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White Paper

Economic Benefits of Using Process Free Plates

The environmental benefits of removing the processing step from plate making are well known in the printing industry. Printers eliminate all processing chemistry and waste, they reduce water and electricity usage, they eliminate the package waste associated with processing chemistry, and there is no processing equipment to continually clean, maintain, and ultimately dispose of.

These environmental benefits have convinced many printers to switch from traditional processed plates to process free plates. Other printers look at the slightly higher price on process free plates and wonder if these benefits deliver enough return on their investment for the plates to be a good business decision. It may be true that print customers and consumers are looking for suppliers that care about the environment, but will improving sustainability actually increase revenue significantly? How much can a business afford to invest for a cleaner local environment and a healthier workplace for employees? Is there any benefit to adopting sustainable practices beyond what current laws and regulations require?

This paper will demonstrate that the environmental benefits of process free plates are really just the icing on the cake. The main benefit of using process free plates is that they can save a printer money.

Because sustainability is a popular topic lately (and is definitely important), the “green” benefits of process free plates often overshadow the fact that process free plates deliver significant economic benefits as well, more than outweighing the cost of the plates.

Breakdown of the economic benefits of process free plates

Below is a breakdown of the costs a printer could save when they switch from using processed plates to process free plates. The savings are based on estimates for the typical printer using 20,000 square meters of plates annually. For larger printers, the savings could be significantly higher.



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Elimination of Processing Chemistry Costs

Average \$1,400/month (€1,075/month)

Eliminating the direct cost of processing chemistry is the most obvious saving and the easiest to calculate. Printers only need to look at how much they pay for chemistry on a monthly basis to determine how much they would be saving. Processing chemistry includes:

- Developer and finisher used for tank changes
- Developer or replenisher used as replenisher chemistry
- Developer or replenisher used for anti-oxidation (dosed per hour)

The cost of the chemistry is a hard cost and easy to determine, but printers are also reducing related soft costs around buying and storing chemistry (maintaining storage space, tracking inventory, placing orders, handling containers, etc.).

Elimination of Processing Chemistry Disposal Costs / Cost of Compliance

Regulations that help keep water, air, soil, and people safe vary greatly from region to region, and they change over time, usually becoming more stringent and complex. Keeping track of the changing regulations and putting procedures in place to be compliant can be a time-consuming and complicated task. Printers who have adopted process free plates are relieved to be rid of not only the costs of compliance, but the headaches of keeping current with the regulations around disposing of chemistry. Savings include:

- Cost to dispose of chemistry – \$325/month (€250/month)
- Cost/time to neutralize chemistry if not neutral or not able to put down the drain
- Administrative expenses needed to be in compliance

Elimination of Processing Equipment Costs

Any piece of equipment in an operation is a big investment. Below are some of the costs that a business must take into account with each piece of equipment in their operation. Note that “chemistry free” plates still require an extra piece of equipment (the clean out unit), even though there is no traditional plate processor.

- The cost to buy the processor (if not loaned) – \$960/month (€740/month) over 3 years
- Installation and training costs to set up equipment
- Additional infrastructure in electrical and plumbing needs



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Elimination of Processor Maintenance Costs

Average \$560/month (€430/month)

The time and money needed to maintain a plate processor (or clean out unit) can add up to a considerable amount. However, even these costs are small compared to the cost to a business if the processor breaks down and stops the presses. Eliminating the processing equipment not only removes the costs noted below, it removes one element of risk that could affect production if there are issues.

- Monthly service contracts
- Supplies required for maintaining the equipment including (cleaning fluids, cloths, brushes, etc.)
- Labour cost associated with performing the maintenance and upkeep of the equipment
- If ovens are employed, there is the cost of extraction and increased air conditioning
- Cost of water to clean the processor

Elimination of Utility Costs Related to Running the Processor

In addition to reducing impact on the environment, reducing energy and water usage by eliminating the plate processor or clean out unit also can shrink a printer's utility bills. In regions facing water shortages, savings can be even higher. Clean out units used with "chemistry free" plates do not require water to clean out the plates like a traditional processor, but they still require water for regular cleaning.

- Cost of water used in processing – \$160/month (€125/month)
- Cost of electricity needed to power the processor – \$50/month (€38/month)

Footprint Opportunity Costs

If a prepress room is tightly packed, the safety and convenience benefits of removing a large piece of equipment are clear. Below are just a couple of the economic benefits that might not be as obvious.

- Less equipment means fewer factors to influence temperature and humidity.
- Opportunity cost to install equipment for more productivity or automation.

Processing Variability Costs

Up to \$4,800/month (€3675/month)

The cost of variability as a result of processing can be considerable. The age of the chemistry, temperature variations, replenishment errors, maladjusted or contaminated rollers, etc. can all affect the finished plate, and variations or defects may not be evident until after the plate is put on press.



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Some of the costs of variability are noted below, but even they are insignificant compared with the cost of losing a customer due to poor print quality or missing a deadline.

- Material costs to remake the plates - waste paper & ink, plate cost, labour, etc.
- The press downtime per remake (in hours) multiplied by the value of the press per hour

The newest process free plates can be used by up to 80% of offset printers

In the early days of process free, the plates had limitations that prevented certain printers from taking advantage of their cost and environmental benefits. Limited run length capabilities, slow imaging speeds, and other features restricted the use of process free plates to smaller printers and those that were printing only certain applications.

However, in 2012, Kodak succeeded in overcoming the technical hurdles that limited process free plates to certain markets, introducing a process free plate with features comparable to mainstream processed plates—the KODAK SONORA XP Process Free Plate.

The first challenge in creating a technology that lets printers enjoy process free plate making with mainstream plate capabilities was to develop a coating that could be removed on press with no detrimental press contamination. Kodak overcame this hurdle with the development of its first generation of process free plates, the KODAK THERMAL DIRECT Non Process Plate. Essentially, Kodak was able to develop a coating on the plate that, using existing press conditions, successfully cleans out as part of the start-up process and then performs on press like any other plate. A video demonstrating how the technology works can be found here:

https://www.youtube.com/watch?v=6HTU3_KniFU

The second challenge was to modify this coating to address the needs of a wider variety of printers printing more applications. Kodak needed to develop a plate that could image at faster speeds, print longer runs under various conditions, and handle higher resolution print jobs. Kodak also wanted to improve the image contrast on the plate to make the plate more operator-friendly.

With the coating on the SONORA XP Plate (and the SONORA NEWS Plate for newspapers), Kodak was able to overcome these hurdles as well, and demand for the plate skyrocketed. By the end of 2017, nearly 4,000 printers around the world were using SONORA Plates.



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In 2017, the R&D team at Kodak achieved a technology breakthrough that brought process free plates capabilities up to the level of unbaked processed plates. With the KODAK SONORA X Process Free Plate, Kodak estimates that up to 80% of offset printers will be able to use process free plates.

SONORA X Plates offer fast imaging speeds with laser energy required of 120 mJ/cm² on platesetters with KODAK SQUARESPOT Imaging Technology, so printers can take advantage of the maximum throughput capability of their platesetter in most cases. The plate is capable of run lengths up to 400K impressions on heatset and commercial coldset web presses, up to 200K impressions on sheetfed presses, up to 100K impressions for non-UV offset packaging applications and up to 60K impressions for UV-ink applications, including low-energy UV. The plates also offer high-quality 20-micron FM screening capability on platesetters with SQUARESPOT Technology and AM screening of 1-99% at 200 lpi.

In conclusion, printers who want to reduce costs in their operation should take a close look at process free plate technology. The technology has advanced to the point that more printers than ever before are able to take advantage of both the economic and environmental benefits, without sacrificing productivity or print quality. More information on SONORA Plates can be found at www.kodak.com/go/sonora.

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