

## Sourcing Green Products Should Be Easier — What is a Printer to Do?



Printers are caught in the middle. On one hand, they need to source green products from their suppliers, which may or may not be available. On the other hand, they are responding to requirements outlined by print buyers to provide a sustainable print with little to no guidance as to what “sustainable” means. Because of this, sourcing sustainable or green products is not easy. For example, the green-claim of a product may not apply to your type of printing, may cause hidden processing costs or may prove not to be relevant. How does a printer wade through the vast amount of information surrounding the issue of using green or sustainable products?

With minimal resources to refer to and a lack of good definitions, much of the homework required is up to individual printers. Although this requires a lot of effort, this work will improve your ability to use green products successfully and will help build a strong sounding board for dialogue about sustainability between the printer and the print buyer.

### Field of Green

Sustainability refers to employing low-impact business practices and using green products whenever possible, even though

The biggest obstacle in jumping into sustainability and providing a green print is having a complete understanding of green products and the specifics surrounding them.

there is always some degree of impact on the environment.

Most printers jump into sustainability by supplying a green print due to market pressures and/or as a reinterpretation of efficiency initiatives within their process and envelope (see table, page 35, for more information).

A product’s sustainable claim is a comparison measurement with respect to one or several sustainable behaviors such as: Recycling, recycled content, elimination or reduction in toxins, biodegradability, compostability, use of renewable resources, etc. When sourcing a green product, you must look at not only the product’s characteristics, but also the impact on the process and envelope. It is likely your current products may be categorized as sustainable.

Printers sourcing new green products should first determine the sustainability of current products and processes. This provides a means to establish your current sustainable efforts and provide a

comparison point when you use new, green products.

For example, UV inks in general are more sustainable when compared to solvent inks because they: Reduce VOCs, increase yield per gallon, reduce energy consumption, can be used in most recycling situations, require less harsh chemicals for clean-up, etc. (see sidebar, page 35).

A printer becomes more valuable to a print buyer by providing a green-print and demonstrating the sustainability of the entire process. This can open a deeper dialogue with the print buyer and show the added sustainability of the finished print. For example, when a print buyer specifies to use substrate X with ink Y, there is an opportunity to provide both



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As more companies get involved in sustainable printing, and local, state and national organizations increase standardization, this gray area of enforcement will become clearer.

### Sourcing Green Products

- Get on the same page
- Dissect the claim
- Determine verification
- Determine the enforcement level
- Define the impact to the final print
- Define the impact to your process

### Within the SGP Partnership registration program:

**Product:** Includes the design aspects and input material management to create the product.

**Process:** Includes all manufacturing steps (e.g., prepress, press and post press) involved with converting raw materials into a finished product including process by-products (e.g., solid wastes, air pollution and wastewater) that have an environmental, health and safety impact.

**Envelope:** Includes all the manufacturing support activities and includes the building, grounds, utilities, employee and other functions of an individual site.

what is asked for and demonstrate other areas where your company can add to the sustainable bottom-line, such as reducing energy, reducing waste and recycling. Take it to the next level by working with print buyers to focus on other sustainable areas that provide a greater environmental impact, and potentially reduce material and transportation costs.

### Seeing the Same Shade of Green

There are few or no definitions and standards for suppliers, printers and print buyers to abide by with respect to sustainability beyond existing local/state/national regulations. There has been a lot of work in the last few years to start implementing more universal terms and standards, and companies throughout the printing industry are becoming more savvy in seeing through many of the green-washing claims.

Defining “green” is challenging because it refers to several different sustainable aspects. In addition, supplier, printer and print buyer can define and focus on sustainability in different ways.

For example — recycling: A supplier may see recycling as re-incorporating waste materials back into manufacturing. A printer could see recycling as sending cut-off waste from finished prints to a local recycling facility. A print buyer may focus on only printing substrates that can be recycled, such as paper or polypropylene.

Although similar, all three companies have a different definition and focus. A printer’s ability to clarify this with the print buyer to determine the definition and level of importance for all involved gives a printer options to source alternative materials and leads to better communication between companies.

### Dissect the Claim

Product claims should target specific, sustainable aspect(s) and should not be vague or use catch words that do not necessarily apply to the product. A good example is “biodegradable cleaners.” What does this mean? A screen cleaner is either a press cleaner that requires the chemical to evaporate from the screen, thus concerned with VOC and flash point issues; or, it is a wash-up cleaner that is mixed with water and enters the public treatment center to be broken down and removed from the water. A wash-up cleaner’s ability to be handled in a treatment center is more related to oxygen and microbe reaction balance than biodegradability. Therefore, using the word “biodegradable” is more of a catch phrase used to grab attention rather

than a realistic, sustainable quality.

Next, you should not assume the “green” claim is more than indicated. If a substrate is said to contain recycled content, this does not mean it can be recycled. Or, if a substrate is compostable, it does not necessarily mean that it is biodegradable.

Claims for a green product are typically made for the product only and not its use within the process or final print. For example, a “drain safe” cleaner generally means that the cleaner by itself is safe to be disposed of into a water treatment plant in most areas. This does not mean the cleaner plus the ink and/or stencil is drain-safe.

Another example is a compostable substrate. Many substrates can be used with a variety of inks and print processes. To test the wide range of substrate/ink/print process combinations is, in most cases, not feasible. In addition, a substrate manufacturer does not have control over the specifications of the inks and vice versa. If the ink changed in any manner, a claim for the substrate plus ink as compostable would be invalid unless re-qualified.

The way the substrate and ink are processed could also affect the level of sustainability. For example: A one-sided print on a thick gauge substrate with a light ink deposit may attain the level of decomposing that would classify it as compostable; however, a two-sided print on a thin gauge substrate with heavy ink coverage may exceed the limit to be classified as compostable. In this case, the substrate and ink manufacturer have no control over the print process to make any claim. This is another example of how complicated sourcing sustainable products can be, because the product and process affect one another.

All of these examples demonstrate the need to dissect and understand the details of any claim made by a supplier. After all, the printer bases the sustainable message to the print buyer on any claims the supplier makes. If your green claim to the print buyer does not hold up under scrutiny, the printer will generally be held accountable — not the supplier.

### Verify the Claim

Once the specific sustainable aspect of a product is determined, it is vital to know whether the claim can be verified, and how it was verified. To expand on the example of a compostable substrate, a claim may be: Green substrate X meets ASTM D6400. It is intended to be composted in a professionally managed municipal or commercial facility operated in accordance with the best composting management practices.

The claim can be independently verified by a third party using the test method ASTM D6400. This test method addresses plastics and products made from plastics that are designed to be composted. It focuses in part on whether those materials will disintegrate quickly and safely at an appropriate rate in an aerobic environment.

A claim backed up by independent third party testing is preferred to a supplier's internal testing which is more difficult to reproduce for comparison to other manufacturers' products. However, verifying third party claims is not always possible, feasible or appropriate. This is in part determined by whether an appropriate test method exists, cost and timing. If a supplier conducts its own testing or calculations, be sure to clarify what method(s) they used.

### Environmental Impact

In the example of a compostable substrate, the ATSM standard specifically requires that the material be directed to a composting facility. The claim is for composting facilities only and not for landfills. The difference is exposure to air. Composting relies on the presence of air; landfills decompose in the absence of air. It's important to know the specific differences because print buyers and consumers frequently assume inappropriately that if the waste breaks down in composting, it will break down wherever it goes. The end user, like a retail store owner, would need to direct the used prints to a managed composting facility.

A sustainable claim related to disposing of a used print is more difficult to control and assess the appropriate impact on the environment. Disposal is significant and should be focused on the long term, but significant obstacles need to be addressed from the consumer to the printer and supplier. Most print buyers do not have programs established to direct the disposal of waste prints.

A more significant environmental impact that is under the control of the supplier and printer is the use of green products that provide sustainability in the creation of the final print, such as using styrene or paper that contains recycled content, or inks and cleaners that contain renewable resources, such as soy.

### Enforcement

Now we move into a gray area of green claims: enforcement. When there is no way to penalize a supplier or printer for making false claims or spinning a sustainable message inappropriately, competing on a level playing field is difficult.

## Working Example to Assess Impact

### Product Change 1: Solvent Screen Ink to UV Screen Ink

#### Similarities

- Screen printable
- Similar color range
- Same substrate range
- V-Pyrol Free

#### Advantages

- Little to no VOCs
  - Non-leaded
  - Higher yield per gallon
  - Can be used in method XYZ recycling
  - Requires less harsh cleaners
  - Reduced energy consumption & costs
  - Reduction in space
  - In-line, multi-color printing
    - Easier to "hit" color
    - Same day processing
  - No drying of ink in the screen
  - Better detail
  - Higher print stability
  - Ability to produce consistent four-color process
- Lower Toxins  
Lower Toxins  
Reduced Materials  
Recycle  
Lower Toxins & Reduced Materials  
Reduced Energy
- Reduced Waste/  
Reduced Energy  
Reduced Energy  
Reduced Waste
- Reduced Waste

#### Disadvantages/Costs

- Shorter shelf life
  - Higher cost per gallon
  - May be less durable for industrial applications
    - Higher mesh counts required
- Increased Waste

### Product Change 2: UV Ink to "Better" UV Ink

#### Similarities

- Little to no VOCs
- Non-leaded
- Same cleaners
- Same print stability
- Same screen usage
- V-Pyrol Free
- Can be used for recycling
- Same space requirements
- Same detail

#### Advantages

- Faster cure
  - Increase in bulb life
  - Less potential heat issues with substrate
  - Denser halftone colors, higher yield
  - Reduced ink deposit Reduced Materials
  - Multipurpose inks with a wider application range
  - Lower potential for mistakes
- Less Energy  
Less Waste of Mercury Bulbs  
Less Waste  
Reduced Materials
- Reduced Inventory/Waste  
Reduced Waste

#### Disadvantages/Costs

- Re-calibrating color reproduction
  - May not be able to use old film/artwork
- Initial Waste  
Additional Materials

### Product Change 3: UV Ink to Green UV Ink

#### Similarities

- Little to no VOCs
- Non-leaded
- Same cleaners
- Same print stability
- Screen usage
- Application range
- V-Pyrol Free
- Can be used for recycling
- Same space requirements
- Same detail
- Color/color range
- Can be used on recyclable substrates

#### Advantages

- Uses 20 percent of bio-based per ASTM D6866 Testing
- Renewable Resources

#### Disadvantages/Costs

- Recalibrating color reproduction
  - May not be able to use old film/artwork
  - Slower cure, but not more than 10 percent
  - Higher cost per gallon
- Initial Waste  
Additional Materials  
Increased Energy

For example, two printers produce a four-color process print with an ink containing renewable resources. However, one of the printers prints only the yellow with the sustainable ink and the rest of the colors with standard ink. Both printers could claim that they are using a sustainable ink to produce a green print, and there is no way to look at the prints and determine if they are different because:

1. The inks are similar in performance.
2. Print buyers are not testing each batch of finished prints for renewable resource content.
3. If the printer is caught, there is no penalty for misrepresenting the intended claim.

This situation can apply to varying degrees. This example has a relatively low level of risk in misrepresenting a claim. Claims that are enforced and could result in fines to the printer include printing leaded inks, which can be tested in the final print and are regulated, or using a low VOC press cleaner with a misrepresented VOC value on the material safety data sheet, calculated using alternatives to EPA Method 24.

As more companies get involved in sustainable printing and local/state/national organizations increase standardization, this gray area of enforcement will become clearer. In the meantime, it is well worth considering this ethical aspect as part of the scope of using green products.

### Impact on the Print

Any new product introduced into your print process must fit within your manufacturing capability and provide the appropriate characteristics in the final piece. Assess not only the advantages and disadvantages of using the green product, but also its sustainability.

First, the supplier should be able to provide performance data as to how the green product will affect the finished print's characteristics. Know up front if there are changes to the outdoor durability, chemical resistance, appearance, cost, etc. For example, using a recycled paper instead of 100 percent virgin paper could provide a lower white appearance and require a thicker stock to be used: Is this acceptable to the print buyer? Will you be able to match color for approval? Will different hardware be needed to display the print? How will heat and humidity affect shipping and display conditions?

Second, investigate changes to disposing of the used print. As stated in the compostable substrate example, if the print is directed to recycling rather than

to composting, waste may contaminate and adversely affect the recycled substrate to unwanted levels. Care at the consumer level needs to be taken to insure the green prints are labeled in order to be properly disposed of.

### Impact on the Process

The composting example also leads to evaluation of the impact of the green product on the print process. A substrate that degrades quickly in a composting situation where air is present implies that the substrate should not be stored at the manufacturer's, printer's or end user's location for extended periods of time. There are significant logistics to be worked out with respect to availability, on-demand production and immediate use in the market.

The introduction of a new green product can have no impact on the print process, or in contrast, require a complete overhaul of production. For example, using a concentrated screen degreaser reduces the environmental impact by providing a smaller container and reducing the energy used for transportation, very much like using a concentrated laundry detergent. In this case, the change to the print process would be minimal, such as training personnel to properly dilute the degreaser before use.

One of the most extreme examples is the use of non-phthalate inks. Phthalates are used to provide flexibility in various products including the plastisol inks used for printing apparel. One range of phthalates has been linked to health-related issues and is banned, with an additional set of phthalates up for review to be banned by the Consumer Safety Products Commission. Trace amounts of phthalates measured in a finished garment would result in a product failure.

To print non-phthalates requires segregated production or an entire print operation that would need to be converted over to the non-phthalate ink. Any trace contamination from phthalate-containing ink could produce negative results, so process changes would include cleaning any equipment from screen handling to production and shipping. An undertaking like this indicates a significant investment by any printer and limits the number of printers able to offer a non-phthalate print.

### Assessing the Process and Environmental Impact

The sidebar outlines an example of assessing the impact of the printing process by 1) using UV screen ink versus solvent-

based ink, 2) upgrading to a "better" UV ink, 3) converting to a UV green ink. By outlining the similarities, advantages and disadvantages, it is easy to establish the sustainability impact. The example illustrates that current products can already be viewed as sustainable; it's just a matter of determining how and documenting the impact. By using a green product in this instance, the only gain is the use of an ink containing renewable resources. Although it is significant, this one sustainable aspect of the ink is only a tip of the iceberg in building the printer's sustainable story and promoting it to the print buyer.

The biggest obstacle in jumping into sustainability and providing a green print is having a complete understanding of green products and the specifics surrounding them. Seek out green products and push suppliers and industry organizations to provide green products and the information required to make informed decisions. While support from industry organizations, suppliers and governmental organizations is growing, much of the work remains on the shoulders of the printer.

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