



# PROCESS-FREE PLATES

in Your White-Light  
Environment







Figure 1: Image Contrast After Exposure, SONORA XTRA versus Competitors

Source: Eastman Kodak company internal tests

# Introduction

Printers of all types strive for top-quality performance, and that's exactly what they demand from their plates. Process-free plates perform in the most demanding work environments while also providing an eco-friendly option. One important aspect in choosing a plate is the plate life, and the key to determining plate life is whether the plate design can minimize fogging. Plate designs, like the one used by Kodak in its SONORA Process Free Plate line, are formulated to limit fogging caused by light sensitivity, helping to extend plate life.

## DECADES OF EXPERIENCE DESIGNING OFFSET PRINTING PLATES

Kodak's long heritage in film and photosensitive coatings goes all the way back to the first Kodak camera in 1888. As the use of automated offset printing presses blossomed in the 1960s, it was no surprise that Kodak took on a major role in printing plate production. Today, Kodak is one of the leading manufacturers of offset printing plates in the world with manufacturing facilities in Columbus, Georgia in the United States; Osterode, Germany; and Gunma, Japan. These decades of expertise in conventional offset printing plates led Kodak to invent the process-

## IMAGE CONTRAST AFTER EXPOSURE

Of the many important aspects of printing plate design, one key factor is the role of on-plate image contrast. Once the content is imaged on SONORA Plates, you can clearly see the difference between image and non-image areas. The image on a SONORA plate shows high contrast to its background. Being able to easily see the image gives printers a high level of confidence that the plate is viable and ready to go on press. This simple yet valuable feature does not hold true for some competitors' process-free plates whose image contrast is weaker and, in some instances, almost impossible to read.

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free plate. Today, the SONORA Process Free Plate line has a proven track record in over 6,000 printers worldwide. In 2024, Kodak celebrates its 20-year anniversary of leadership, expertise, and ongoing growth and development of its process-free technology. To learn more about the technology behind SONORA, see the Kodak white paper entitled “Robust Process-Free Plates: What Does It Take?”.

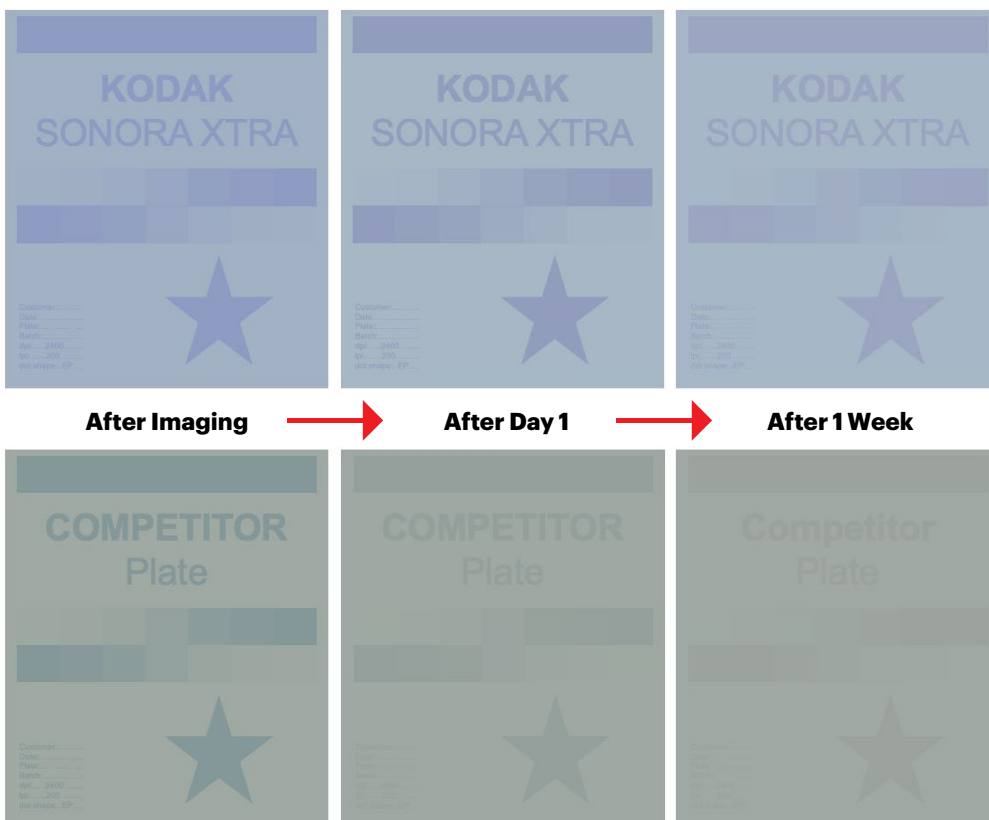
In a Kodak test of competitive plates (Figure 1), you can see how image contrast plays out in practice as the KODAK SONORA XTRA Process Free plate is shown side-by-side with multiple competitors after

each has been exposed. The darker background and weaker color change of the image area of the competitive plates, limit the visible contrast of the imaged plate. Printers generally prefer a lighter and brighter background because it highlights the image more clearly. Kodak calculates that the image on SONORA XTRA is approximately 1.5 times stronger than the nearest competitor shown here. In addition, the bold color of SONORA's exposed image area provides a more pleasing color contrast than that of the competitor's plate.

## LOSS OF CONTRAST OVER TIME

In its testing of competitive plates, Kodak discovered a disturbing fact regarding plate storage. While SONORA XTRA plates can be stored in a light-proof box for two weeks or more without impact, competitive plates declined rapidly after just one day and became very difficult to read after only one week. When this happens, printers are left with the uncertainty of whether such a stored plate will perform effectively. Plates in this diminished condition often have to be remade. Also concerning is the fact that while the initial image contrast may look fairly strong on the competitors' plates, it tends to fade quickly, even when stored in the dark.

Printers want the flexibility to make plates in advance depending on their production requirements, including press readiness, personnel availability, and number of shifts. If a plate fades significantly upon storage (even when kept in the dark), platemaking ahead of time is no longer an option. Rapid loss of image contrast is therefore unacceptable for any kind of plate, conventional or process free. SONORA Process Free Plates give print service providers a lasting measure of image contrast, which gives them confidence to image plates ahead of time if so desired.



**Figure 2: The Impact of Storage Over Time**  
Source: Eastman Kodak company internal tests

## LIGHT SENSITIVITY AND FOGGING

Under standard operating conditions, printing plates will get exposed to some light. This happens in any print production facility. Of course, excessive exposure to light can have a detrimental impact on the ability of a printing plate to perform well. Print service providers understand this and over the years have taken steps to limit a plate's exposure to light, while also allowing employees to operate in safe, well-lit conditions. Certainly, no print service provider wants to entirely overhaul their facility to meet the needs of any given printing plate.



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As we have seen, image contrast on a printing plate is a good indicator of performance. The image areas of process-free plates like SONORA, change color upon exposure so that the image can be verified and correctly identified, allowing the plate to be mounted on the appropriate press unit (cyan, magenta, yellow, black, special color, or coating). Yet excessive light exposure impacts the level of image contrast on the plate, and in the extreme, can make it impossible to visually assess the viability of the plate. This type of image fogging on a printing plate is a valid concern in itself, but is also relevant to whether this exposure to light will impact the plate's ability to develop on press, impacting make-ready time and raising the question of whether the plate will need to be remade.

How long can a process-free printing plate survive under normal lighting conditions? To determine this, Kodak tested SONORA and a competitor under two common lighting conditions: office white light and D65 daylight tubes, then sent the plates to press.

Over a five-hour period, Kodak testers removed light-blocking materials at different time intervals to reveal

the underlying plate. This took place after both plates had been imaged. The result is that you can see how the two plate types, SONORA XTRA and a competitor, performed after exposure to varying amounts of light, ranging from no time at all to five hours. Figure 3 shows the fiftieth press sheet for the cyan plate. Each plate had been exposed with a three-bar pattern of no ink, a tint, and a solid.

Under office white light, both plate types held up well over the first two hours. In fact, SONORA's image held up extremely well for the entire five-hour exposure period. This was not the case with the competitor. After three hours the image on the competitor's plate began to break down. By the fourth and fifth hour, the image on the competitor's plate was mottled and produced output that was entirely unusable. Such fogging raises concerns about whether the competitor's plate will cause problems on press related to quality and dot gain / color variations, leading to costly plate remakes. Uncertainty about development on press and the possibility of unwanted press downtime are the last things that a busy print service provider needs to worry about.

Imagine what would happen if your plates were fogged so badly that when you took them to press, the entire set would fail to develop properly, causing plates to completely ink up. The subsequent make-ready sheets, fully covered with sticky ink, would have a high risk of jamming in the press and wrapping around the cylinders. The consequence is that the printer would be saddled with significant downtime for clearing those jams and cleaning up the press.

The results of the experiment under D65 daylight tubes turned out quite similarly, but with this lighting scenario, both plates experienced some breakdown over time. For SONORA, this did not begin to happen until hour four, while the competitor's plate started breaking down after two hours of exposure and was entirely fogged and unable to develop on press by hour four.

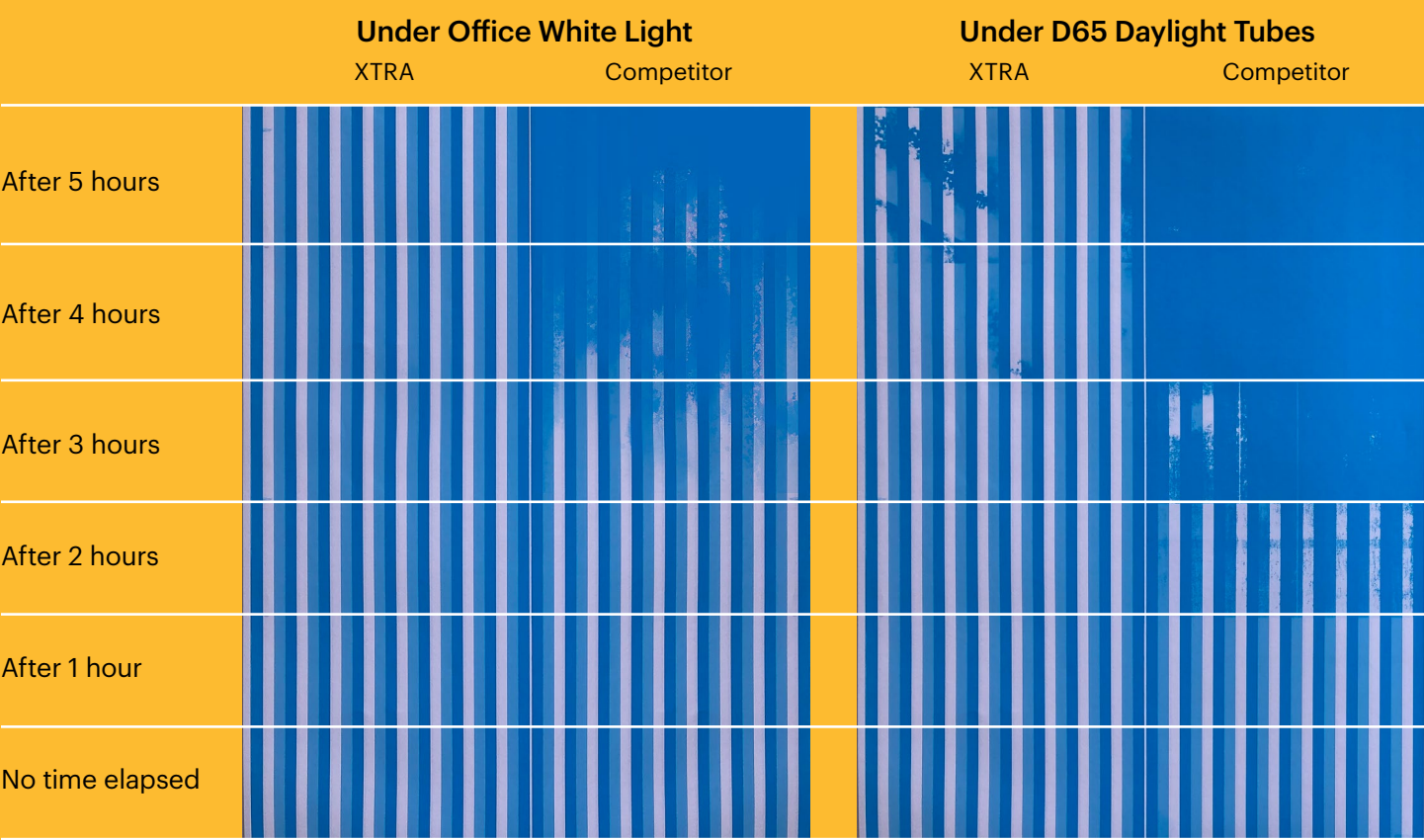


Figure 3: Light Sensitivity and Fogging (effect in print)  
Source: Eastman Kodak company internal tests

How long can you leave plates out exposed to light by the side of the press waiting to mount the next job? That will depend on your lighting conditions, in other words, the color temperature, intensity of the light, and duration of the exposure. But it does raise concerns that competitive plates may be much less capable of resisting fogging than SONORA.

No print service provider wants to change their working practices significantly to adapt to a new plate. Therefore, it becomes imperative to have a plate like SONORA that you can trust to perform well under your existing conditions.





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## **CONCLUSION**

There are many significant cost and environmental benefits of replacing processed plates with process-free ones such as eliminating processing waste and the associated chemicals, filters, and wipes; reducing water usage; ending the risk of leaks and spills; and reducing electric consumption, all while taking a positive environmental step forward.

Yet you would hesitate to consider such a move if it required wholesale changes to your production facility or if you had doubts about the efficacy of process-free plates in your working conditions. With Kodak's SONORA Process Free Plate technology, you have a visible image you can count on which holds up much longer in storage than a market competitor. On top of that, SONORA is not prone to the on-press light sensitivity and fogging issues that plague some competitors allowing you to keep your existing lighting. The superior performance of Kodak's SONORA Process Free Plates gives you the confidence that your operation will run without any downtime and into a greener, more eco-friendly way of printing.

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