Anilox rollers spend an entire lifecycle in T&T lines leading to potential problems that impact production.

Here, Harper’s Bill Poulson gives some recommendations on how care and maintenance should always be top priority

The more that is learned in the area of care and maintenance of Anilox rollers, the less downtime and product loss will occur. Anilox rollers in the tissue industry are used in glue application and lamination processes as well as printing rollers for single colour or four-colour process towelling print lines. Other markets also use Anilox rollers for dryers in the printing, gluing and lamination processes as well as giving a snap shot of how the T&T industry uses the same line screens for printing ink or running adhesives, they need to be cleaned thoroughly before pumping ink or glue to the rollers surface.

CARE AND MAINTENANCE

Tracking wear and tear is a very important step as illustrated on the next page. This allows a tissue producer to determine an expense budget as well as giving a snap shot of how the rollers are being handled and cared for weekly. Roller suppliers should come in periodically to perform audits and between that tissue producers should use a qualified handheld microscope to visually check for cell wall wear and ink plugging on a weekly basis.

CLEANING THE ANILOX ROLLS: “CLEAN CELLS”

Daily procedures for cleaning are by implementing good manufacturing practices. Once you have identified the problem you are half way to fixing it; if the problem is not identified, this can shut down the print or glue lamination lines. The visual inspection of an Anilox or glue roller, and don’t just depend on the auto wash systems to get this done. Remove all residual ink and this will avoid the ceramic surface from getting stained and minimise any plugging or corrosion issues. With the proper magnification it’s possible to tell if the roller is plugged, and if the bottom of the cell is visible it’s clean. If the roller is plugged with ink it will not perform as expected. Auto wash systems should be done with warm water treated with a compatible detergent that will help flush out the cells properly during the wash cycle. Use a detergent that has a safe pH level and also check the roller after the wash cycle to insure it is cleaned thoroughly.

OFFLINE AND ONLINE CLEANING SYSTEMS

Most T&T facilities can have an outside source come in and clean their rolls on press. One common practice is the baking soda blast which can be attached to the press onsite without taking the roller out of the press. If the roller plug over time and you cannot get them cleaned by hand, an online and onsite service should be scheduled for once or twice a year. It will pay off in product consistency and less quality control issues.

BARRIER COATING

Inks and adhesives in the tissue industry can be acidic or caustic causing the ceramic surface of the roller to decay. These inks are formulated to avoid ink bleed, streaking and other such issues that can complicate ink related handling. To avoid this, make sure that the proper barrier coating is applied to the subsurface of the roller, which is the build-up material under the ceramic.

PRODUCTION ENVIRONMENT (DUSTY)

The tissue environment will be dusty. The print surface of the Anilox roller should be protected or covered to limit the amount of dust that will contaminate its surface when not in use. Once the dust gets into the system it will travel through the ink train or adhesive train spreading the contamination throughout. This can promote rollers to plug cells or have issues printing acceptable product. Dust will cause print quality issues and will flow through the chamber contaminating the ink. Proper filtering needs to be in place to trap the contamination while running if an roller has not been in use, clean it thoroughly before pumping ink or glue to the rollers surface.

CHOOSING THE PROPER INK OR GLUE VOLUME

Standard Anilox volume for T&T lines is 3-50cm to 50cm range. This volume range may vary slightly depending on inks, paper or other variables. If you include party napkin in this mix, the volume range will go slightly higher than 50cm.

Glue applications: In testing for glue applications, the volume ranges will vary from what is used for printing as pictured. Most manufacturers of T&T will run periodic testing from time to time. Tissue is a very absorbent substrate so if the tissue supplier changes the tissue formula, there may be a need to retest in order to optimise ink or glue volume. When these types of changes occur, banded testing is the way to get the process optimised again.

Glue coat weight amounts are slightly more difficult to calculate than ink. This is a perfect example for running a banded roller. A banded roller is a roller that has multiple bands of line screens and volume as well as different geometries to test so that you get the optimal amount of ink or glue transfer.

“BANDED ROLLER LAYOUT”

A tissue producer may want to try a variety of geometries. Flexography typically uses 60 degree geometry which will work fine, but there are other geometric types that may work in replacement of the 60 degree. Consider speed and chemistry of inks and coatings when choosing geometry. The tissue or 89 degree geometry on previous page works well with glue and it may allow a coating to align speeds above 200 meters, so make sure this can accommodate any issues or side effects that certain geometries may show.

After running the banded roller, evaluate the test results and measure the final results to set the parameters needed for day to day operation. If a coating volume for glue needs to span across a variety of tissue weights then this is the proper way to get there with accuracy. Interpret the final results and choose a volume range that will span across the full range of tissue ply and paper weights that are produced. The final volume selected needs to be at a high enough volume to allow for slight wear and still have acceptable coat weight for glue or color strength.

Tissue World Dec 2012 / Jan 2013

Anilox wear 1

Anilox wear 2

Anilox wear 3

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