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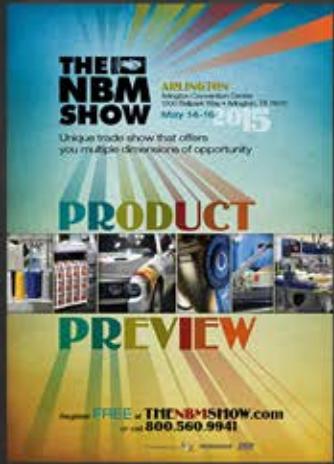
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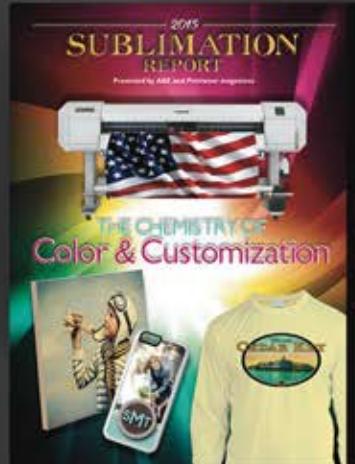
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SUSTAINABILITY IN SCREEN PRINTING

What you need to know about 'going green'

BY JESSICA MARSHALL

If you're like most screen printing shops, the shirts that tumble out of your dryer are decorated with plastisol, and walking through the occasional cloud of dissipating aerosol is an acceptable risk when traversing the shop floor. While sustainable business practices sound ideal, the fear of upfront investment prices and lack of educational resources have kept plastisol ink as the dominant printing method for decades. Many of these issues are still problematic for green-minded printers, but a new crop of trailblazing shops and innovative manufacturers are changing the game.

TRANSFORMING YOUR SHOP

If you're new to sustainable printing, start with the chemicals, says Jarrod Hennis, owner of Pirate Ninja Print Shop, a water-based shop in Rockford, Illinois. With

screen printing, there's some waste, but water-based inks go a long way in improving sustainability. Switching to platen paste is the simplest, most economical change, and from there, you can move into water-based inks to ease the learning curve.

"The biggest thing has been trying to get rid of chemicals," Hennis says. "They either smell bad or hurt your body in some way. In the last year, companies have improved the chemicals, but with water-based ink, you don't need chemicals. We don't even have aerosols in our shop anymore. When you use spray adhesive, you go through a couple cans a week, but with the water-based tack, you only have to apply it once a week."

Jessica Marshall is the marketing copywriter for Ryonet Corp., a screen printing manufacturer and retailer in Vancouver, Washington. For more information, please visit www.screenprinting.com.



Jumping into a chemical-free environment might be unrealistic for some shops, but there are several options on the market. For instance, Judy Mazzuca, owner of Ink Forest, an eco-friendly screen printing shop in the Chicago area, suggests moving toward soybean- and citrus-based chemicals. While most screen printing companies sell lines of eco-friendly chemicals, do your research because not all eco-friendly chemicals are the same quality.

Opposite: Pirate Ninja Print Shop sells only water-based and discharge printed garments. (Image courtesy Pirate Ninja and White Shutter Photography)

WATER-BASED INK

While North America dominates the plastisol market, European print shops have long favored water-based alternatives. The biggest concern is that most plastisol inks contain potentially toxic phthalates and PVC. While there's strong pressure to eliminate PVC from printing, many of these ink options are pricey and subject to a learning curve. New curing temperatures, ink opacity, and color interactions are all examples of new challenges, Hennis says.

In addition to the learning curve, there are many nuances when working with water-based inks, Mazzuca says. In some cases, the rules don't apply, and there are no established standards for using water-based ink. But this doesn't have to hold you back as there are a few pieces of equipment that make the job easier—a humidifier, for instance. Water-based ink is notorious for drying in screens during longer print runs, but a humidifier has helped Mazzuca's shop during cold, dry weather.

Curing is also a major deterrent. Water-based ink lets off a large amount of water, which increases the curing time. Investing in an appropriate dryer with better airflow can make all the difference, Hennis says.

Luckily, if you're a small shop or even a one-man show, you don't have to buy specialized equipment. With the recent invention of a low-cure additive, some water-based inks now cure at much lower temperatures. This also frees up printers to use water-based inks on materials that previously would have used plastisol, such as polyester and other synthetic fibers.

When moving to a water-based ink system, color purity and intensity are other common issues. Hennis suggests adding a more opaque additive to water-based colors, which helps raise the opacity.

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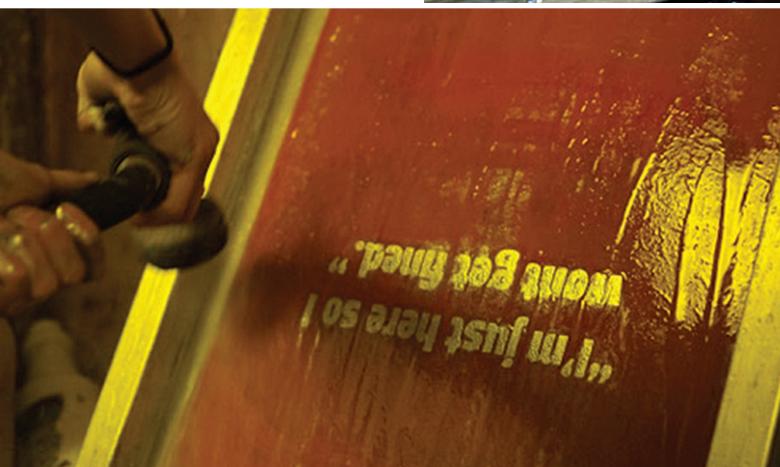
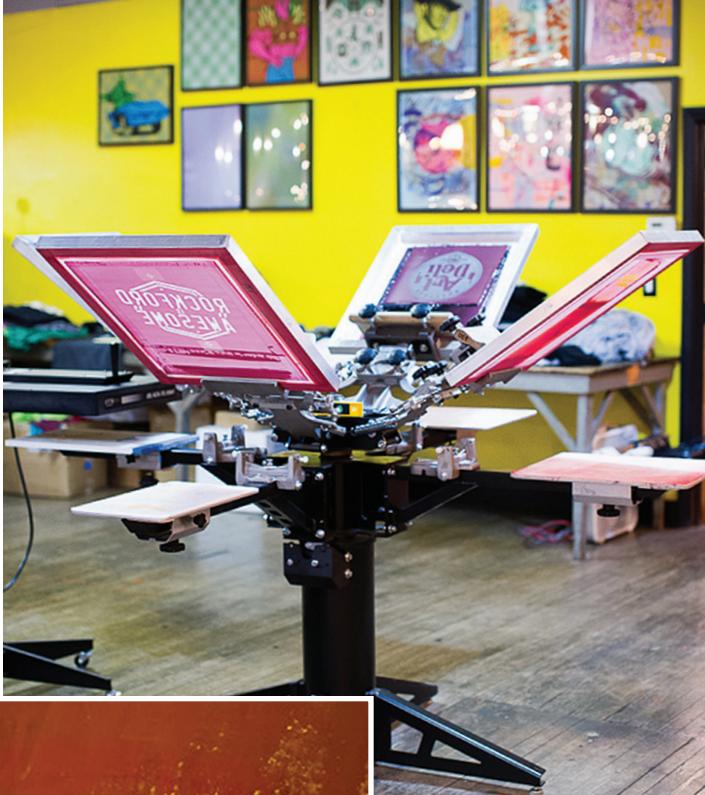
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GOING GREEN IN SCREEN PRINTING

Right: Pirate Ninja's Riley Hopkins presses are always on display at its shop, so using water-based platen adhesive helps them to stay clean for the public eye. (Image courtesy Pirate Ninja and White Shutter Photography)



Left: Screen printers come in contact with chemicals on a daily basis. Choosing eco-friendly ones reduces the negative impact. (Image courtesy Ryonet)



Ryonet offers classes to help printers learn to use water-based inks successfully. (Image courtesy Ryonet)

"Color matching with water-based ink is also tricky," Hennis says. "It's definitely one of those things that requires you to have some color theory knowledge. Plastisol inks are pretty easy to mix because they are forgiving. You can add more or less of a color and fix it, but with water-based ink, if you make a mistake, it's stuck."

Still, change is on the way.

The U.S. is only starting to catch up to the European and international brands of water-based ink, but as manufacturers continue to push the boundaries, opacity and vibrancy are slowly gaining on their plastisol cousins.

"Traditionally, water-based ink just printed out pastels," Mazzuca says. "Nowadays, you can print the big, bold plastisol ink colors with water-based ink."

Despite its challenges, switching to water-based printing provides many benefits, including softer prints and easier cleanup.



Using water-based ink allows Pirate Ninja's screens to stay spotless while on display in its shop. (Image courtesy Pirate Ninja and White Shutter Photography)



"We've been printing water-based ink for a year, and our printers love it, just because of the ease and the softness of the ink in particular, especially with discharge," Hennis says. "It's easy to clean up. There's no mess, and it washes up with water."

SUSTAINABILITY AWARENESS

Since the movement's first rush to market, there have been questions about the authenticity of some green products. With all of the earth-loving power that these products may possess, water-based inks can still do damage.

"Just because the ink is water-based does not make it green," says Brandon Lennert, owner of Inferno Screen Printing, a water-based and discharge-only shop in New Orleans. "If the shop is not recycling the inks or disposing of them properly, then the green factor goes away."

Many shops view eco-friendly chemicals as a one-stop solution for rendering their waste drain safe, but that isn't the case. While these eco-friendly solvents or chemicals may be safe by themselves, once they dissolve a plastisol ink or emulsion, they are laden with unsafe materials that should never go down the drain. Keep in mind that the eco-friendly nature of these chemicals is often reserved for the chemical alone, and you should still practice proper waste management.



There are many tools at your disposal that make mixing your own water-based colors easier.
(Image courtesy Ryonet)

Byproducts from chemicals, including eco-friendly ones, can be processed in a variety of ways, and many shops have found creative solutions for removing and filtering chemical waste.

"Any old or bad water-based and discharge ink we have goes into 5-gallon buckets, and upon half full, we pour in cement and mix," Hennis says. "After several days, it is completely cured cement and safe to dispose of or make into benches. Of course,

you can have a chemical waste company come and pick up, but many shops will not meet the amount needed for pick up. And they either do one of two things: harden the waste ink for disposal or incinerate at extremely high temps."

Ink Forest also has a unique way to filter some waste solids. This print shop uses extra screen mesh at the bottom of its washout sink, which catches all of the dissolved particles and allows for disposal

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GOING GREEN IN SCREEN PRINTING



Water-based inks make for easy cleanup, but using good habits improves the ease of use. (Image courtesy Ryonet)

without flowing down the drain, Mazzuca says.

If your shop is dedicated to going green, it may be worth investing in a filtration system for waste water. Many states require a certain amount of filtration already—with California being one of the strictest—so always review these laws before considering what you can and can't pour down the sink.

RECYCLING

Screen printing creates a lot of waste beyond chemicals and inks. Rags, unused ink, cleanup materials, empty containers, used film, cardboard boxes, and at least a dozen other items are thrown into the garbage daily. While it's easy to forget about these when you're focused on changing to eco-friendly practices, following green initiatives means being aware of the full impact of one's actions.

"After learning more about recycling, I found that I was misinformed as to what is appropriate to recycle," says Dan Corroran, owner of Forward Printing, an eco-conscious screen printing shop in Oakland, California. "Also, we see a lot of greenwashing in this industry. For instance, people claim to be eco-friendly just because they use water-based ink. In reality, dumping water-based ink is likely more damaging than plastisol. Ultimately, it is all about how you manage your waste."

Corroran recommends researching local organizations that can offer education and making changes incrementally. It's much easier to adopt one good practice than 20 new policies from the start.

Keep in mind that many items can also be recycled or reused. Old or misprinted shirts can be cut into rags for cleaning, empty containers can be recycled, and used cardboard boxes can be reprinted for shop branding.

SHOPPING LIST

You're ready to commit to eco-friendly practices, but where do you start? Here are some shopping items that should be on your list.

- Water-based inks
- Green-forward chemicals
- Washout booth filtration system
- Water-based adhesive
- Rag service
- Recycling bins
- Motion-sensing light switches
- Solar panels

MAKE GREEN WORK FOR YOU

While most agree that adopting greener practices is a good idea, they require a significant investment. Recycling program memberships costs money, water-based printing can be tricky, and properly filtering and removing waste and byproducts is time consuming. Despite the initial cost, Corroran and Lennert agree that it's worth it.

"It is just the correct thing to do," Lennert says. "And even looking at it from a business perspective, having waste and not being efficient is bad for the bottom line."

For some printing shops, cost is the definitive factor, but as the consumer mind shifts toward a more eco-friendly approach, so do our own practices. Staying ahead of the curve will save you both money and time as well as maintain the environment and your health.

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