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CASE STUDY
What is the ROI ?

How much is accurate Viscosity Control worth ?
Is there really a payback?

They believed there was a short-term payback; they wanted to document it; and to validate quality consistency and reduction in ink consumption.

A Flexographic Preprinter

Established in North America, this company has grown to become the world's largest flexographic preprinter through continuous investment in the latest flexographic print technology & employee training, they proudly offer converters the widest range of graphic possibilities that compliment any sales & marketing mix. They are committed to fully understanding and satisfying the needs of their customers by providing the highest quality printing and business services. For the purpose of this case study they requested to remain anonymous.

The Solution

A Color Management system for viscosity control

A unique system including:

- Real time, continuous viscosity control
- Precise viscosity measurement interface to manage frequent and minute adjuster fluid
- A user-friendly software program
- A maintenance free, in-line viscosity sensor without any moving parts

Challenges faced

- To achieve minimal variation in colour and colour density
- To maintain tight control of ink viscosity throughout every job
- To reduce ink related printing costs

The results achieved

- Achieved excellent print quality, from roll to roll
- Maintained colour and colour density stability on every print job
- Shortened press set up times
- Considerable ink savings
- Precise constant viscosity control within 5 CPS (about 0.5 seconds Zahn #2)

The Whole Story

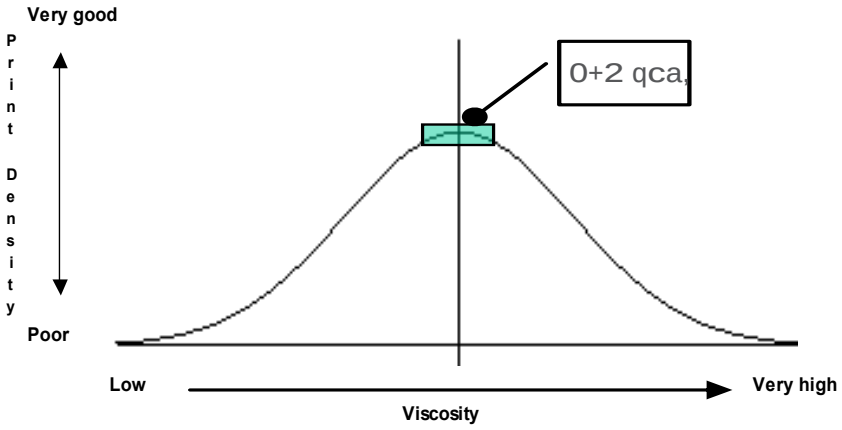
This printer was sold on the fact that automatic viscosity control would be a definite benefit to their pre-press operations and that they would achieve important ink savings. They had tried several mechanical viscosity control systems but invariably they were as much a hassle to maintain, as to use. The operators usually reverted back to doing the manual checks (maybe) because they didn't have the time to do the required maintenance on the so-called automatic systems. That was before they discovered the new in-line Color Management system recently introduced to the marketplace. They were so impressed with it's technical qualifications and the feedback from other users that they immediately purchased a system.

The first test of the Ink Management system was to be a 13 roll print job and the criterion for a successful test was to be colour consistency throughout the complete print job. The results surprised them! Samples from each of the 13 rolls were laid out at a table and the roll-to-roll colour consistency was exceptional; but even more spectacular was that any of the samples could be compared and still the colour consistency was impeccable. There was no colour drift whatsoever!

Moreover, press stoppages for plate cleaning were reduced and the manpower requirement to maintain the ink was less thus allowing the operators to focus their attention on the operation of the press. Operator acceptance was immediate and voluntary; they recognised how beneficial the Color Management system could be to their

Not only is it possible to harvest economic advantages by tight viscosity control at the lower end of this comfort zone; viscosity variation is an invisible contributor to many of the problems that can occur during the printing process. The quality (or lack) of control of the ink viscosity influences the quality consistency of the product being shipped to the customer. The accuracy of ink viscosity control will help avoiding printing problems that might be unnecessarily attributed to the ink viscosity reading, prompting erroneous process correction decisions. This uniquie Color Management system will continuously and precisely measure the dynamic ink viscosity in the ink supply circuit. The precision of control is essential but even more important is the 'in-line' measurement which is in close proximity to the ink metering system. The adjuster fluid injection system is extremely precise, and makes calculated adjustments relative to the difference between the actual viscosity measurement and the desired setpoint.

day-to-day activities. This positive attitude allowed for paradigm shift in control procedures. The precision and continuity of control was so accurate that, no longer did they need to rely on a Zahn cup reading as a control parameter. The Color Management system allowed them to directly relate colour density to ink viscosity. With this relationship the customer colour specification could be used as the control parameter: the innovative Learn function in the software handled this job with ease. They were very pleased with the operation, but as part of their purchase justification process they needed to determine the actual cost savings to implement their lean management philosophy. With my cooperation, with some technical expertise and on-site assistance, a simple plan was devised to measure the savings that could be generated. The plan was based on the common knowledge or comfort zone that a certain colour density variation could not be seen with the naked eye; this variation is generally accepted to be around two to four Zahn # 2 seconds.



The above chart was developed based on the Clemson university technical study comparing the print density results with varying ink viscosities and validates the operator's experience and rules of thumb. When the optimal print density is achieved, it will persist over a range of several seconds. Other industry studies have determined that variations in ink viscosity of one second on a Zahn #2 cup could result (FTA 1999) in a significant difference in ink consumption. Though these studies do not agree on the potential maximum savings, most studies agree that a 10 to 15% consumption difference for a one second change probably is a safe betthough maybe on the low end of the scale. Once the press was set up "normally" and when the print approval was received, product was printed with the Color Management system controlling the set viscosity for four hours, then we lowered the ink viscosity to the lowest viscosity possible while not affecting the colour density or print quality of the product, then raised by one-half second. The test resumed for another four hours. The ink volumes were measured before and after each segment of the test and compared; the results were dramatic. Ink consumption dropped for each color by at least 10%, while the over-varnish consumption dropped by a whopping 30%. Samples from both print runs were subjected to the same rigorous testing procedures and both print runs were deemed better than the customer approval standards.