

FROM THE SUPPLIER

Don't cut down on quality control

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DURING TOUGH ECONOMIC TIMES it is tempting to reduce quality control to cut costs in maintaining rolls for papermaking. However, Dolph Beyer, an engineer with Mohawk Fine Papers, asserts doing this is actually counterproductive. Recognized for its technical innovation and environmental focus, Mohawk Fine Papers is the largest privately-held premium paper manufacturer in North America.

Beyer has determined that by using Pressurex® pressure indicating sensor film as a quality control tool to aid in alignment and diagnose the condition of his rollers, the company actually decreases costs and significantly improves product quality.

"By taking nip impressions with pressure indicating film every couple of weeks we are able to extend roll life by a few months in many cases," says Beyer. "By examining the roll nip impressions we can more accurately determine where we are in the life cycle of some of our rolls. This helps to pinpoint more accurately when rolls need to be changed and may indicate needed roll grind improvements or cover material changes to help extend roll run life cycles. Extended run cycles reduce the re-grind frequencies and therefore extend the cover life. This quality control measure not only lowers costs for the replacement of these covers, but also minimizes equipment downtime."

Pressurex® reveals pressure from two to 43,200 psi (0.14-3,000 kg/cm²). When placed between contacting rolls, the sensor film instantaneously and permanently changes color



Pressurex reveals variations in nip contact pressure which can be easily quantified

directly proportional to the actual pressure applied. Precise pressure magnitude is then easily determined by comparing color variation results with a color correlation chart (conceptually similar to interpreting Litmus paper). Variations in pressure that lead to defects in papermaking, converting and printing can be quickly and accurately detected and corrected — improving yield, decreasing waste and increasing productivity.

By examining pressure variations in the nip, corrections in alignment and crown profiles can be made. The film is effective on virtually all roller compositions and surfaces. A visual pressure mapping profile of an engraved pattern or drilled roll can be effortlessly produced that exposes minute surface defects and other imperfections.

Pressure indicating sensor film is cited by Beyer as being especially helpful with calender rolls, which are swim rolls that have mechanisms to allow the center of the rollers to exert a different level of pressure. "Similar to crown rolls, swim rolls need to be carefully monitored to ensure even and exacting pressure is being applied to achieve optimum nip conditions," says Beyer. "We use the film to create just the right nip and improve the roll shape and crown to deliver better sheet uniformity."

Mohawk Fine Papers uses Pressurex to take static nip impressions on its press section and dynamic nip impressions on its calenders. Dynamic nip impressions are inspected for uniformity and static nip impressions for uniformity and nip pressure. Image results of the film are archived and used as a control to compare tools and processes.

Pressurex is extremely thin (4-8 mils) and flexible, which allows it to conform to curved surfaces. It is ideal for invasive intolerant environments and tight spaces not accessible to conventional electronic transducers. While recommended for tests in non-operating conditions, the sensor film can be used at temperatures exceeding 200 F° (93 C°) for brief intervals.

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