On-Press Benefits of KODAK SONORA Process Free Plates

SONORA XTRA Process Free Plates

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Many printers focus on the benefits that process free plates bring to prepress—eliminating the plate processor and reducing water, chemical, and energy usage—and don't realize that they also deliver significant benefits in the pressroom. The pressroom is the biggest revenue and cost center, so improvements here can make a big impact on a printer's profitability.

This paper will explain the three main reasons a printer will see improvements on press when using SONORA Process Free Plates:

Eliminating the hidden costs of plate processing

Faster makeready

Greater dot stability

The Hidden Costs of Plate Processing

Plate processing has inherent variability and quality concerns that can affect the plate making process and introduce defects, even in the best of prepress operations. The elimination of risks associated with processing is one of the reasons that many printers are choosing to switch to KODAK SONORA Process Free Plates.

Printers easily understand the savings around not running a processor or buying chemistry and reducing water usage. However, it's harder to see the "hidden costs of plate processing." These costs include the costs of plate remakes and delays from having to remake plates. They also include press time and paper wasted if a plate makes it onto press with an undetected defect caused by plate processing. These "hidden costs" can be significant, but they're difficult to avoid without eliminating the chemistry and processor completely.

Here are a few examples of the problems Kodak has seen that can be traced back to the plate processor. These examples all came from real customers that asked us for help.

Figure 1: Banding

BANDING

The plate in this photo (Figure 1) was taken off a yellow press unit and shows terrible banding. However, the banding wasn't visible on the plate before it was put on press. It only appeared after ink was applied.

The cause of the banding was weak developer and, likely, forgetting to replace the replenisher bottle.

Unfortunately, since the banding wasn't visible on the plate, this defect not only wasted press time and forced a plate remake for this particular job, any other jobs that were queued and plated after this one would have had the same issue.

IMPACT: Plate remakes would have been needed for this job and all other jobs prepared before the defect was spotted.
The press would have sat idle, waiting for new plates while the entire developer bath was replaced in the processor.

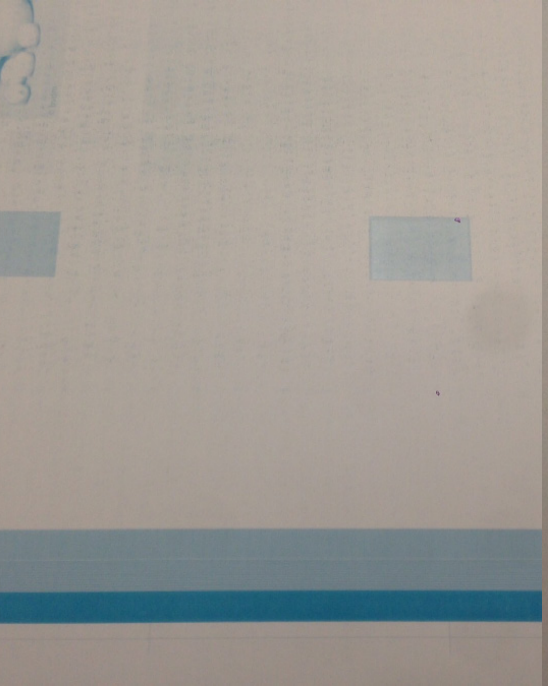

Figure 2: Hard (Old) Brush

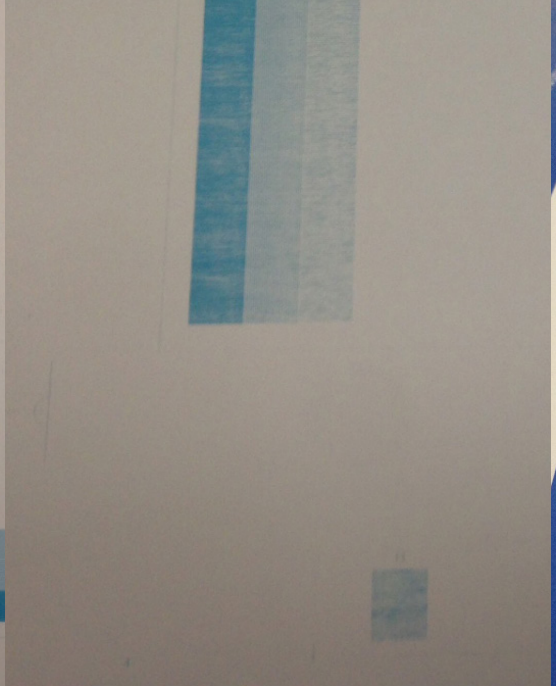

Figure 3: Too Much Pressure

Figure 4: Developer Redeposits

HARD (OLD) BRUSH

In this photo (Figure 2), you can see brush marks in the non-image as well in the image area of the plate.

The marks were caused by not sticking to recommended brush replacement intervals. An aged brush in the plate processor became too stiff and brittle and scrubbed the plate coating back onto the substrate, leaving marks in the non-image and image area.

IMPACT: Plate remakes, but only after the brushes were replaced. The time to replace the brushes—possibly ordering new ones if no brushes were on site—could have caused a delay in the job. All too often, these types of issues go unnoticed until it causes a print issue and results in lost press utilization.

TOO MUCH PRESSURE

Here you can see another common defect caused by the plate processor (Figure 3). There is coating damage appearing unevenly across the plate width, caused by brushes that were set with too much pressure and unevenly. This situation very often appears together with warped plate beds.

A badly set brush roller caused mechanical damage to the coating. Again, it is not uncommon for these plates to go unnoticed until they make their way on to press.

IMPACT: Plate remakes and lost press utilization.

DEVELOPER REDEPOSITS

This plate showed marks and stains caused by developer redeposits.

The developer became fully loaded with the removed plate coating and redeposited the coating back onto the plate. Infrequent developer bath cleaning or not following filter replacement intervals are the most common causes of developer redeposits. A developer circulation pump that does not circulate the developer sufficiently is also often a root cause for these kind of problems.

IMPACT: Plate remakes, at minimum. Like many other processing defects, these defects can go un-noticed until the plates go to press and the print is examined. Today's busy prepress environments and automated plate loaders on the press have reduced the level of visual inspection of plates, and the consequence is that more of these defects make their way through to the press. In cases where plates are additionally post baked for longer runs, these redeposits cannot be removed, for example, by using a plate cleaner.

Figure 5: Worn out developer brush

WORN OR DAMAGED PROCESSOR PARTS

As parts of the plate processor wear out, plate quality is affected.

This photo (Figure 5) shows a developer brush from a plate processor where the brush hairs were worn out in the area of plate transport. This worn brush caused uneven developed plates and resulted in dot variations on the plate.

IMPACT: Plates going to press would give poor color uniformity and reproduction across the paper width. Any plates queued after this one would be affected also, and the processor would need a new brush and maintenance. A worn brush like this one cannot be adjusted anymore, especially if more than one plate thickness is used. This worn brush would also cause transportation issues, likely resulting in a plate crash. There would also be an impact on the printing press utilization.

In the first photo below (Figure 6), you can see a damaged gum face roller (before the dryer), which caused a carry-over of gum to the exit rollers, shown in the second photo (Figure 7). Dry residues on the roller's surface were transferred to the plates and showed up as visible spots and blotches in the printed job.

All of the examples shown wasted significant time, materials, and money for our customers.

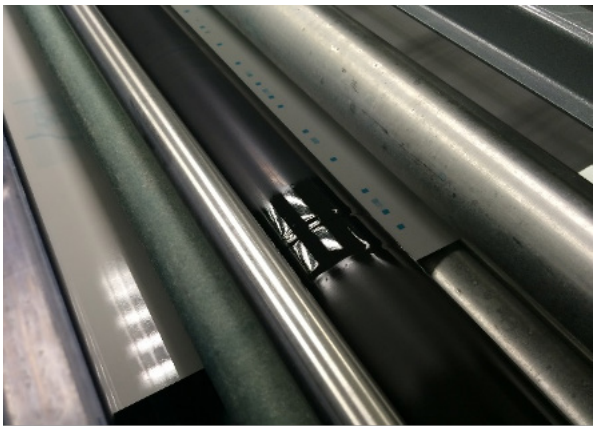

Figure 6: Damaged gum face roller

Figure 7: Dry residues on the roller's surface

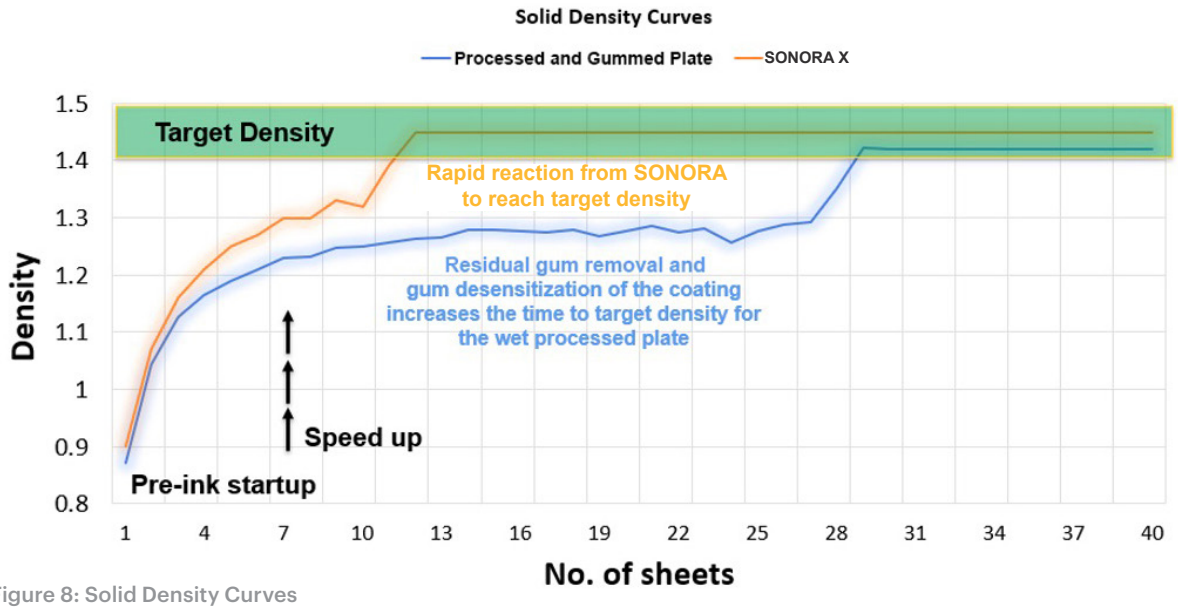

Figure 8: Solid Density Curves

Faster Makeready for Faster Profits

SONORA Plates can significantly reduce start-up times on press, saving not only time but paper, ink, and other makeready costs. SONORA Plates reach target density over 2 times faster than wet processed plates.

The coating of SONORA Plates is very oleophilic, or ink-loving, and there is also no gum layer that must be removed. As the press starts up and accelerates to operating speed, SONORA Plates receive the ink quickly, reaching target density in as few as 10 sheets.

By contrast, wet processed plates take over twice as many sheets to reach target density, due to removal of the residual gum layer and gum desensitization of the coating.

Above is a chart showing the number of sheets it takes for both SONORA Plates (the orange line) and a processed and gummed plate (the blue line) to reach target density. Many printers report even faster makeready with SONORA Plates.

Dot Stability: Another Benefit of Process Free Plates

Dot stability is yet another benefit of process free plates that can help printers be more profitable.

SONORA Plates go straight from the CTP device to the press, skipping the processing step. Elimination of variation from the processor allows a more predictable, consistent printing dot to be brought to press. It is easier for press operators to achieve color standards, and inline systems have fewer corrections to make.

With processed plates, dots vary in the processing stage and over the life of the developer bath, giving less predictable dot gains (figure 9). A 50% halftone dot imaged on the plate can shift as developer ages.

When dots shift, operators must make corrections on press to meet color standards and ink density. Generally, up to a 4% shift can be compensated for through ink density control. These adjustments take time, and you can waste quite a bit of paper and press time getting everything right.

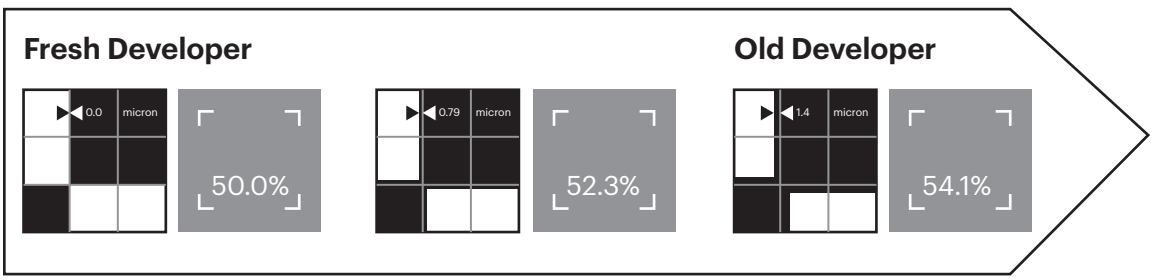

Figure 9: Dot gain as developer ages

However, with SONORA Plates there is no processing stage and developer, so there is no influence from developer activity. The dot size going to press is always the same as the dot imaged on the platesetter, so printers save time and materials by eliminating the adjustments needed to get to the first saleable print. Printers imaging with a KODAK Platesetter with SQUARESPOT Imaging Technology will see a continuation of the extremely stable dot, consistent from the file to the platesetter and straight through to the press.

The data in the table below is from actual press runs, comparing the time it takes to reach required color standards / dot gain with SONORA Plates and processed plates with various dot gain values throughout the life span of the developer.

PLATE	AVERAGE PRINT TIME REQUIREMENT	PERCENTAGE (SONORA X PLATES REPRESENT 100% OF TIME)
SONORA Plate	00:11:47	100%
Processed Plate (52%)	00:14:48	126%
Processed Plate (50%)	00:11:34	98%
Processed Plate (54%)	00:12:31	106%

Although the 50% processed plate performs similar to the SONORA Plate, you can clearly see that there is variability, and at other times it takes much longer to get to a saleable print.

On average, over multiple press runs, day to day, week to week, SONORA Plates save about 10% of the time it takes to reach required color standards / dot gain. That is extra time for printing, making money instead of wasting paper and labor costs.

Conclusion

Waste is not an option for printers that want to be profitable. Issues causing downtime or waste on the press have a higher impact on production costs than downtime or waste issues in prepress. Costs of paper, ink, and press time are among a printer's highest running costs. Processed plates have a significant, direct impact on press, and eliminating processing allows printers to unlock hidden savings on press. With SONORA Plates, there are no more plate defects from processing variability, aged developer, or worn processor parts. The bigger the printer, the bigger the savings, and over 6,000 printers worldwide are now realizing the benefits on press of using SONORA Plates.

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