



- ❑ Forming Fabrics
- ❑ Dryer Screens
- ❑ Metal Wire Cloth
- ❑ Chemicals

## ON SITE TROUBLESHOOTING - FOR PAPER

Papermaking is a complex process encompassing many different disciplines : physical chemistry, chemical engineering, mechanical engineering, instrumentation, microbiology and the management of multiple resources like forests, water, power etc., thus giving rise to a host of process variables, one impacting the other.

Problem free paper production is a result of effective and timely troubleshooting by the mills' technical personnel as well as other 'service providers' taking place at various stages of the manufacturing process.

### WHICH ARE THE 'TROUBLE PRONE' AREAS

#### 1. THE WET END

The wet end of the papermaking process is highly interactive and dynamic, hence wet-end upsets can seriously destabilize the entire machine. Any process adjustment here affects several variables at the same time.

For instance just changing the retention aid flows can adversely affect white water consistency and ash levels together with drainage and drying rates. Similarly at the dry end, the effects are seen on sheet basis weight, ash and moisture.

The wet end is thus a service intensive area requiring regular monitoring and control and a large dose of 'troubleshooting'.

#### THE CHEMICAL TROUBLE SHOOTER

Since 'Paper is made in the stock' as the saying goes, chemical additives are essential - either for improving runnability or imparting the desired physical properties. But in order for the chemical to 'perform' it has to contend with an innumerable number of 'process variables'.

Therefore measuring and monitoring the wet-end becomes imperative for the chemical supplier before he can start getting his customer to 'use' his product. 'Wet-end Troubleshooting' therefore becomes part of the supplier's expertise and concern.

#### WHY DOES THE MILL NEED ONE ?

One reason is that the rate of technological development in wet - end chemistry has moved faster than

the ability of a typical mill to handle it. At the same time, over the years, many mills have reduced manpower in their technical departments – although not necessarily by choice.

Moreover diagnostic and testing equipments used for wet - end management are expensive and difficult to maintain. Since they are only occasionally used by the mill, it makes more sense to call the service provider to do the required tests.

#### IS THERE AN ALTERNATIVE

Advances in automation have helped somewhat. Since machine data is available on real-time basis, it is possible to make adjustments 'on the fly'. But even here valuable information is wasted; sometimes not even collected- if the mill lacks the required on-site expertise.

Remarks an industry professional *"Informed personnel must monitor, gather and interpret all this data and make it meaningful for the mill"*.

But as paper companies face a shortage of experts, they increasingly look to suppliers to provide the knowledge.

Says the Technical Head of a Chemical company *"Mills and suppliers should work together to determine the most important process information so technicians do not waste time collecting and interpreting marginally critical data"*.

#### 2. MAINTAINING THE RUNNABILITY

Machine Clothing plays a major role in the runnability of a paper machine.

Trouble shooting involves constant monitoring of the 'condition' of the wire with regards to 'formation', 'drainage' and 'abrasion'.

Modern Forming Fabrics need critical and specialized application knowledge to enable the mill to improve quality and operational efficiencies. New table diagnostic tools like 'Fibrescan' help both supplier and mill to understand the real issues to focus on. Optimum absorption of the felts is monitored with the help of a 'Feltscan' equipment. Such expensive equipments are maintained and used by most Paper Machine Clothing suppliers. Their wide experience of using them on multiple machine positions, provides them with unique data-interpretation knowledge.

<b>INDUSTRY NEWS</b>	<b>Tetra Pak</b> , the processing and packaging company is putting up a new packaging material factory at Chakan, near Pune. This is based on an ever-increasing demand for packaged beverages rising from current levels of about 757 Million Litres to an anticipated demand of 1.3 Billion Litres by 2013 only for the region of India, Bangladesh and Sri Lanka.
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### 3. PAPER MACHINE CONTROLS

The aim of controls is to lower production costs and maximize the runnability and quality of the paper produced by minimizing variations in consistency, ash, charge and freeness during normal running and change-overs.

Suppliers of automated control equipments understand this too well.

In their words *"Improving processes and controls is a cheap and quick way to raise paper-making efficiencies and paper machine performance, and has a significant impact on the bottom line."*

For example ABB's Fingerprint services identify the underperforming assets that cause reductions in production and conversion efficiencies. Used as diagnostics, Fingerprint services compare existing controls to industry standards and actual operating data to set standards for future performance.

In the fast-moving world of paper production, most paper mills have a need for on-demand remote diagnostic support. For mills located in areas that are miles from the nearest technical support, the need for remote support is even more critical. Suppliers have garnered resources that help mills troubleshoot, respond to emergencies and operate at maximum efficiency, no matter where they are located. Papermakers use Remote Services for immediate assistance when they need to diagnose problems or implement corrective strategies.

Leading Paper machine manufacturers' now deliver QMS systems in new paper machines with the ability of 'remote diagnostics' whereby a service employee logs into the customer's system and carries out optimizations wherever required.

### 4. ENERGY CONSERVATION

Another case study of savings due to on-site support, comes from a US producer of coated papers producing 1100 tons of paper a day. His system was equipped with over 1000 centrifugal pumps. An assessment by an on-site engineer

could recommend potential efficiency improvements for atleast 23 pumps leading to a saving of more than USD 100,000 per year for this company.

### ON - SITE 'TROUBLESHOOTER' OR A 'CONSULTANT' ?

On site service comes at a cost which is normally built into the price of the product. The other alternative is to engage the services of a 'consultant' as and when the need arises. The only limitation to this is that consultants may lack the same level of intimate knowledge of the processes at a particular mill, which an on-site person possesses.

Also to be considered is that Mill level on-site technical support involves a high level of prevention. The 'preventive' aspect of on-site technical support will not be forthcoming from the 'consultant' who will be focused only on solving problems.

Like any other industry, process troubleshooting can involve valuable diagnostic techniques such as Logic diagram, High frequency variability analysis and thermography.

These techniques, together with many other diagnostic techniques can be part of the arsenal of the mill troubleshooter.

### CONCLUSION

The 'troubleshooting' needs of the Paper Industry is now well understood by both the papermaker as well as the supplier of consumables.

*"The cost of one break, one episode of down-graded paper due to holes, loss of retention efficiency, a lost opportunity to improve machine speed and the cost of one failed chemical trial must all be viewed against the 'savings' gained by using a 'low cost supplier' who provides no service"* says the General Manager of a North American Paper mill.

To ensure the best possible mileage for both sides, it is best to draw up a service agreement specific to a mill's needs and objectives as at the end of the day the paper manufacturer has to derive the best 'value' from the 'troubleshooting services' he receives from the Product Supplier.

<b>QUOTABLE QUOTE</b>	<b>The future belongs to those who believe in the beauty of their dreams</b> – Eleanor Roosevelt		
<b>SCRABBLE</b>	What does <b>ASTM</b> stand for ? ( Hint : Testing Organisation ) First correct answer will win a Parker Vector Roller Pen (Maximum two prizes for one person in a year). Post / Fax / Email your answers to EDITOR-W&F SNIPPETS by 20 <sup>th</sup> August, 2011.		
<b>WINNER</b> JUL'11	<b>Mr.R.Venkatesan, Purchase Department, Seshasayee Paper &amp; Boards Ltd, Cauvery RS PO Erode - 638 007 (TN)</b> <b>Correct Answer: F I R : FOURIER TRANSFORM INFRARED SPECTROSCOPY</b>		
<b>?QUIZ</b>	In a Single Layer Fabric there is one warp & one weft. How many warps & wefts are there in a normal Double Layer Fabric ? Select the right answer : a) one warp & two wefts b) two warps & two wefts c) two warps & one weft Post / Fax / Email your answers to EDITOR-W&F SNIPPETS by 20th August, 2011.		
<b>WINNER</b> JUL'11	<b>Mr.Babu Kambadkone, Production Manager, Gayatri Paper Mills (Pty) Ltd, Germiston-1400, South Africa</b> <b>Quiz :</b> What is the advantage of an Inclined Size Press versus a Horizontal Size Press. <b>Correct Answer :</b> An Inclined Size Press is used on faster paper machines to reduce chances of sheet break which can happen in a horizontal size press.		
 <b>Prizes</b>	1. Best / first correct answer received will win one-year subscription to <b>IPPTA Journal</b> (Maximum one prize for one person in a year). 2. Best of the 12 monthly winners in a year, will win one-year subscription to <b>Paper 360<sup>o</sup> Magazine, USA.</b>		
 <b>A toothful story</b>	<b>Patient to Dentist :</b> It must be tough spending the whole day with your hands in someone else's mouth. <b>Dentist :</b> No ! I just imagine that they are inside his wallet.		
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