Monday, 18 March 2013 – Morning: 09:00 – 13:15

Session 1 – Management and Markets and Sustainability: Finding the Right Balance

Opening Speaker:
Luigi Lazzareschi, CEO, Sofidel Group, Italy

**Business Success and Sustainability in Harmony**
*Mats Berencreutz, Executive Vice President, SCA, Sweden*

The tissue industry’s continuing path towards greater sustainability is a necessary evolution. Even though consumers want to buy green tissue and hygiene products, they don’t want to sacrifice product quality or pay a premium price. Today “Green Credentials” mean a license to operate. Everyday SCA impacts the lives of millions of people and the nature in which we operate. SCA focus on consumer and customer insights, innovations and a never ending hunt for improved efficiency. Besides pleased customers and consumers, improved efficiency across the supply chain will also influence the environmental impact as well as the costs in a positive way. Combined with SCA’s credentials as a sustainable company it gives us the commercial strength to win business. We call it the SCA Sustainability effect.

**The WWF Perspective on Tissue, Forests and Sustainability**
*Emmanuelle Neyroumande, Pulp and Paper Strategy Manager, WWF International, France*

The recently launched WWF “Living Forest Report” chapter on forest products presents future and present challenges and choices that need to be made by society as a whole and the pulp and paper sector in particular, in a world of growing population striving to meet their needs within the planet’s capacity. Whereas some producers and users have taken up the challenge to meet the tissue demand while reducing environmental impact, some are still acting regardless of forest destruction or air and water emissions. The tissue sector is steadily growing, in particular in Asia, and needs to take up responsibility there as well as in more environmentally aware regions. Emmanuelle Neyroumande will present the environmental challenges the Tissue sector faces now and in the future, and will highlight best practices and practices that need to be changed. She will also present the WWF transparency tools that help drive the sector to more environmental consciousness and lowered footprint.

**A Major Retailer’s Viewpoint on Tissue and Sustainability**
*Florian Schütze, Corporate Social Responsibility Director, Lidl, Germany*

The demand for more sustainable products and processes is becoming clearer every day. At Lidl we recognize the importance of sustainability and with our motto “On the way to a better tomorrow,” we are continually striving to improve social and ecological conditions. Our recipe for success: highest quality at a good price. Moreover, we are focused on working together with recognized labeling schemes such as Fairtrade, UTZ CERTIFIED, Rainforest Alliance, Marine Stewardship Council, the German Blauer Engel, the EU ECO Flower and the Forest Stewardship Council to expand our product range in our own brands such as FAIRGLOBE and BIOTREND. This applies to both “Food” and “Non-Food” products, and we are already well advanced in areas like Fairtrade products, fish sourcing, eggs and palm oil when looking to the German market. With growing awareness by consumers of sustainability and the environment, this trend can only be expected to continue. This presentation at TISSUE WORLD 2013 will cover Lidl’s
AHOLD’s Sustainability Policy for Pulp and Wood Products and Impact on the Tissue Business
Annemiek Schop, Quality Manager - Non Food, Ahold Europe, Netherlands

AHOLD has the ambition to be a more sustainable retailer, and by 2015 all of its own-brand products should be produced in a more sustainable manner. Among the sustainability issues we are focusing on are:

- climate change
- biodiversity
- exploitation of land and/or water
- social aspects
- animal welfare
- product safety
- waste and packaging reduction

A first step in the AHOLD approach is to focus on a number of sensitive material inputs, with pulp and wood being important ingredients. AHOLD has worked together with WWF on the development of a sustainability policy on pulp and wood. The policy is a guideline for making the right choices when sourcing pulp and wood products and also includes targets towards 2015. The focus of the policy is on the origin of the wood used in these products. Tissue paper is one of the major product categories in this policy and serves as a pioneer for the other products groups in scope of the policy. At Tissue World, we will discuss how AHOLD has developed its forest products sustainability policy and how it impacts the tissue category.

Integrating Sustainability into the Core of Your Business to Reduce Costs and Strengthen Your Brands
Thomas Bergmark, Senior Advisor & former Sustainability Manager, IKEA Group, Sweden

There is no question that we are today exceeding, by far, the limits of our planet’s capacity to reproduce the resources that we extract and consume every day. Consumers are rapidly becoming more aware of this and many of us already make conscious daily choices to attempt to live a more sustainable life.

Many of the world’s large, progressive retailers are clearly now turning this awareness into new business opportunities, while at the same time, reducing their costs and strengthening their brands. This is accomplished, to a great extent, by integrating “sustainability” into a wide variety of different business functions and processes, rather than running a separate sustainability program as a parallel function.

Other important factors for success with sustainability efforts include the long-term development of credible suppliers, as well as true collaboration with other businesses and NGOs. In this presentation you learn more about ways to turn the reality of constrained resources into exciting business opportunities.

Trends in Consumer Behavior: Do They Buy Sustainability?
Richard Herbert, Global Business Insight and Development Director, Europanel, UK

Europanel regularly reports on long term trends in the grocery industry based on multi-category household panel datasets covering 13 major economies (France, Germany, Italy, Netherlands, Spain, UK, Russia, Poland, China, Japan, Brazil, Mexico and USA). These datasets integrated with insights into sustainability attitudes and behaviour will consider:

- The impact of inflation and economic events on the grocery business in terms of: value and volume; shopping behaviour such as shopping frequency, basket size and retailer choice; product choice between brands and private labels.
- Emerging and unmet shopper needs.
- Forecasts for the future along with actions that should be taken - based on findings in practice and on work done with academics.
• Comparison and contrast between grocery overall and paper categories; and between countries.

The role of sustainability - how has this been impacted by all these influences especially with regard to actual purchasing behavior.

Monday, 18 March 2013 – Afternoon: 14:30 – 16:00

The World Supply/Demand Outlook for Tissue Products
Esko Uutela, Principal – Tissue, RISI, Germany

The global tissue business is booming. It was hit by the 2009 recession, not as badly as many other paper industry segments, but recovered rapidly and is now back on its strong expansion path. Globally, tissue consumption approached 32 million tonnes in 2012 and first time exceeded the volume of newsprint - a major achievement! We expect the long-term growth to continue at an annual average rate of 4% or slightly above. In the past ten years, China has been the prime motor for growth in the global paper and board industry, and so also in the tissue business, followed by Latin America which has also shown strong expansion. In the next ten years, it is expected that large emerging markets such as Brazil, Turkey and Russia will increasingly offer tissue companies new business opportunities. The tissue sector is expected to continue on its dynamic expansion track with steady growth rates, less dependent on economic fluctuations than other paper grades. The only worrying issue is that being so attractive, investments have been picking up at a rate exceeding the market growth. China has been in the forefront also considering new capacity additions, but there are also other regions where investment activity has been very strong, including Latin America, the Near and Middle East and next year perhaps also North America.

Comparison of the Hygiene Performance of Paper Towels with Other Hand Drying Methods
Keith Redway, Senior Academic, University of Westminster, UK

Studies at the University of Westminster, London comparing four different hand-drying methods (paper towels, textile towels, warm air dryers and jet air dryers) have shown that towels and jet air dryers are equally efficient at drying the hands, whilst warm air dryers are the least efficient. However, it was shown that jet air dryers did not reduce the average bacterial load on the hands of users but towels did. Using different test methods, it was also shown that jet air dryers have the potential to disperse contamination on the hands of users over greater distances, at greater heights and in greater amounts than the other hand drying methods. Visualization of the air flows associated with the different hand drying methods was also performed to demonstrate the reasons why jet air dryers perform worse than towels in the transmission of contamination on the hands. In conclusion, jet air dryers were shown to have a poorer hygiene performance than towels in normal use.

Eurofins-Inlab Study Results: Washroom Surfaces Microbial Contamination with Different Hand Dryer Devices
Roberto Berardi, President, European Tissue Symposium, Italy

150 washrooms in the Ruhr region of Germany, equipped with jet air dryers, warm air dryers, or hand towel dispensers (50 of each) were selected by Eurofins-Inlab and studied, by measuring the number of microorganisms and potential pathogens on the surfaces most likely to be touched during hand drying. This means the inside surface of jet air dryers, the inside or outside surfaces of the outlet tube of warm air dryers, and the outlet (bottom) of paper towel dispensers. Also a standard surface area (100 cm2) of the floors below each of the hand drying devices was sampled. The total microbe counts were significantly higher both on the tested surfaces of jet air dryers (approximately 1000 times higher) and on the floors beneath these devices (approximately 20 times higher) in comparison with the surfaces of hand towel dispensers and on the floors, respectively. About half (52%) of the jet air dryers and 14% of the warm air drier surfaces were contaminated by coliforms, versus none of the paper hand towel dispensers. This poses a greater risk of the transfer of potential pathogens that could cause disease in the user. Floors in particular reflect the potential for airborne transmission, including from droplets emitted during hand drying. From the results of this study, it appears that there may be a greater risk of exposure to microbes associated with some types of hand dryers.
Making Premium Tissue with High Flexibility and Lower Energy Input  
*Jan Erikson, VP Sales, Metso Paper Sweden, Sweden*

The flexible Advantage NTT concept fulfills the demands of premium tissue quality and makes it possible to produce high quality conventional tissue as well as textured products close to TAD, but with energy consumption below the level of conventional dry crepe machines.

The technology’s flexibility offers the opportunity to produce two types of tissue grades using the same machine concept; conventional tissue and textured tissue. In plain mode conventional tissue with higher quality can be produced but in a much more energy efficient way. Textured mode provides products with 50-80% more bulk and softness, with a product quality close to TAD. Fiber savings of 10-30% can be achieved in the finished product. Micro embossing is not needed in converting which reduce investment cost and improves converting efficiency.

What makes the Advantage NTT unique is the textured surface, which is made by a laser engraved belt. Compared to woven fabrics there is wide range of opportunities in developing specific patterns for the tissue producer.

Advantage NTT machines can operate at high speed, 2000 m/min, and has operating cost comparable to Advantage DCT for textured tissue and less for conventional tissue. The process works well for both virgin and recycled fibers.

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TissueLev – New Pressing Technology for High Bulk and Low Costs  
*Thomas Scherb, General Manager – Tissue Innovation, Voith Paper, Brazil*  
*Co-Author: Rogerio Berardi, Sales, Marketing & Application Engineering Manager – Tissue Americas, Voith Paper, Brazil*

The TissueLev pressing technology can be installed in any existing conventional dry crepe tissue machine or can be part of a completely new conventional dry crepe tissue machine with commercial speed levels depending on basis weight, furnish and product.

The comparison between the TissueLev and the Dry Crepe conventional tissue technology is based on:

- **Paper quality**
  
The main tissue products are bathroom tissue and kitchen towel. For the bathroom tissue, the quality analysis is based on bulk (volume), superficial (handfeel) and structural softness, while the water absorption capacity is the most important quality property for the kitchen towel paper.

  The tissue products produced with TissueLev technology achieve:
  - Up to 20% more bulk & better softness than products produced with the standard suction press roll.
  - Up to 15% more bulk & better softness than products produced with the Voith shoepress, NF-T.

- **Fiber & Energy Savings**
  
The main costs of a Tissue mill nowadays are fibers and energy. As a result of this bulk enhancement, it is possible to reduce fiber consumption and thus production costs. The TissueLev technology also offers energy savings compared to Conventional Dry crepe of 3% more after press dryness than with the shoe press, NipcoFlex T so, up to 15% energy savings versus the NipcoFlex T shoe press.

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Steel Yankees for Better Machine Performance and Increased Safety  
*Mirka Mirena, Sr. Sales Manager – Tissue, Andritz AG, Austria*

In the paper production process, the drying of the paper web is extremely energy and cost intensive. This is why paper producers are interested in energy efficient drying technologies and are pushing for developments in this area.
One major development of the last years is the large, wide, high performance drying cylinders for the Tissue production made entirely of steel. A steel Yankee has a better drying performance than an equivalent sized cast iron Yankee due to the thinner wall thickness and the resulting smaller resistance to the heat flux and a higher proportion of contact drying. This results in 8-10% better machine performance, more efficient use of energy, higher evaporation rate and lower operating costs. Another big advantage is the greater operational safety. There is no risk of explosion due to an unexpected accident, cracks or thermal shocks because of the elasticity of steel.

With diameters up to 22 ft. and a shell length up to 8.4 m it is possible to cover all requirements for a high productivity and fast Tissue production, for new machines and also for retrofit to existing machines.

**Resource Efficiency with Foam Forming**

_Erkki Hellén, Key Account Manager, Forest Industry, VTT - Technical Research Centre of Finland_

Foam forming technology introduces exciting opportunities for tissue and other fibre based products. It enables production of very high porosity structures, which can be used in light weighting, and opens up new ways to control sheet structure. Using foam forming it is possible to remarkably increase resource efficiency and simultaneously improve product properties as different natural and synthetic fibre combinations become viable. Especially, high bulk together with a superior formation gives new tools for tissue makers to tailor product properties.

In foam forming large amounts of air is injected into the furnish fibre suspension. This prevents fibre flocculation, reduces water usage in the wet end dramatically and enables much higher forming consistency. Foam also assists wire section dewatering, which has a direct consequence on energy consumption in the dryer section. The most important benefit of foam forming is the superior formation independent of the fibre length.

With promising small scale results, VTT Technical Research Centre of Finland, together with several industrial companies, has started setting up a new pilot scale technology platform for foam forming applications. We believe that foam forming could lead to new manufacturing platform for fibre based products as it
- requires significantly less raw materials and water than conventional manufacturing,
- enables exploitation of unprecedented raw material combinations
- offers a sustainable solution to manufacture a wide range of products

**Reducing Blade Vibrations – New Findings and Solutions**

_Martin Bauer, Technical Support and Sales Engineer, Clouth Sprenger GmbH, Germany_

Co-Author: Klaus Kuhn, Factory Manager, SCA Hygiene Products, Mannheim Mill, Germany

As blade chattering is still an issue worldwide in the tissue industry all tissue makers are looking for solutions on how to minimize the risk for Yankee surface damage thus production delay, high costs and safety incidents.

Clouth Sprenger GmbH developed together with SCA Hygiene Products in Mannheim, Germany, a system that reduces the creping blade vibrations by up to 50%.

Any machine with turning parts has vibrations which cannot be eliminated. Most of them will develop through the Yankee to the blade which is at the end just the tool working against this cylinder surface. The target was not to eliminate them rather than to minimize at least the reaction of blades loaded against the Yankee dryer. Different blade designs, dimensions and set-ups in different blade holders were tried to keep the blade vibrations as low as possible in magnitude, which is understood as the dangerous force.

As a final result it was observed that using a very thin creping blade with a special carbon fiber support blade reduced the original vibrations by up to 50%, no matter what type of holder and regardless of the tissue grade produced, at whatever speed.
Improving the Runnability of Tissue Machines
David Hunkeler, Director, aquaTECH, Switzerland

When running grades of tissue with high wet-strength resin (WSR) the white water is quite clean, with a low frequency of sheet breaks, irrespective of the grammage produced. This good runnability is mostly observed when manufacturing towel grades. However, for bathroom tissue with no WSR, or facial - and napkin-grades running low addition levels of wet strength resin, the white water has to be purged, sometimes continuously or at least twice per day. Indeed, it is required to produce the towel grades as a means of cleaning up the white-water.

The objective of this study was to evaluate an additive that could be employed to have the properties of wet strength resin without giving wet strength, which the bathroom grades do not need at all and which facial and napkin have limited need. It will be shown that new polymers can be applied which increase the first pass retention by 3-5%, while increasing the PPRC in certain cases. Furthermore, the drainage is faster, by approximately 30%, implying the sheet goes onto the Yankee dryer. For machines that are drying limited, this permits an increase in speed, hence, a production rise because of the better retentions.

On the other hand, if the machine cannot, mechanically, speed up, the Yankee stream and hood gas consumptions have been observed to reduce by 2-6% owing to the chemical drying due to improved dewatering. The polymer conditioning of the white water and subsequent improvement of both DAF and poly disk operations with cleaner water returning to the felt showers has a positive effect on felt life. These benefits are possible because the white water consistency is reduced by 30-40%, placing the fines and fiber, though not ash, into the sheet and converting these fines and fibers into sellable tissue. Two case studies, carried out over four years of operation, will be presented demonstrating these effects.

Tuesday, 19 March 2013: 08:30 – 17:00

Session 3: The Importance of Fiber Choices

The World’s Recovered Paper Supply for Tissue Manufacturing
Bill Moore, President, Moore & Associates, USA

There are a number of changes occurring in the available supply of recovered paper, a key raw material for the tissue sector for manufacturing tissue and towel products throughout the world. The following areas of interest will be covered in this presentation:

- Worldwide supply and demand of recovered office papers, the primary recovered paper grades used in tissue production;
- The major issue of the declining use of printing and writing papers by the world’s developed economies producing constraints on the supply of recovered chemical fibers for deinking. This includes the use of paper in offices, the document destruction business, and printing scrap production;
- Contaminant issues in the recovered paper grades used for tissue production;
- Reaching further into the waste stream to produce a tissue recovered paper grade – can we get acceptable fiber from residences which are using increased amounts of office papers through the proliferation of small printers;
- An outlook of on future pricing of the two primary tissue/toweling grades, Sorted Office Papers and Coated Book Stock.

A Study of Italian Tissue Products Properties
Pierre L. Noé, Customer Service Manager, Fibria (Europe) SA, Switzerland

As the main producer of market pulp with 5.23 million tons of eucalyptus fibers produced in 2011, of which 54% used for tissue production, Fibria seeks to have a clear understanding of the expectations of the final consumer of the tissue products.

An extensive characterization of consumer tissue products was thus undertaken and the Italian market was chosen for this purpose. Italy is the leading European producer of tissue products with a production of 1.5 million tons in 2011, of
which 55% aimed at the domestic market. The consumer market is thus highly competitive with a large offer of branded products mostly based on virgin fibers.

Tissue products from different brands – seven in total- and categories –kitchen towels, toilet, handkerchiefs and facial tissue - were collected on the shelves of retailers in the Region of Tuscany.

Three Brazilian toilet papers, made out of 100% market eucalyptus fibers have been tested and reported as well for the sake of comparison.

The most important properties and key attributes –strength, softness and absorption - were measured for each product.

Products performance - that relate to the end user experience of the product- and material/ fiber performance have been measured and reported.

A wide range of properties has been measured in each category. One can conclude that the brands play their role by offering many different paper qualities. The end consumer can indeed make his choice based on the key attributes he prefers for his hygiene products. Such role has been achieved through the furnish management and the papermaking technology.

The use of 100% Eucalyptus allows reaching very high softness and shows a direction for a broader quality offer.

**Nordic Plus - Softness and Sustainability**  
*Tuomo Niemi, Fiber Technology Manager, Metsä Fibre Oy, Finland*

The recent development of tissue furnish has been driven by the need to decrease the share of softwood pulp in order to improve the softness of tissue products. The best softwood pulps show a combination of high initial tensile strength and fast tensile development.

Increased pulping yield gives clear benefits for tissue making fibers due to the high content of glucomannan in the cell wall. The altered hemicellulose profile enhances the flexibility of fibers thus improving the tensile strength before and after creping. This enables the furnish optimization in tissue paper manufacturing. In addition, the fast tensile strength development contributes to reduction of energy consumption both in refining and drying.

Metsä Fibre is implementing an advanced polysulfide pulping process in the Joutseno mill during 2013, and thus bringing a totally new softwood pulp with improved properties to market. The new process maximizes the pulp yield when producing bleached softwood pulps. Part of the mill’s production is targeted to the tissue market. The new process is an excellent example of resource efficiency in terms of wood consumption, energy efficiency and furnish cost. Sustainability is a feature in the whole value chain.

**The Role of High Quality NBSK in Premium Tissue Products**  
*Wladimir Janssen, Tissue Specialist, Canfor Pulp, Canada*  
*Co-Author: Paul Watson, Director of Research and Innovation, Canfor Pulp LP, Canada*

The quality of the fibres used in tissue is, independent of the manufacturing processes used, still a main factor for achieving strength, bulk and softness in higher quality tissue products, as is confirmed by the analysis of a variety of finished tissue products from the main worldwide tissue markets.

Long fibre is an important component in the tissue furnish composition, that contributes to strength and other tissue properties that are targeted in the finished premium tissue product. For some of the processes used in papermaking and converting, in particular wet-shaping and embossing, the furnish properties are directly related to manufacturing efficiency as well. The quality of the long fibre, the amount incorporated, and the pulp preparation are determining factors.
The relation between the quality of the long fibre in combination with a specific furnish preparation is shown in this paper, expanding fundamental fibre characteristics to practical solutions and optimization in several tissue mills.

**Session 4: Softness: Understanding, Measuring and Achieving Softness, Haptics, Handfeel, Perception**

**Evaluating and Enhancing Tissue Softness**  
*Tim Patterson, Principal Scientist, Ashland, USA*

Tissue softness is a property that all manufacturers attempt to control, either to produce the highest quality tissue or to produce a level of softness at a specific cost. Mechanically, softness can be achieved by changing the furnish used or by changing the tissue machine operation. Alternatively, sheet softness can be accomplished downstream of the tissue machine using treatments applied to the surface of the sheet.

Choosing the most cost effective approach for achieving the desired level of softness is complicated by the problem of quantifying the improvement in softness. Panel testing is currently the most used method for evaluating softness; however, this method generally only gives a qualitative result.

Ashland Water Technologies is currently developing a quantitative method for evaluating softness and correlating softness changes with fundamental sheet properties. The goal of this effort is to provide a tool for choosing the most appropriate method for enhancing softness.

In this paper, the differences between low, medium and high quality tissues will be discussed with a focus on fundamental sheet properties. Next, the outline of a softness model that correlates fundamental sheet properties with softness will be presented. Finally, the results of a study on the effectiveness of lotions in enhancing softness will be summarized with a focus on quantifying the softness improvement and relating it to potential model parameters.

**Tissue with a Delightful Softness and Fragrance - An Economic Study about Lotionising**  
*Robert Mascherpa, Customer Relations Manager, WEKO, Germany*

Can you imagine today's tissue products without value enhancing lotions? No, because consumers require a delightful sensation on the skin, pleasant fragrances and care properties. Requirements for environmental protection and in economic use of chemicals ask for solutions other than pulp additives towards minimized surface application in the converting lines.

Surface based lotionising requires an applicator technology which provides a precise, non-contact and reproducible minimal application. The spin disk principle as used by the WEKO lotion applicator fulfills all requirements towards improving tissue quality and process safety. In the rotor applicator the lotion is delivered into the center of fast spinning disks. The liquid is accelerated by centrifugal effect and micro droplets are formed in a very even pattern and scattered towards the continuously running web material.

For tissue of double or triple plies, surface properties are required on the outer face of the outer plies. Or even better, use its 1-sided feature when adding fragrances.

In today's fast changing order processing it is advantageous to apply the custom tailored tissue properties during converting. That means quickly changing the lotion for smaller production lots is essential. Furthermore, the application quantity shall be adjustable on the run. All these features allow you to easily upgrade your tissue converting line for pocket hanky, facial box or toilet/household paper lines.

**Softness and Handfeel:**  
**Objective vs. Subjective Determination of the Tissue Handfeel**

**Handfeel Panel:** Irene Pollex, Division Manager, Papiertechnische Stiftung (PTS), Germany  
**Objective Measuring Method TSA:** Giselher Grüner, General Manager, emtec Eletronic GmbH, Germany & Alexander Grüner, Sales & Marketing, emtec Electronic GmbH, Germany
In the tissue industry, the softness or handfeel of tissue is one of the most important factors. It can be influenced during each single step of the tissue production, starting with the pulp, the tissue production itself and the converting. Also chemicals and the tissue machine have a big influence on the softness of the base tissue and the finished product.

In the seminar “Objective vs. Subjective Determination of the Tissue Handfeel” different speakers from the different steps of the tissue production process (tissue producer, chemical supplier and tissue machine producer) will allow us a deeper look into the process and what softness or tissue handfeel in their step of the tissue production actually means, how it can be evaluated and improved. Besides the presentations of the experts from these three areas, an objective measuring device for the evaluation of tissue handfeel, the Emtec Tissue Softness Analyzer (TSA), its benefits and applications will be introduced. Moreover, selected results of the multinational Collective Research Project IGF 21 EBR "Sotipa" will be presented. The project focused on possible ways to evaluate the softness of tissue products, and led - among other - to a proposal for a standardized panel test procedure. At the end of the seminar, advantages and possible disadvantages of both, the objective and the subjective evaluation of the softness/handfeel of tissue, shall be discussed.

Session 5: Energy Anyone? Energy Everyone!

Energy Saving: TH (Top Humidity) Yankee Hood running at 1000g/kg.
Stefano Pecchia, Novimpianti, Italy

Yankee hood thermal consumption, in conventional dry creep tissue machines, is strongly related to the drying process exhaust mass flow and its humidity content. In the last few years, together with impingement temperature, humidity content in exhaust has been increased too: from 300g/kg, step by step, the drying process reached over 600g/kg. This is actually the average limit on standard tissue machine Yankee hoods.

Novimpianti drying technology R&D team, by developing TH (Top Humidity) Yankee Hood, got far beyond the previous limits providing the tissue market of an innovative equipment that continuously operates at 1000g/kg, meaning a new and strong step in Tissue drying process Energy Saving. The new developed Top Humidity Yankee Hood includes substantial innovations both in the product and process itself, including also dust and mist systems. In this presentation Novimpianti will provide in detail this new concept and the related Energy Saving in terms of thermal power lower consumption.

Water Recovery for Humid Flue Gases in Tissue Paper Drying Installations
Oscar Lopez, R&D Manager, Brunnschweiler SA, Spain

Paper drying equipment generates large amounts of heat release through humid flue gases stacks, together also with huge quantities of water losses to the ambient air. Water amounts released to the atmosphere are of the order of magnitude of the total water evaporation in the dryer section. This large amount of water can produce highly visible plumes under some environmental circumstances that can be undesirable.

On the other hand, several pollutants and corrosive chemical compounds are contained both in the gases and in the water delivered and contribute to overall contamination impact of the plant. Traditional solutions of heat recovery and plume removal do not guarantee an efficient recovery of the water at the same time. A high performing traditional water recovery system involved the consumption of lots of energy.

A new method is proposed for an efficient water recovery yield with no external use of energy to be applied to the process. Heat and water are so fully exhausted and contamination (both chemical and thermal pollution) are prevented. The method (patent pending) include the use of conventional equipment that, conveniently sized and combined,
produce a water recovery yield higher than 90% with no use of external energy, and without negatively affecting other heat recovery purposes.

Session 6: Give me Strength!

Novel Retention and Strength Programs offer Flexibility to Tissue Producers

Frank Siebott, Senior Applications Specialist, Ashland Industries Deutschland GmbH, Germany
Co-Author: Frank Pakinkis, Senior Applications Specialist, Ashland Specialties UK Ltd., UK

Tissue and towel producers have always been challenged to deliver quality, maintain machine efficiency and manage costs in an ever changing environment. In recent years, rising fibre and energy costs have led tissue makers to seek new ideas to help meet their business objectives.

Ashland Water Technologies has developed several new approaches for both retention aids and strength additives that offer viable and flexible alternatives. Novel advanced polymers require only minimal equipment making them more practical and cost effective. New strength aids, both synthetic and enzymatic, can eliminate the downsides of starch or refining. Used individually or together in a comprehensive program these new products have proven effective in tissue applications.

This paper will outline modern methods of minimising fibre losses and improving energy utilization in tissue operations whilst managing strength and retention. The Ashland philosophy is to partner with the tissue producer to control the wet end of the tissue machine to gain the desired sheet quality through fibre replacement, refining reduction and fines control. By optimising wet end management, significant savings in energy, fibre costs and improvements in machine efficiency can be realised. A case history will be presented.

Squeezing more profits out of your sheet using novel and conventional strength technologies

Vladimir Grigoriev & Roberto Zulian, Kemira, USA

The consumer demand and stringent regulatory environment continue to challenge tissue makers and chemical suppliers, requiring unique quality attributes, more efficient chemical additives and environmentally friendly processes. The two key functional characteristics in the production of tissue and towel are dry and wet tensile strength that must be balanced to provide desired mechanical characteristics, handfeel softness and sufficient dispersibility in water when required. Kemira’s new developments in the strength area bring tissue makers a complete solution, allowing to achieve not only desired quality attributes and reduced environmental impact but also to help improve the efficiency and economics of their processes. In this paper, we will review the traditional and novel solutions for strength and demonstrate the benefits using laboratory data and industrial case studies.

Temporary Wet Strength Resin Application

Dan Glover, Technology Director, Pulp & Paper, Buckman International, USA

Temporary wet strength is a valued property in certain creped products. Bath grades in particular can see benefits from an increase in strength while wet or moist. However this strength must not be permanent to ensure that disposal is not problematic. This type of chemistry is known in the industry, but the proper manufacture, storage and application of this chemistry is less understood. In this presentation an overview of the best practices will be discussed. In addition, the development of a higher solids temporary wet strength will be disclosed. The cost advantages and environmental benefits of this high performance, higher solids temporary wet strength resin will be explored.

Session 7: Print for Added Value Tissue

Latest Update on Tissue Printing for Added Value

Dave Root, DMR Solutions LLC & APEX Group of companies
Recent Changes in the US Consumer Towel Print Market:
  o Less print volume by large players GP, KC, P&G due to increased offerings of 6 Roll, 8 Roll packages;
  o Also, the large significant brand suppliers are moving further away from cases to bundles and quick stock options. This has reduced print requirements over the past 5 years;
  o On the flip side, recent growth of private labels has been witnessed:
    - Clearwater, Sun Paper, Global Tissue Group, First Quality, Cascades, Orchids Paper with additional print assets purchased.
    - New converting/print operations in play over the last 2 years. All of which are 4-color presses. Both in-line and off line.

Color Reproduction
  ▪ Imaging Systems Continue to Mature, providing improved results of printed product. ITR In the round seamless technologies offer an excellent solution and benefits for the high speed platform. Digital formats vs. the past analog offering further enhancements and options for the printer
  ▪ Anilox Roll Technologies Improving. Enhanced and Special Engravings Available – Improving the Range & Latitude with printing highlights [Light Tones] and Shadows [Darker Tones/Solids] simultaneously. Other benefits include reduced misting of ink at the higher speeds.
  ▪ Ink Technologies continue to improve. Stronger colors available with increased control with the critical areas of bleed/rub.

Substrates
  ▪ New Paper Technologies and Enhancements. TAD, Hybrid TAD’s;
  ▪ Challenging to print on. Increases emphasis on plate cleaning systems to remain a steadfast to the process. Increases emphasis on inks with respect to improving formula’s [dry rate], Increases emphasis on imaging systems for identifying an optimum solution related to ink release [plate cleaning].

Press Technologies Evolving:
  ▪ Gearless vs. Geared: Futura, PCMC, Perini, Gambini
  ▪ 8 colors (but no EG on market yet)
  ▪ More Effective Plate Cleaning Systems: Tresu, PCMC, Perini, Futura
  ▪ Enhanced Video Monitoring for inspection purposes readily available
  ▪ Imaging Systems Continue to Mature
  ▪ Anilox Roll Technologies Improving
  ▪ Doctor Blades and Doctor Blade Chambers Continue to Evolve.

Wednesday, 20 March 2013 – 08:30 – 17:00

Session 8: Getting More out of Your Entire Process

A Case Study of RFID within a Tissue Mill
Tim Morton, Marketing Manager, Sonoco Alcore, Belgium
Co-Author: Markku Ronnila, R&D Manager – Paper Mill Cores, Sonoco Alcore

Sonoco Alcore and Vilant have partnered to offer RFID systems to tissue producers in order to track the re-usability of tissue cores and deliver a core and paper reel management system. Our presentation will examine a case study in which Sonoco Alcore and Vilant have implemented this system within a European Tissue Mill.

Within this presentation we will examine the following topics:
1. Work flow of the cores and tambour reels through the production process and identified tracking points. We will examine four main areas for tracking which include the core warehouse, production area, product warehouse, and tissue converting production area.

2. The installation of the necessary equipment for RFID tracking

3. Integration with SAP

4. Asset tracking through the production chain

5. Core management system and reordering

6. Implementation timeline and costs

7. Benefits realized by the customer as a result of this RFID system

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**Added Value for Tissuemakers via Efficient Chlorine-Free Microbe Control Program**

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Performic acid (PFA) is a new, highly efficient oxidizing biocide for tissue machines. It is halogen free and completely biodegradable leaving no toxic traces in tissue product or waste water. The efficacy is based on active oxygen and therefore the program is also corrosion safe.

Compared to a known biocide peracetic acid, PFA is up to ten times more efficient, making it also economically competitive. PFA is dosed in the long loop of the mill water circuits and we have demonstrated control of microbial activity in the whole machine.

In one mill trial the monthly production record was hit twice during first three months of PFA treatment. General microbial activity in process waters decreased more than 90% from the levels during previous biocide program (based on ammonium salts and hypochlorite). Also the felt life time increased significantly after the start of PFA treatment. Another tissue machine had difficulties with toxic residuals in end product during previous biocide program. Since the start of PFA treatment, tissue product has been free of any toxic residuals. Our experience from first tissue mill trials shows that PFA is very efficient in microbe control and also provides additional benefits for tissue makers.

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**Sustainability: How Automation Can Help Save the Planet**

William A Nelson, President, Elettric 80 Inc, USA

Has anyone ever given more than a cursory thought to how automation impacts the consumption of the earth’s resources? Years of cumulative experience prove that automation plays a leading role in generating saving and efficiencies throughout the tissue making and converting process. Here are some examples E80 will highlight taken from real world applications:

* Reduction of roll damage
* Reduction of packaging materials
* Better management of production input materials
* Improved efficiency of operations
* Decreased energy consumption

E80 will present case studies taken from the tissue industry that demonstrate how automation can generate savings for tissue producers and drive processes towards greater sustainability.
Practical Solutions to Recover Fibre, Increase Yield and Improve Quality
Antonio Borrego, Process Manager & Senior Sales Area Manager, Kadant Lamort, France
Co-Author: Stephane Moinier, Responsible Audits (Survey Manager), Kadant Lamort, France

Making Tissue with the best operation performance is the target of all mills. Several challenges include energy, fibre losses, quality, recycle raw material prices and quality, and process to be chosen to manage them versus virgin fibre. This presentation will review Kadant’s latest development as regard this mill performance target. Products such as pure refiners, fiber recovery strainer, new fiber wall baskets and fibernet, new MAK C flotation cell, compact stock preparation line design will be presented, as well as industrial results and bench mark analysis.

Cost-effective Quality Management for Tissuemaking
Seyhan Nuyan, Director, P&P Applications, Metso Automation, USA

A wave of recent breakthrough developments in automation is revolutionizing the quality and runnability management of tissue lines.

These include the development of a non-nuclear basis weight sensor that also measures the moisture content of the web, the first tissue color measurement and automatic control, a steam profiler with significantly higher heat absorption coefficient (twice of the traditional concept) and exceptionally narrow cross directional response for excellent profiling capability, a new integrated process and quality vision system with high-definition cameras, and most recently a furnish analyzer that helps to predict how fiber properties will effect final sheet strength properties. The new analyzer also enables precise furnish preparation and refining management resulting in better sheet runnability, higher machine efficiency and lower furnish costs.

There is now significant application experience obtained from the deployment of these solutions in the automation concept of tissue lines. For example, more than 60 tissue lines are using the quality control systems equipped with the single-sensor solution for non-nuclear weight and moisture measurements with almost 40 more to be installed soon. Also the steam profiler solution has been very popular with tissue makers resulting in significantly higher energy savings, dryness increase, and excellent cross directional uniformity.

This paper and presentation will focus on the application results and benefits of the innovative breakthrough solutions now available for tissuemakers. In addition, there is also increased interest in the application of charge analyzers and the benefits and results of on-line charge measurements will also be discussed.

Green Steps towards Sustainable Distribution Systems in Tissue Converting
Hans Östergren, Business Development Manager, Flexlink Systems AB, Sweden
Co-Author: Nicolas Le-Pivert, General Manager, Flexlink, Systems SpA, Italy

The scope of FlexLink’s production logistics solutions is to enable the optimal balancing of product flows from the log saw to the primary or secondary packaging machinery. In the presentation we will present three new developments improving the line OEE and reducing the total cost of ownership, TCO.

Dust generated from the handling of naked tissue is one dominating factor behind the decrease of component’s service life and unplanned stops in converting lines. We will show how new designs of conveyors stretch the service life with a factor of 3.

By reducing the power consumption, the equipment’s TCO can be significantly reduced. The new generation of high efficiency drive units is reducing it with 8-44% compared to previous best in class standards. This is in addition to the savings from a typical layout and controls from FlexLink compared to a conventional belt conveyor layout and line control. In cases like this, the difference can be up to 80%.

Real time data on equipment status, bottle necks and OEE is necessary for continuous improvements. The new, scalable line and equipment monitoring solution – Youtilize – provides real time data of the equipment status and line performance. It is a scalable solution that can grow with the demands on improvements on OEE and reductions of TCO.
Safer Lubrication with a Sustainable Replacement for Mineral Oil
Koen Versmesse, Export Manager, WVT Industries, Belgium

This presentation will cover a new chemical product specifically designed for use during the manufacture of paper tissue and towel products in the paper converting industry. The water-based formulation is designed to replace the use of mineral-oil lubricants which have traditionally been used to help avoid build-up of laminating glues, fibres and dust on the steel embossing and rubber marrying rollers.

Water Lube is a 100% bio-degradable, food-grade approved, odourless chemical and a safer replacement for mineral oil-based lubrication chemicals used in the embossing process of steel to steel, pin to pin, nested, micro-deco, micro-macro, perf and fan.

The product has no flash point and eliminates the possibility of friction fires generated by the process. The chemical is spray-applied, undiluted during the in-line production process and is more economical than traditional mineral lubrication products.

Higher Efficiency with Very Compact and Robust Sensors for Process Monitoring and Tissue Inspection
Andrea Friedrich, ISRA Vision Parsytec AG, Germany

The key for any improvement is to understand the cause of quality or process issues. The better information one has, the better and faster the solution is found and implemented. With respect to optical systems this means: the better the image quality, the more one sees, the more one understands.

Tissue and converting lines are challenging environments for optical sensors, especially with respect to dirt, water, heat and the limited integration space. The ISRA Parsytec intelliCam concept, now offers a compact sensor which guarantees brilliant image quality every time at every position within the tissue production process, for monitoring and inspection purpose. The unit is a compact stainless steel housing hosting camera, illumination and processing units all-in-one. Due to size and minimized connections, the cameras can be installed nearly everywhere with absolute minimum efforts. Latest installations in several Tissue Machines and converting lines using the sensor did prove the concept under worst environmental conditions.

One of the world’s leading Tissue manufacturers, which produces approximately 90,000 tons of tissue annually on one of its tissue machines, was able to realize a 10% higher performance by using this web inspection system (WIS) and a web break monitoring (WBM) system.

These tissue manufacturers are now able to understand how each individual process detail correlates to product quality and machine stability. Immediate feedback on process adjustments enables operators to fine tune machine set-up and recipes resulting in higher quality and higher output, while operation costs could be reduced. This paper will describe how this new technology has been implemented at various sites and goes into more detail about the technology itself.

Pro-Active Control of Microbial Growth and Real-Time Optimization of Biocontrol Strategies Improve Machine Efficiency
Laura F. Rice, Senior Research Scientist, Nalco, an Ecolab Company, USA

Tissue manufacturing systems present unique challenges to biocontrol efforts. The use of recycled fiber and presence of reducing agents often lead to performance upsets due to the negative impact of these factors on the efficacy of antimicrobial agents used to control contamination. These challenges are further complicated by variability in the concentration of reducing agents present and the degree of microbial loading into the process.
Many systems utilize the minimum amount of chemical required to control microbial growth to reduce costs and chemical consumption. A lack of real-time monitoring tools has limited the ability to proactively respond to process variability to prevent production upsets. Therefore an on-line monitor was developed to allow for real-time, continuous monitoring of microbial activity and surface deposition without the need for reagents. Proactive monitoring ensures continuous optimization of treatment programs and more efficient use of antimicrobial agents.

This new approach has allowed many mills to improve machine efficiency for extended operation between boil-outs. This reduces demand for water, boil-out chemicals, and energy required to heat incoming water to process temperatures for an improved environmental footprint. Case studies are presented which demonstrate the ability of the on-line, proactive optimization strategy to improve sustainability of tissue manufacturing.

Sensorized Diagnostic Platform for Creping Process
Xabier Echeberria, Managing Director, LANTIER SA, Spain
Co-Author: Iñaki Almandoz, R&D Manager, LANTIER SA, Spain

Tissue Machine operators are continuously renewing themselves to achieve higher levels of productivity and quality. The search for these improvements is constrained by all kind of mechanical factors, among them the presence of self-excited vibrations or chatter. Cases of chatter in tissue machines have increased dramatically in recent years because the race to achieve greater productivities.

Due to this serious problem, LANTIER has designed a new Creping Doctor with integrated sensors that makes possible to monitor the creping process and to detect the chatter when it takes place. This new concept is complemented with a software, and both constitute an autonomous platform for the detection and diagnosis of dynamic troubles during the crepping process, which allows the operator to know the working condition at each time.

These tools make possible to detect the chatter when it is incipient and the operator can try to stop the phenomenon before it could produce bigger problems and finally damage the yankee. All this will have an impact in the improvement of production times and a drastic reduction of the shut-down time. The opportunity for the paper companies that solve this problem is to be placed in the leadership of the sector.

The Use of Polyurethane Roll Covers for Tissue Pressure Roll Applications
Charles Hunter, Director of Materials Research, Xerium Technologies/Stowe Woodward, USA
Co-Authors: Gary Kilbourne, Vice President of Technology, Xerium Technologies/Stowe Woodward, USA
Franz Danzler, Director, Application and Marketing – Europe, Xerium Technologies/Stowe Woodward, Bill Butterfield, Vice President of Global Rolls Technology, Xerium Technologies/Stowe Woodward

Tissue pressure rolls have traditionally been covered with rubber elastomers due to their high heat resistance and durability. Rubber covers have been designed that can provide a uniform nip, resulting in high quality tissue being produced at very high speeds. Some of the drawbacks of rubber covers compared to polyurethane have been their hardness instability (hardening), lower abrasion resistance, and higher operating temperatures.

Advances in polyurethane chemistry now allow the use of these elastomers in this application. Polyurethane elastomers do not harden during use. Their improved abrasion resistance may increase the operating time between regrinds when compared to rubber covers. Due to improved material chemistry, polyurethane covers run cooler than comparable rubber covers.

Another significant added benefit of using polyurethane in this application is its ability to be grooved. This enables the venting of the covers to be optimized for better water removal than drilling alone. Water removal may be significantly improved as a result. Over 60 of these covers are being used successfully on tissue machines globally. Material
properties will be discussed, as well as case histories illustrating the use of polyurethane covers in suction, suction dry-prcss, and suction grooved applications.

Thursday, 21 March 2013 – 08:30 - noon

Yankee Reliability Workshop

SESSION ONE: YANKEE SYSTEMS

• Over the years, the engineers at Beloit, then Sandusky, and now PMT, have learned a lot about Yankee dryers. One of the fundamental systems we rely upon for smooth operations of our Yankee cylinder is the steam system. Steam systems can be a source of process variability if not properly controlled. With a focus on blow-through control, this session will get us back to the basics of stable steam system operations – Clive R. Butler, Engineering Manager, PMT Industries Ltd., United Kingdom

• Yankee bearings should last over 200,000 hours, right? So why do we suffer so many premature bearing failures on Yankee dryers? The answer is often lubrication and no one knows more about bearing failures, and their root causes, than the engineers at SKF. This session will cover optimum lubrication systems, oils, flow rates, and testing methods to ensure you get maximum life from your Yankee bearings and keep your machines running – Philippe Gachet, Sr. Technical Consultant/Business Engineer, SKF Global Pulp & Paper Segment

• Press fabric performance is a key factor in tissue machine and Yankee operations. Fabric life often dictates our down day cycles and is a key influence on the stability of the moisture profile and the Yankee coating. Albany International, a leader in performance tissue machine fabrics, will discuss key on machine, and off machine, analytical techniques, designed to extended fabric life and optimize fabric design to help keep your machine running in the sweet spot – Matt Bryer, Product Manager, Press, Tissue Americas, Albany International, USA

• After fiber, energy is the second highest cost contributor to tissue production. Whilst direct contact drying with the Yankee is quite efficient, drying with air is not. This is exactly the reason why it makes sense to pay attention to this critical cost component. However, so few mills are optimized in this regard. Why? Because it is not so easy and is therefore most often neglected. Enerquin, has long been a leader in Yankee hood optimization and will share their insights and case studies of the savings possible through proper set-up of the Yankee hood systems – Antoine Hofer, Yankee Applications Engineer, Enerquin Air, Canada

SESSION TWO: YANKEE SURFACE MANAGEMENT

• The interface between the Yankee dryer and the crepe blade is a thin film which is more often discussed than completely understood. The relation between adhesion, release, and process influences has been an obsession at Nalco. In order to achieve “best practice” results, one needs to understand the various interactions amongst components, avoid common pitfalls, and understand corrective actions. These subjects, and case studies, will be explored in order to illustrate the impact of different Yankee coatings systems on the tissue manufacturing process - Sam Archer, Principal Consultant, Nalco Company, USA

• Yankee protection through organic coating application is something we are all familiar with. However, inorganic components can also be a crucial component in preserving the surface, stabilizing the organic layer, and increasing Yankee life. Phosphates are often used as an inorganic component; however, the use of phosphates during normal operation has not been well documented. Are there differences between cast iron and metalized coatings in this regard? Is there a difference in the type of phosphate used? These fundamental questions have long been studied by the chemists and application engineers at Ashland. The advantages of phosphates and their proper application will be discussed – Barry Bartles, Tissue and Towel Platform Launch & Applications Mgr EMEA, Ashland Industries, United Kingdom
Yankee surface management is a key strategy for improving machine efficiency and lowering unit production costs. Reducing crepe blade vibrations, controlling edge build-ups, and reducing wet end influences are all part of an overall successful strategy. Applications experts at BTG have focused on this holistic approach to Yankee surface management for years. In this session, they will share their insights into keeping the surface running clean and smooth with overall process based strategy – Florent Bougerolle, Product & Project Manager, BTG Eclépens SA, Switzerland

It’s not easy to start-up a successful Yankee Services business in an age of multi-national conglomerates and you can’t do so without learning a lot along the way. The engineers at Jäger GmbH and Msquared have accomplished this with both innovation and an experienced hands-on approach. Together they will discuss methods to improve Yankee operations, reduce the probability of chatter, optimize crowns, and better manage Yankee grinding cycles. – Manfred Jäger and Gary Marzullo, MSquared GmbH, Germany