



Reactive digital inks used to print home textile, bed linen. Courtesy of Sensient.

## Considering Home Furnishings?

*Here are five things every printer should know*

Digitally printed home furnishings are gaining popularity in the market. Today, it's one of the fastest areas of growth in digital textile printing. Digital printing can facilitate faster speed to market and a wider array of design options but, to ensure a final product that lives up to its end-use requirements, it's important to consider a variety of elements. Here are five crucial considerations.

### Use Current Infrastructure

Many digital printers currently serving other segments are starting to look at how they can leverage their existing machinery, expertise and supply chains to enter the home furnishings market.

"Most of the home textiles companies doing digital print are global manufacturers who have added digital printing capabilities or U.S. importers who are contracting out a small part of their production for digital print," says Jennifer Marks, Editor-in-Chief, Home Textiles Today.

Its primary use is for small-batch, fast-

turnaround orders and samples, she adds. Tom Byrnes, VP, Decorative Fabrics, Springs Creative Products Group agrees.

"Digital printing provides a certain freedom in creating fabrics," he says. "Designs go from computer screen to fabric, essentially eliminating the need for lengthy material and machine preparation or screen engraving."

He adds that digital printing facilitates customization — one of the biggest trends in home textiles. "[Customization] becomes effortless, enabling the user to interface with the designer and achieving exactly what they desire."

Kerry King, Vice President, Research & Development, Spoonflower, a direct-to-consumer custom digital printing company, notes, "In the context of our business, there's lots of interest in printed accents such as toss cushions, tea towels and throw blankets. We also offer curtain panels and table linens, which are growing areas as well."

While digital printing can expedite

*Today, digitally printed home furnishings are one of the fastest areas of growth in digital textile printing.*



By Kilara Le, Industry Author



Rotary vertical crocking (AATCC TM116) on a printed fabric. Courtesy of AATCC.



Foldaway chair, fabric digitally printed using textile pigmented inkjet ink. Courtesy of Sensient.



Digitally printed curtains. Courtesy of Spoonflower.

speed-to-market and broader design options, it's important to consider a variety of elements to ensure a quality end product.

### It's All About Performance

Diana Wyman, Technical Director, American Association of Textile Chemists and Colorists (AATCC), notes, "It is important for printers to know the strength of the fabrics they use is suitable for home furnishing applications."

Performance requirements for the fabrics and colorants used for home textile products can be tough — textiles for the home are heavily used. Whether they are sat on, slept on or exposed to sunlight and water, they have to hold up — often for years — to the normal patterns of people's lives. Likewise, performance requirements for consumer goods differ from commercial requirements.

"There are joint industry standards for both categories of product," Byrnes says. "The performance criteria for commercial [product] is elevated due to high traffic and municipal requirements."

Regulatory requirements are another critical consideration for home textiles. "For anything used in the home environment, you want to make sure your products meet any applicable regulation such as those outlined in the publication NISTIR 8115, A Guide to United States Apparel and Household Textiles Compliance Requirements," says Michael Labella, Commercial Director, Inks & Industrial Colors Americas, Sensient Colors.

Even so, exact performance standards for any given project are client- and situation-specific. "We work with premier producers of product for the home, hotel or office," says Byrnes. "We combine our acumen in design with modern manufacturing to meet their individual needs."

There are also safety considerations. "It's one thing to print a banner that will just be displayed at a trade show for a few days, and another to put a product in a setting where a baby might chew on it, or a pillow that someone is going to put their face on," says Labella.

However, printers who are new to home furnishings don't have to get too complicated initially. "In our direct-to-consumer space, the accent products are more accessible, and I think customers value the ability to update smaller pieces," remarks King.

But even with smaller pieces, a quality product must have the right combination of fabric and ink chemistry and meet requirements.



Roostery Bed; digitally printed linens and pillows. Courtesy of Spoonflower.

### Fabric is Critical

The performance requirements for fabrics used in home furnishings can be more stringent than some other markets, so starting with the right fabric is key, notes Michael Sanders, Director of Printable Textiles & Finishing Technology, Top Value Fabrics.

Sanders says Top Value Fabrics works directly with their partner mills to meet their standards, specifying all fabrics from yarn-forward to ensure consistency and fabrics that meet end-use requirements.

“The key is quality control, and making sure everything is tested to standards,” he says.

Another consideration for fabric is whether they’ll need finishes, which is common. Sanders believes that with dye sublimation, it’s easier to apply fire retardants, stain and water repellents before printing. With dye sublimation printing, which is only for polyester fabrics, “there are not a lot of problems as they can sublimate through many finishes applied onto fabrics,” he says, without impacting its efficacy. There are many great polyester fabrics suitable for home textiles on the market right now, he adds, “from chenille, to ducks, to cross weaves that are amazing and have great hand.”

Labella, however, has a word of caution about printing after coating: “Some printing methods can interfere with

fire-retardant coating and diminish the effectiveness of this.”

Pigment inks, on the other hand, can be printed on almost any textile substrate, but crocking can still be an issue for brighter and darker colors. There are ways of improving these results, but one easy solution Sanders suggest for making pigments work is, “if you don’t oversaturate the colors, you can use pigments now and they’ll meet the test results — if the prints are using lighter colors.”

King says, “We [Spoonflower] acquired grand-format printing capability a while back, which has allowed us to print bed linens in addition to table linens. ... Print and fabric durability are definitely key requirements, and the advancements in pigment technology have definitely enabled venturing into this market space.”

Sanders also points out the importance of base color. He says that while few home furnishing prints have optic white as a base color, most home, “do show a lot of ground (base fabric color), which is typically ivory, beige or off-white.” Background color can, of course, be printed as well, but using the base fabric as a color in the print saves dye and provides consistency in the look and feel of the fabric.

Finally, Sanders recommends printers beginning in home furnishing start by using fabrics they already know. “Pick

three to four quality fabrics that are great ground shades. If a fabric supplier can’t give you test result information when buying a fabric, don’t buy it,” he says. And, because of the wide variety of factors that can affect performance, all digitally printed fabrics should be tested before going to market.

### Ink Choice is Everything

According to Labella, the combination of ink and fabric is one of the most important things to consider when getting into digitally printing home textiles. No matter the method of printing, the “type of colorant used has to be compatible with the type of fiber used in the fabric,” he says. For dyes and pretreatments to stay fixed onto the fabric, the chemistry has to work with the fabric and fixation process. Additionally, the ink affixed to fabric has to meet the physical testing standards of the home textiles market — testing requirements that vary based on the end product and consumer expectations. For example, requirements for bed sheets are different from those for curtains or upholstered furniture used in an office.

“Dye sublimation printing will not interfere with fire-retardant finishes already on the fabric, however, the UV resistance is low,” says Labella, which means that exposure to sunlight may cause the item’s colors to fade more quickly



Velvet pillows with digitally printed fabric. Courtesy of Spoonflower.

than other types of dye. Another option, pigment inks, have high UV resistance, but lower crockfastness than fiber-specific dyes such as reactive dyes. “They can be used on almost any fiber substrate,” Labella says. Dispersed, reactive and acid dyes also have their own unique benefits and drawbacks.

“Inks, like any chemical, can seem harmless, but they can contain dangerous substances,” says Labella. “There are lots of chemicals potentially used in inks or pretreatments that aren’t supposed to be used in an application that exposes them to the skin, a home or in the presence of children. Where you get your inks from and their awareness of and adherence to the appropriate regulatory framework is extremely important.” He advises printers and designers alike to, “make sure they are getting their ink from a manufacturer that

is reputable and can provide guidance and compliance certificates.”

“The regulations for ink are very different depending on the end use and the country where the goods will be sold,” Labella adds. “There are many requirements in the home or commercial hospitality industry, and for products for children, there are even more.”

### Product Performance Requirements Vary

There are many factors that come into play with testing for home textiles including durability and washability.

“Any home textile that will be laundered, or dry-cleaned, should be tested for colorfastness as well as dimensional change and overall appearance after,” notes Wyman. One consideration she notes for items that are laundered is,

“Commercial goods are almost always processed in a commercial laundry with larger loads and higher temperatures than home laundering.” Other testing methods and levels of requirements depend on the product’s end use.

“Colorfastness to light, abrasion resistance and pilling resistance are some of the most important test methods for ensuring the functionality and durability of textiles used in home furnishings,” says Wyman.

“Colorfastness to crocking is an important property for any home textile, but can be particularly challenging for digitally printed textiles. As you might expect, upholstery and other home textiles should be tested for colorfastness to light,” she continues, pointing out that they may be placed in front of a window and are generally expected to last for many years. “Colorfastness to light is absolutely critical for window treatments.” Yet, she notes, neither of these product categories is frequently laundered.

“Abrasion resistance is most important for upholstery as it takes the most abuse,” Wyman adds. “Corners are particularly vulnerable areas, but all surfaces are subject to touching and rubbing,” as is the case with pillows and linens, which makes testing for pilling important as well. “Proper testing can lead to meaningful care labels that help consumers make good choices about if and how to launder home textiles,” she says, along with their most appropriate end use.

Digital printing isn’t just for new designs. Byrnes says Springs Creative Decorative Fabrics has one of the largest design archives in the United States. The company has been printing fabric for decades and has kept up with the times in both design and technology. Today, he says, “This is the nucleus of our operation and is an unlimited resource of inspiration. Digital printing is the conduit for our archives.”

With all of the choices and requirements, it’s easy to get overwhelmed, but that needn’t be the case. As Sanders says, “If you know what the limitations are and what your strengths are, you can teach clients what to do,” to work within those parameters to create great products.

By exploring new markets for digitally printed textiles, the possibilities are, almost, endless.

*Kilara Le (linkedin.com/in/kilaralittle) is a Raleigh, N.C.-based writer and consultant specializing in the apparel industry.*