to reduce variability
- New kiln burner in Fall 2014

Question: Is anyone recovering water from press felts?

- No

Question: Is anyone recovering fiber from bleach plant filtrates?

- Skookumchuck recovers fiber from CB washer filtrate
- Ranjit – Terrace Bay – An Indian Mill he knows of recovers fiber from Do and Eop

Nalco

- Have had success with AQ replacement in South America. Product is not as good as AQ, but still is justified. Information to be out soon.

AkzoNobel

- Paper chemicals division sold to Kemira. Retaining bleaching chemicals and chlorate business

Kemira

- Gained 6 new production sites with AkzoNobel purchase and 350 employees
- Now can supply chemicals from wood to paper machines

Texo

- Lots of work on digesters/causticizing/Generators
- Completing integration of Tune-X with Process ID, Lambda tuning, and PID tune

Question: How many mills send pin chips to the power boiler?

- Verso WI. Rapids, Resolute - St. Felicien, and Resolute-Thunder Bay all send pins to the boiler
- Skookumchuck accepts all pins that stay on a 6mm (square) screen
- Many responded it depends upon digester runnability. Some screen out and meter a portion back in to the digester feed

Verso - Wisconsin Rapids

- Eliminating hi-consistency ozone
- Converting 2 digesters to Downflow Cooking

Question: Does anyone have a good way to seal the ends of bleach plant oscillating showers to prevent ClO₂ escape and do mills run air doctor blowers on bleach washers?

- Clearwater Paper – Have a good fan draw to the washers and have no issues

- SAPPI – run air doctors with no issues
- Verso-Quinnesec – replaced air doctors with hydrodoctors and shut down oscillating showers to reduce ClO₂ emissions from washers

Resolute -St. Felicien

- Added a 9MW generator in 2011
- Converted kiln to natural gas in 2013

Question: For those that converted from fuel oil to natural gas in their lime kilns did production decrease for the same carbonate level?

- Quinnesec – Yes, about 10%
- Verso – Phil Sekerak – Co
- Common to lose capacity on natural gas. Should increase carbonate level to minimize production loss

Question: Is anyone recovering fiber from sewers?

- Clearwater Paper – Have fiber screens for sumps on brown stock
- Irving – Brown and bleach sumps recover filtrate and recycle back to unbleached HD
- Many comments on potential for plastic contamination
- GL&V – New Richmond mill used to do this

Valmet Automation

- Metso is out of Pulp and Paper

Fortress Specialty Cellulose

- Producing energy to the grid at up to 24 MW in 2015
- Program to shut down old power boiler due to environmental regulations, studying option to burn CNCG's in recovery boiler
- Energy focus to optimize new biomass boiler and shut down the old one mentioned above
- No plan to produce NBHK in 2015

Question: Having very short life on white liquor pressure filter socks – replaced 5X in 3 months, usually 2X/year. Believed to be dregs related. Any thoughts on the cause?

- Clearwater Paper – Polymer addition helps with dregs removal, talk to your vendors.
- Texo – Some clients acid wash every 3-4 days. Re-burn lime several times before putting across filter after heavy fresh lime use. Quality of fresh lime for many mills has decreased in recent years. Drop CE to reduce lime requirement.
- Resolute – Thunder Bay – Kevin Taylor from Vancouver would be a resource he helped Thunder Bay a few years ago. Thunder Bay not currently running their filter.
www.industrialresearch.ca

AV Terrace Bay

- Installed new efficient Ultra-Flow Shower bars on our 3 BS Washers and Brown Thickener
- Just started up a new Plate Heat Exchanger for recovery of Blow Heat Energy – working well
- We recently completely revamped our dirt count procedure and now using the Tappi Dirt Count Method – previously we were over estimating the dirt level in our pulp
- Commissioned a new Weak Black Liquor Filter to reduce fiber to the Evaporators
- During the past year we diverted our neutral sodium sesquisulphate from the weak black settling tank to the #2 Recovery Retention to reduce water and deadload to our evaporator system

- Have started a optimization program to improve our bleach cleaner system operation – overhaul and put Radiscreen back in service, replace defective cleaner valves
- Past year we installed new Gorator and high capacity circulation pump for 75% solids to #2 Recovery to reduce plugging
- Investigating the installation of automatic Dirt Scanner on our pulp machine
- Upgrading our obsolete ClO₂ strength analyser to new Optek dual sensor unit
- We are on a 4 phase approach for installation of new Delta V DCS system. The new Lime Mud Disk Filter, R8, #2 Recovery and #2 Evaporators are now complete. The #2 Recovery and #2 Evaporator previously had no DCS system
- Currently working on installation of PI system

Question: Is anyone measuring consistency of the stock from bleach towers to washers to control filtrate dilution?

- A paper was presented by Gerry Pageau (Howe Sound) 12-15 years ago on this topic.
- Texo – blade consistency meters work well in this application

Question: My recent ClO₂ analyzer survey showed 10 of 13 mills responding are using dual sensor ClO₂ analyzers to measure ClO₂ strength out of the Absorption Tower and out of storage to the Bleach Plant?

- Most mills are using an Optek analyzer.

Question: Is anyone using an automatic dirt analyzer on their pulp machine?

- Cameras are mostly used on paperboard machines.
- Canfor Prince George has one on all the pulp dryers – Metso product. The Intercon Mill has a scanner travelling across the sheet at the dry end.

Question: How many folks are using pitch dispersant and talc?

- 3 Mills using pitch dispersant
- 5 mills using talc
- No mills reported a combination of the two

Question: Is there a chemical that can replace the seasoning of chips?

- Clearwater Paper - A fungal pre-treatment was tried years ago

Question: What is the level of pin chips in purchased chips?

- Clearwater Paper – About 6%

Question: Having CO alarms around the Eop reactors and on the ground floor by the general sewers?

- Paul Earl – CO comes from the delignification reaction (oxidation)

Question: Does anyone have a quick procedure to clean pitch from cleaner cones?

- No responses

AD Chemical

- Represent defoamers and enzymes

Resolute- Thunder Bay

- Replacing Cold Blow Cooler with one 4X as large

Question: Has anyone replaced steam ejectors for evaporators with vacuum pumps?

- No responses

Question: Does anyone have experience with the plugging the E1 filtrate line after an Eo filtrate HX?

- Could put in taps to allow for hydroblasting
 - Terrace Bay – In past would circulate caustic and dispersant in HX
 - SAPPi – Somerset Run talc on Eop stage repulper
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GL&V

- Renewed focus on R&D, paper machines, low energy rotors resulting in new products being brought to market
- New trash screen with only 7.5 to 20 HP required

SAPPI - Somerset

- Ran natural gas pipeline to mill
- Had first cold mill outage in 14 years in Fall 2014
- Have installed BTG filtrate extractors
- Installed fiber length and shive modules to new Metso KappaQ analyzer
- Running softwood campaigns 1/month

Question: Does anyone know of a training simulator for digesters?

- BTG – Honeywell and Andritz both offer simulators
- Wisconsin Rapids – They have the Andritz simulator and it works well
- Irving – Valmet has a simulator that is being used to train their operators

Valmet

Question: Does adding CO₂ for pulp washing cause H₂S?

- Clearwater Paper – Did not see this when running CO₂ to washer in late 90's
- Air Liquide – Cannot add enough CO₂ to get the pH low enough to generate H₂S. Air Liquide did testing.
- Skookumchuck – Should not be able to get the pH low enough

Question: Can oil leaking into the process cause foaming?

- Clearwater Paper – maybe if the oil is leaking in from the bearing it is possible that air is also leaking into the process causing foaming?

Peroxychem

Question: A customer that has a 2-stage O₂D in the E_o position wants to add peroxide. Where would be the best place(s) to add it?

- Paul Earl – Try the 2nd reactor, but it may not provide any benefit
- Terrace Bay – Tried it once and it was not effective in a conventional O₂D

Verso - Wickliffe

- Installing Downflow cooking on digester
- Installing a new Turbo chip meter
- Adding filtrate extractors to bleach plant
- Adding pre-bleach and DEK analyzers
- Adding production measurement to bleach plant
- Upgrading DCS in recovery boiler area
- Adding white liquor and recaust on-line titrators

Question: How are folks maintaining their Kappa Analyzers?

- SAPPI – good uptime on liquor and kappa analyzers, daily checks and maintenance looks at weekly
- Clearwater Paper – Weekly pm's. Service agreement
- Harmac Pacific – 1-2 days per week maintenance needed
- Terrace Bay – All E&I techs trained on unit
- BTG and Valmet – Someone has to "Own" the units and check them regularly

FP Innovations

Question: Who is using acidic bleach filtrates as a heat source?

- Paul Earl – A few mills are using Do filtrate for ClO₂ HX's since they have to be built from titanium anyway