Xerox® High Fusion Ink

A formula designed to take cost out of print manufacturing – and generate opportunity for production inkjet.

WHITEPAPER

xerox™

Extending inkjet benefits to offset coated stocks.

Since it was first introduced, the technology behind production inkjet printing has evolved in remarkable ways. The combination of optimal cost savings, production speed, and personalization makes it easy to see why print service providers are migrating to inkjet at an unprecedented rate. And, now its evolved even further.

Despite numerous advancements with production inkjet, one barrier has remained constant: paper. Aqueous inks enable high-speed printing, but they've been traditionally limited to printing on uncoated stocks or more expensive inkjet coated stocks. Traditional coated stocks have been virtually inaccessible because they aren't designed to absorb water, and aqueous-based inks haven't been able to adhere to the paper well enough due to its smooth, non-porous nature.

To date, the industry's answer to printing on coated stocks has been to manage either the paper supply or the print process. However, both approaches have major tradeoffs.

MANAGING THE PAPER SUPPLY

To get aqueous inks to adhere to coated papers, a special inkjet microporous coating has been needed to be applied to the paper. This process is costly for paper manufacturers to apply and it is difficult to manage consistent performance across multiple vendors and ink sets. For these reasons, the paper industry has been slow to adapt. This makes inkjet-optimized coated stocks difficult to obtain through standard supply chains. When you can find them, they are more expensive, offsetting the run cost benefits associated with inkjet.

MANAGING THE PRINT PROCESS

An alternative approach is to add the equivalent of an inkjet coating to traditional coated papers as part of the print process. This approach adds cost, complexity, and further limitations within the printing process that can introduce other production challenges that need to be managed, such as drying and paper curl caused by the high quantity of water applied to the paper.

We have a better answer. Xerox has developed a special ink formula designed to work directly with traditional offset coated stocks, eliminating the need for specialty inkjet coated papers or complex primers and coatings as part of the print process. Xerox® High Fusion Ink is specially formulated to address – and solve – the challenges that have historically kept offset coated stocks out of inkjet production. These inks create better results in fewer steps with less maintenance. And, they're far more cost-effective than the other methods.

A SMARTER SOLUTION, OPTIMIZED FOR HIGH PERFORMANCE

After looking at the drawbacks of managing the paper supply and the drawbacks of altering the print process, Xerox decided to take a different approach to solving the offset-coated paper problem for inkjet printing.

That approach is an innovative new ink formulation, developed to successfully adhere to the traditional offset coated papers you are already sourcing. Designed for printing on offset coated stocks, while also printing on uncoated papers. Xerox® High Fusion Ink is already revolutionizing the inkjet world.

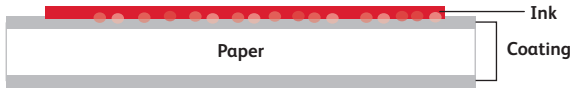
How does Xerox® High Fusion Ink work?

The short answer is the ink formulation has been adapted specifically to print on traditional offset coated stocks. There is no need to make any adjustments to your paper or the printing process. Simply load the inks, load your standard offset coated paper, and print.

The inks are formulated to penetrate the paper, ensuring excellent image quality and performance across a range of coated paper through:

- Controlled dot expansion
- Controlled color blending
- Fast ink penetration and drying
- Durability of the ink
- Stability of the ink in the printhead for minimal risk of clogging

Xerox® High Fusion Ink is pigmented ink designed to print directly on standard offset coated media:



OFFSET COATED PAPER

Aqueous ink lightly penetrates the coated paper surface.

Xerox® High Fusion Ink can also be used on uncoated papers:

UNCOATED PAPER

Aqueous ink easily penetrates the paper.

WHAT MAKES XEROX® HIGH FUSION INK DIFFERENT?

Created to address the fundamental divide between inkjet printing and offset coated stocks, Xerox® High Fusion Ink enhances ink penetration, adhesion, image quality, and drop control to deliver impressive results direct-to-paper while simplifying production and removing the need for intermediate coatings or specialty processes. This makes it easier to attain and maintain great inkjet quality on offset coated media, while retaining the economic benefits of inkjet printing.

The result of extensive development and testing, Xerox® High Fusion Ink is specially formulated to overcome the fundamental challenges associated with printing on offset coated stocks for high performance.

THE FUNDAMENTAL CHALLENGE	THE XEROX® HIGH FUSION INK SOLUTION	THE XEROX® HIGH FUSION INK BENEFITS
Aqueous ink drying on low absorption offset-coated media	An advanced set of substances that optimize ink drying on the paper while keeping good stability in the printhead	Direct printing to offset coated media without primers or precoatings
Adhesion and durability of aqueous ink to offset coated papers	Select binding agents are incorporated directly in the ink	Excellent durability of the ink on offset coated media without primers or coatings
Accurate drop placement and spread of aqueous ink on smooth offset coated papers	High-performance surfactants and ink components have been chosen for better wetting, proper spread, and pinning of ink drop edges to minimize intercolor bleeding	Impressive image quality and output Drops coalesce just enough to create a smooth image, without colors blending together
Stable jetting of ink	Highly stabilized nano-pigments prevent aggregation of ink. Piezo-based print heads provide a pulse-based distribution that does not coagulate the ink (whereas thermal jetting does)	Maximum jetting stability Minimal clogging of inks and missing jets

The advantages of Xerox® High Fusion Ink are undeniably compelling, especially when compared to the risks of the alternative – pretreatments and coatings or expensive paper.

XEROX® HIGH FUSION INK IS SIMPLE AND EFFICIENT

Many production inkjet printing devices have opted to use precoatings, primers, and treatments to transform paper during the printing process. This allows the ink to adhere to the paper.

When it comes to eliminating the need for inkjet coated papers, this approach is great in theory. In execution, however, it tends to add additional expense and unnecessary complications to the printing process, creating more room for error.

Precoatings and primers require extra work and extra consumables, adding cost and maintenance. Not only do you have to add hardware modules to your press and buy additional supplies, there is another layer of fluid being added to the paper that may introduce several subsequent consequences to consider.

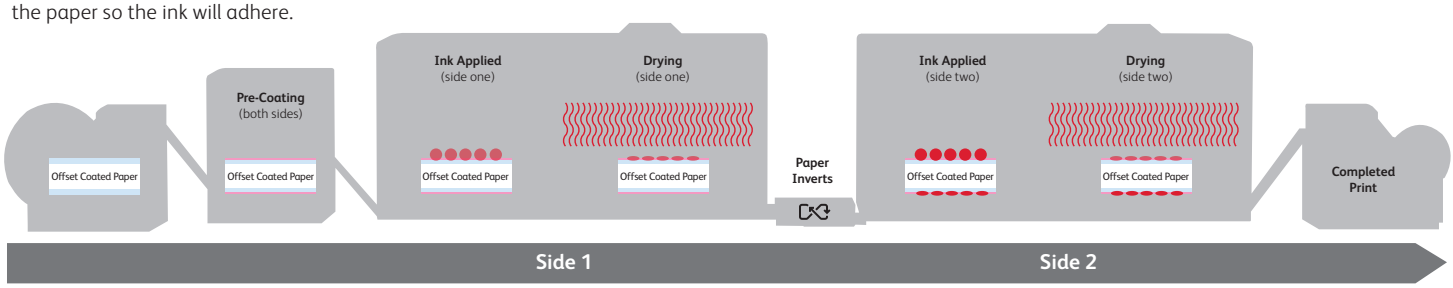
Precoating and priming solutions add cost, size and complexity.

PRETREATMENT

With other production inkjet presses, you need to add a pretreatment to the paper so the ink will adhere.

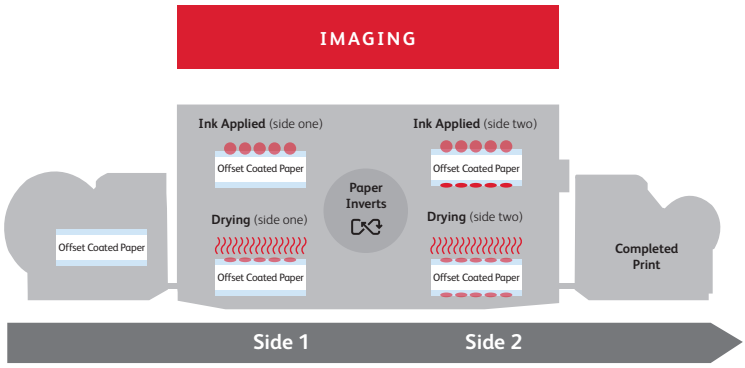
IMAGING

The paper surface then becomes porous, with the potential for uneven imaging surfaces across the length of the web. This can result in inconsistent output.

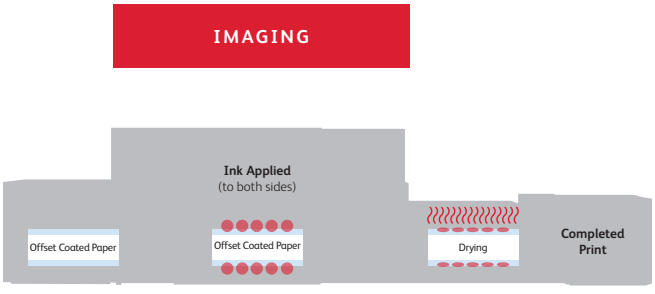


Xerox High Fusion Ink is a strategic approach to cost effective printing.

Xerox® Trivor® 2400 HF Inkjet Press



Xerox® Baltoro™ HF Inkjet Press



With the Xerox® Trivor® 2400 HF Inkjet Press and Xerox® High Fusion Ink and Xerox® Baltoro™ HF Inkjet Press, there is no need for pretreatment. Both presses use ultra compact drying systems to reduce footprint, drying times, energy use, maintenance and supplies.

XEROX® HIGH FUSION INK ELIMINATES THE COST AND COMPLEXITY OF PRECOATINGS AND PRIMERS

In overcoming the fundamental challenges that have historically prohibited inkjet printing on offset coated stocks, Xerox® High Fusion Ink has not only eliminated the need for precoatings and primers, it has made it possible to simplify production while retaining and enhancing the economic benefits of inkjet.

This chart details the associated cost savings and production advantages of Xerox® High Fusion Ink.

	ELIMINATES COST	SAVES TIME	REDUCES COMPLEXITY
Reduced maintenance (additional consumables and hardware not required)	●	●	●
Less drying that consumes less energy and allows for a smaller footprint	●	●	●
Consistently faster press speed (no need to slow the press down or add a longer paper path to accommodate the drying and cooling required when extra moisture is added)	●	●	●
Reduced risk of print artifacts that can occur when precoatings and primers are not applied uniformly	●	●	●
Reduced paper sensitivity to humidity (additional fluid not added)			●
Reduced risk of paper shrinkage and/or curling (less heating and cooling)			●
Wider range of media options, including thin stocks that would previously retain excess moisture			●
Fewer finishing challenges (a result of more consistent paper properties)		●	●

THE ADVANTAGES OF XEROX® HIGH FUSION INK

The benefits of Xerox® High Fusion Ink negate most of the risks and complexity faced when paper is primed or precoated for inkjet printing.

Less moisture in the paper

Xerox® High Fusion Ink imparts less moisture into the paper, which reduces the amount of effort (and equipment) needed to remove that moisture throughout the printing process.

Reduced energy consumption

Because less moisture is delivered to the paper, the drying process is simplified and related energy consumption is drastically reduced.

Less stress on the paper

Less heating and cooling mean less stress, less shrinkage, and less curling. And, the less stress the paper endures, the better the output will be and the more reliably it will perform with finishing equipment

Longer open time

Xerox® High Fusion Ink has less water, resulting in a longer print head open time, meaning fewer clean cycles, less waste ink, less susceptibility to missing jets, more uptime, and more leeway in managing production.

Less maintenance and fewer variables to manage

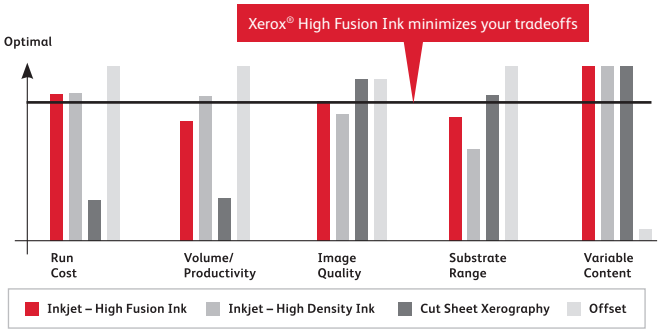
Fewer pieces of equipment, fewer consumables, and a simplified printing process make everything easier. You also won't have to worry about the print artifacts that can arise if your primers or precoatings were not uniformly applied.

Lower costs

Xerox® High Fusion Ink delivers great results direct-to-paper, and when there's no need to purchase consumables such as primers and precoatings, lowers your costs per piece.

Consistent paper supply

There's no need to special order unique stocks or store paper that's destined for inkjet separately. You can pull from a consistent paper supply and print more consistently, employing the same stocks you are already using today for future inkjet work.



High Density Inks, Xerography, and Offset all have their strengths. However, when it comes to working with variable data and attaining high levels of image quality and volume economically, without making major concessions, nothing compares to Xerox® High Fusion Ink.

NEW OPPORTUNITIES – THE ULTIMATE XEROX® HIGH FUSION INK ADVANTAGE

Xerox® High Fusion Ink creates opportunities that no other inkjet printing technology can provide. You can:

- Simplify your supply chain by printing directly on the offset coated papers you're running today
- Remove the need to print on expensive inkjet coated stocks
- Migrate static offset jobs for quicker turnaround
- Add personalization to boost effectiveness and relevancy
- Run high-volume digital color jobs more cost-effectively

Learn more at **xerox.com/HFinkjet**.