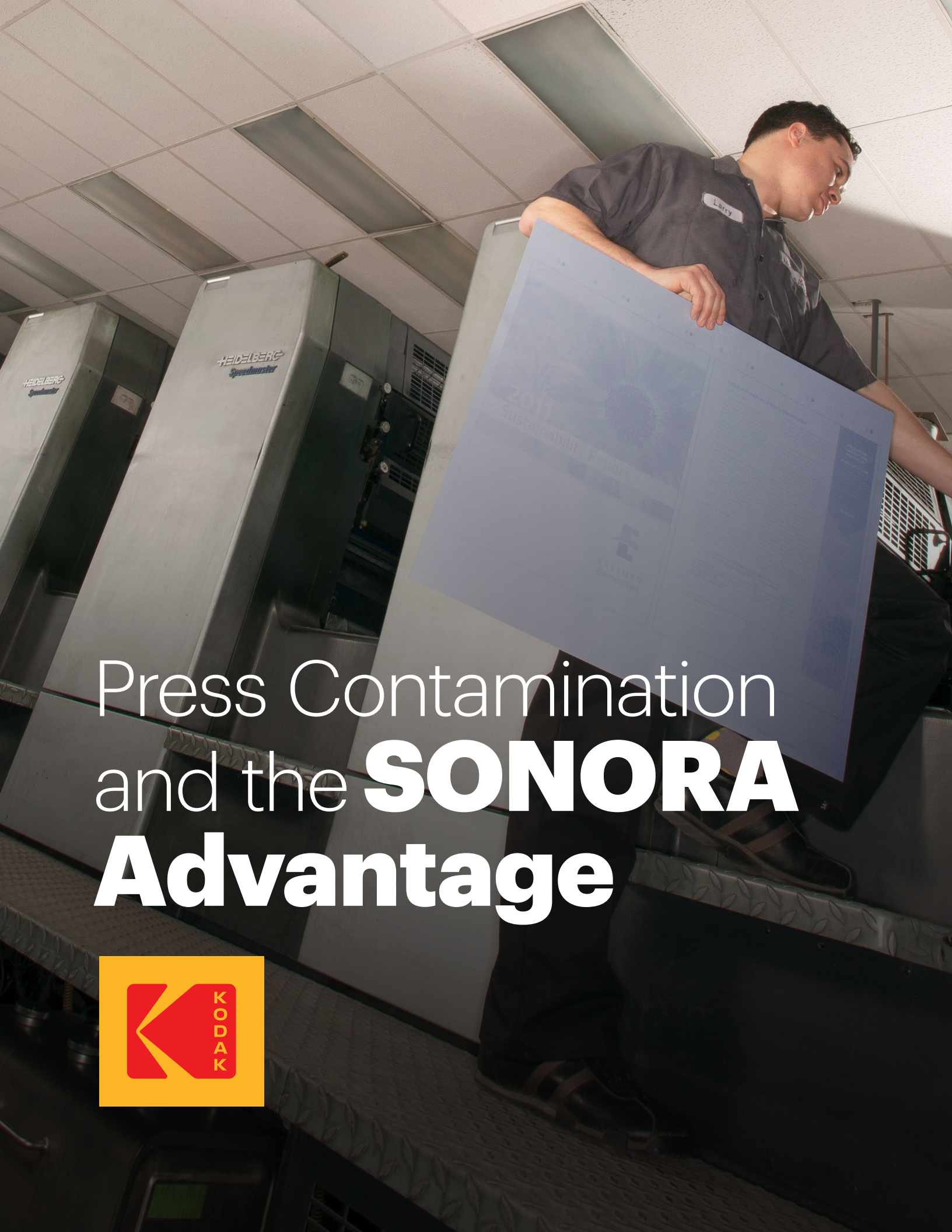
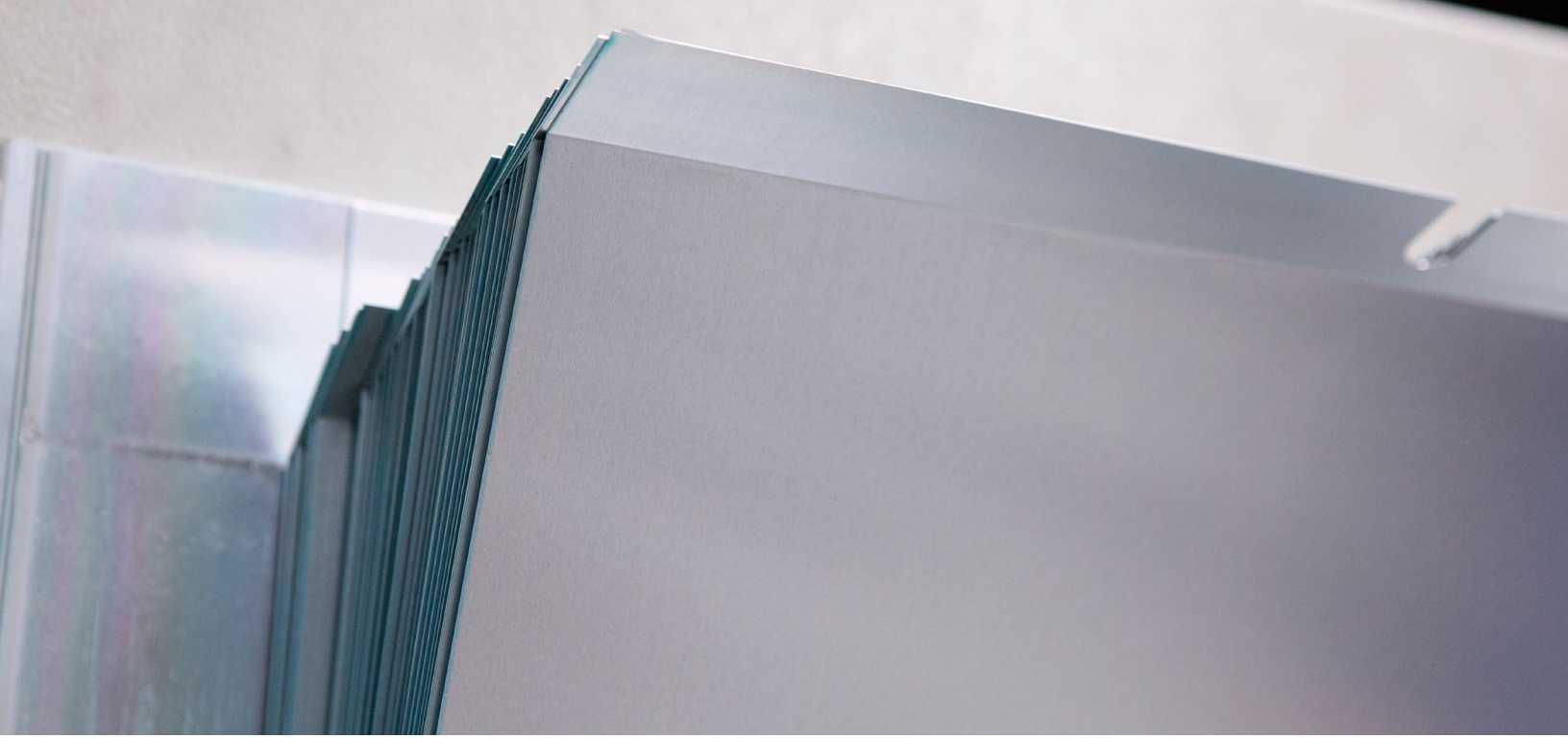


Press Contamination and the **SONORA Advantage**

KODAK



Print service providers are increasingly turning to process-free plates to simplify prepress, reduce environmental impact, and remove the cost and maintenance associated with plate processing. By eliminating the processor, chemistry, water use, waste handling, and related variability, process-free technology offers a clear operational and sustainability advantage.

However, process-free performance should not be judged only by what happens in prepress. A truly successful process-free plate must also perform cleanly and consistently on press. It must complete the develop-on-press process without creating new problems such as fountain solution instability, roller contamination, poor ink receptivity, paper waste, or additional press maintenance.

KODAK SONORA Process Free Plates have been developed to deliver the environmental and operational benefits of process-free printing while maintaining the pressroom reliability printers expect from a high-performance lithographic plate. With more than 6,000 printers worldwide using SONORA Plates across sheetfed, web, commercial, packaging, and newspaper applications, SONORA has become a proven benchmark for robust process-free performance.

This article focuses on one of the most important practical concerns for printers considering process-free technology: **press contamination.** It explains why contamination matters, how develop-on-press plates interact with fountain solution and ink, and why SONORA Plates are designed to minimize the risk of contamination compared with many competitor process-free plates.

WHY PRESS CONTAMINATION MATTERS

The offset printing process depends on a carefully controlled balance between plate, ink, fountain solution, paper, blanket, rollers, and press chemistry. Small changes in this balance can affect print quality, make-ready time, waste levels, and press stability.

In any pressroom, many materials can contribute to contamination if they become excessive or uncontrolled. These can include paper fibers, fillers, ink components, cleaning agents, spray powder, plate gum, and other production residues. The issue is not simply whether material enters the press system, but whether it does so in a way that causes press instability, maintenance issues, or print defects.

For process-free plates, printers often ask a reasonable question: where does the coating removed during start-up go? If too much material enters the fountain system, it can contribute to conductivity drift, pH movement, poor ink/water balance, dirty circulation systems, filter loading, bacterial growth, or the need for more frequent fountain solution changes.

Contamination can also affect the ink train. Poor ink receptivity or excessive coating carryover can lead to slow development, sticky make-ready sheets, paper jams, roller deposits, or inconsistent density build-up. These problems can increase waste and create unnecessary downtime.

The goal of a high-performance process-free plate is therefore clear: it must develop quickly and cleanly on press, while preserving normal press operating stability.

HOW DEVELOP-ON-PRESS WORKS

Unlike conventional wet processed plates, process-free plates are not fully print-ready until they interact with fountain solution and ink on the press. During start-up, fountain solution wets and penetrates the non-image coating areas. Ink then removes the non-image coating, and that material is carried through the normal make-ready process onto the printed sheets.

With SONORA Plates, this develop-on-press process is designed to be rapid, controlled, and compatible with standard press operation. The fountain solution helps prepare the non-image areas for removal, and the coating is removed primarily through the action of the ink and transferred to the first sheets during make-ready.

This distinction is important. A successful process-free plate should not rely on dissolving significant levels of coating into the fountain system. If the fountain solution is asked to carry too much material, the risk of contamination and press instability increases. SONORA Plates are designed to avoid that problem by enabling clean, efficient removal through the normal ink, blanket, and substrate pathway.

SONORA AND THE CLEAN PRESS ADVANTAGE

SONORA Plates use proprietary coating technology designed for fast, consistent develop-on-press performance. The non-image coating is removed efficiently during press start-up, while the image areas remain durable and capable of supporting demanding print conditions.

This design approach helps SONORA deliver several important pressroom benefits:

- Rapid and consistent make-ready
- Minimal impact on fountain solution conductivity and pH.
- No unusual build-up in fountain reservoirs, filters, or rollers during Kodak stress testing.
- Strong ink receptivity.
- Compatibility with a wide range of fountain solution types, including IPA, alcohol substitute, and alcohol-free systems.
- Reliable performance across many ink types, including process inks, PANTONE inks, metallics, opaque whites, fluorescents, mineral oil inks, vegetable-based inks, and UV inks.
- No requirement for additional fountain system maintenance beyond the normal recommendations of the press manufacturer.

For printers, these benefits translate into a cleaner press environment, less make-ready waste, fewer interruptions, and greater confidence that process-free technology will not introduce unwanted production issues.

WHY SOME COMPETITOR PROCESS-FREE PLATES CAN CREATE CHALLENGES

Not all process-free plates are designed in the same way. Some competitor plates use an overcoat as part of their process-free technology. Kodak testing has shown that this can complicate the develop-on-press mechanism, slow the speed of development, negatively affect ink receptivity, and increase the chance of contamination in the press system.

An overcoat can make the plate more dependent on the interaction between fountain solution, ink, and start-up sequence. If the plate develops slowly or inconsistently, the press may require more sheets before the non-image area clears and the image area reaches the correct density. This can increase paper waste and reduce make-ready efficiency.

Kodak testing also demonstrated that a competitor process-free plate performed differently depending on the type of fountain solution used. In contrast, SONORA Plates showed consistent make-ready performance with both IPA fountain solution and alcohol substitute fountain solution.

This consistency is especially important in real-world print environments where press chemistry, ink choice, water quality, operating practices, and run profiles can vary significantly from printer to printer.

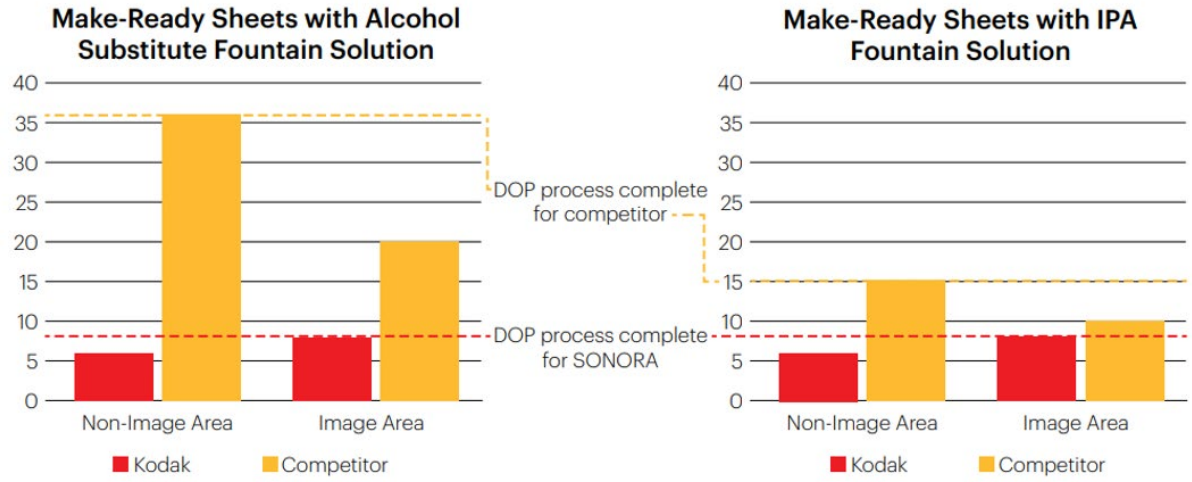


Figure 1. Make-Ready Comparison with IPA and Alcohol Substitute Fountain Solutions

Kodak internal testing showed SONORA Plates achieving rapid and consistent development across fountain solution types, while a competitor process-free plate required more sheets to complete development and showed greater sensitivity to fountain solution chemistry.

FASTER MAKE-READY, LESS WASTE

A process-free plate must do two things before the job can run properly: the non-image area must clear, and the image area must reach the required density. If either step is delayed, make-ready takes longer and waste increases.

Kodak testing showed that SONORA Plates can be ready to print quickly and consistently, regardless of whether the tested fountain solution contained IPA or alcohol substitute. In the same testing, the competitor plate required more sheets to complete development, with performance worsening when alcohol substitute fountain solution was used.

The difference can be seen clearly in the development status after six sheets. SONORA had already cleared the non-image area and was essentially ready to print, while the competitor plate had not fully developed. The competitor example showed non-image areas that were still carrying ink and image areas that had not fully emerged.

Slow or incomplete development can have broader consequences. Excess ink on early make-ready sheets can create sticky sheets, paper jams, deposits on cylinders or rollers, and press downtime. Faster and cleaner develop-on-press performance helps reduce these risks.



Figure 2. Development Status After Six Sheets

Visual comparison of SONORA Plates and a competitor process-free plate after six sheets using alcohol substitute and IPA fountain solutions. Source: Eastman Kodak internal testing.

STRESS TESTING FOR FOUNTAIN SOLUTION CLEANLINESS

Kodak has conducted demanding press tests to evaluate the potential impact of SONORA Plates on fountain solution cleanliness and stability. In one test, SONORA Plates were run on a Heidelberg SM74 four-color press under deliberately stressed conditions.

The test included:

- Fountain solution left unchanged for three months, far longer than the recommended two-week renewal period.
- Plate image area reduced to 10%, increasing the amount of non-image coating to be removed.
- Press operation in non-integrated mode to increase sensitivity to potential contamination.
- Fountain volume reduced from 77 litres to 67 litres, increasing the concentration of any potential contaminants.
- Multiple short runs over the test period.
- A total of 220 four-color plate sets run over three months.

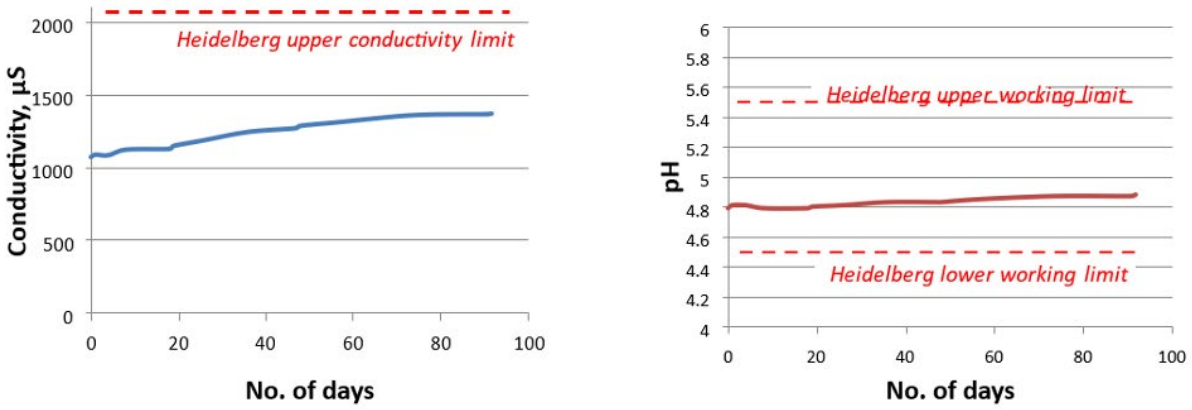


Figure 3. Fountain Solution Stability During Extended Press Testing

Changes in fountain solution conductivity and pH during a three-month SONORA stress test on a Heidelberg SM74 press

Despite these demanding conditions, fountain solution conductivity increased by only 300 µS, which remained well within the 1,000 µS limit recommended by Heidelberg for a fountain solution change. The pH changed by only 0.1 units, also well within Heidelberg's recommended operating range.

Kodak also reported no unusual build-up of material in the fountain reservoir, filter bags, or fountain rollers.

These results demonstrate that SONORA Plates can complete the develop-on-press process while maintaining fountain solution stability, even under conditions designed to amplify the potential effects of contamination.



Figure 4. Fountain Reservoir Condition Before and After Three Months of Stress Testing

Visual inspection showed no unusual contamination or material build-up in the fountain system following the extended stress test.

WHERE THE REMOVED COATING GOES

A common misunderstanding is that the non-image coating must be dissolved into the fountain solution because the plate background clears quickly. In reality, with SONORA Plates, the non-image coating is removed by the ink and transferred through the normal print path to the blanket and then onto the first printed sheets during make-ready.

This is why very early make-ready sheets may show background density, which then rapidly reduces as the plate clears. At the same time, image density builds to the required level. Once the non-image area has cleared and the image area is at density, the job can run normally.

Kodak testing showed that this process happens quickly with SONORA Plates. The non-image background clears within the normal make-ready sequence before maximum image density is reached and before make-ready is complete.

This is an important practical advantage. The material removed from the plate is carried away on the make-ready sheets rather than accumulating in the fountain circulation system.

ROBUST PERFORMANCE ACROSS REAL PRESSROOM CONDITIONS

Pressrooms vary widely. Printers use different presses, fountain solutions, inks, water qualities, substrates, run lengths, and start-up procedures. A robust process-free plate must perform consistently across these differences.

SONORA Plates have been used successfully in sheetfed, heatset, and coldset environments, with integrated and non-integrated fountain systems, alcohol fountain solutions, alcohol substitutes, alcohol-free systems, process inks, PANTONE inks, metallic inks, and UV inks.

The latest SONORA technologies are designed to support demanding production requirements, with stated run length capabilities of up to 400,000 impressions on web presses, 250,000 impressions on sheetfed presses, and 100,000 impressions in UV ink applications.

Kodak testing has also shown that competitor process-free plates can suffer from blinding before reaching stated run length expectations. Blinding can make it difficult to maintain ink densities and tonal reproduction, and may require the press to stop for cleaning, plate recovery, or plate remaking.



SONORA



Competitor

Figure 5. Long-Run Print Performance Comparison - Blinding

Kodak internal testing comparing long-run print quality and 'Blinding' performance of SONORA Plates versus a competitor process-free plate

By contrast, SONORA Plates are designed for reliable image durability, broad ink compatibility, and stable press performance throughout the run.

NO ADDITIONAL PRESSROOM BURDEN

The purpose of process-free technology is to simplify production. If eliminating plate processing creates new pressroom tasks, the value proposition is weakened. Printers should not need to compensate for process-free plates by changing fountain solution more often, adding filtration, increasing cleaning frequency, wasting more paper, or changing normal press operating practice.

SONORA Plates are designed to integrate into normal press operation. Kodak states that no additional preventative maintenance of the fountain system is required beyond what is already specified by the press manufacturer.

This is a key part of the SONORA value proposition. Printers can remove the processor and its associated chemistry, waste, water use, disposal, leaks, spills, and maintenance, without replacing those issues with new press contamination concerns.

WHAT PRINTERS SHOULD ASK WHEN EVALUATING PROCESS-FREE PLATES

When comparing process-free plates, printers should look beyond basic imaging performance and ask how the plate behaves on press.

Key questions include:

- Does the plate develop quickly during normal start-up?
- Does the non-image area clear rapidly?
- Does the image area reach density quickly and consistently?
- Is performance consistent across IPA, alcohol substitute, and alcohol-free fountain systems?
- Does the plate maintain stable fountain solution conductivity and pH?
- Does the plate avoid unusual build-up in reservoirs, filters, rollers, and the ink train?
- Does the plate maintain ink receptivity throughout the run?
- Does the plate avoid blinding in demanding applications?
- Does the plate require changes to normal press operating practices?
- Does the plate reduce total cost and environmental impact without creating new pressroom risks?

Based on Kodak testing and worldwide field experience, SONORA Plates provide strong answers to these questions.

CONCLUSION

Process-free plates should make printing simpler, cleaner, and more sustainable. They should not add instability to the pressroom or create new maintenance concerns.

KODAK SONORA Process Free Plates are engineered to deliver clean and reliable develop-on-press performance. Kodak testing has shown minimal impact on fountain solution conductivity and pH, no unusual build-up in critical fountain system components, rapid make-ready, strong ink receptivity, and consistent performance across different fountain solution types.

Competitor process-free plates that use overcoat technology can be more sensitive to fountain solution type, slower to develop, more prone to inconsistent make-ready, and more likely to increase the risk of press contamination or ink receptivity issues.

With more than two decades of process-free innovation and more than 6,000 printers worldwide using SONORA Plates, Kodak has demonstrated that process-free printing can be both environmentally responsible and pressroom-proven.

The result is clear: **SONORA Process Free Plates help printers eliminate plate processing while maintaining the clean, stable, high-quality press performance they need every day.**

KODAK SONORA
Process Free Plates

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