

INDUSTRIAL LABELS TOOLKIT

Engineers Edition | 2022



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INTRODUCTION

Engineers, you are integral to the labeling process. And when you step back and look at the bigger picture — R&D, compliance, strategy, security, and technology — you realize how much the success of this process relies on many different pieces working together.

So we turned to a few of our resident experts in the industrial labels space and asked them one question: When it comes to durables, what should engineers care about headed into 2022?

In this edition of our Industrial Labels Toolkit, we offer up insight into four relevant areas: covert security, digital printing, label performance, and production proficiency.

Have a read.

KEYS TO CONTINUOUS IMPROVEMENT IN LABELING APPLICATION

By Andrew Palmer | Director of Sales, RRD Label Solutions

There's no shortage of challenges when it comes to improving labeling productivity:

- Products requiring many labels
- Product variations requiring different versions of the same label
- Lack of automation requiring manual application
- Vague understanding of the labeling process
- Limited feedback from operators on their application challenges or ideas

Because labeling productivity is rarely considered as an opportunity for continuous improvement, the incentives and savings to change go undetected for companies. An unfortunate result is that most labels are designed primarily for function with minimum consideration of the labeling process.

To overcome these downstream challenges, there are best practices every engineer should employ.



Evaluate your labeling applications, periodically

This includes getting input from the production floor. Test any variations in output and production speed. Conduct studies to determine any efficiency improvements such as jigs/guides for faster, more accurate label placement.

If you are using manual labor where automation can improve both the quality and output, it may be time to build a case for implementing automation, such as dispensers that are semi-automatic or applicators for higher speeds. When this is done, engineers typically report a positive ROI.



Identify ways to improve the initial design of labels

Can labels be finished on rolls for quicker removal? Does the design contribute to the overall efficiency of the labeling process? In the new product design process, durable labels are often created by cutting and pasting previous designs as the last parts for the bill of materials.

Taking extra time to rethink productivity during the label design stage may help improve your production later.

KEYS TO CONTINUOUS IMPROVEMENT IN LABELING APPLICATION (cont.)



Convert preprinted labels on the production floor to print-on-demand

Print-on-demand labels are blank labels printed by thermal printers. This conversion reduces SKU count, handling, and inventory costs and increases the amount of variable data on the labels. It opens up opportunities for barcoding, QC codes, or other security features that may help support both the supply chain and the customer experience.



Design and implement label kits for durable products

Label kits are sheets that contain multiple labels for one item number, instead of sourcing separate labels for the same item and printing labels on separate sheets at different times.

Kits are effective solutions that eliminate touch points, provide quality control, and alerts you if any labels have been omitted on the product. They maintain color and material consistency and provide efficiency in applying your labels.

Label kits can even be adapted for assembly-line labeling or for finishing areas where all labels are applied at the same time.



Every label has a purpose — know it

No matter what your goal for improvement is, keep in mind the intended purpose of the label. Is it for decoration, instruction, or safety? Does it present static information, variable data, or a combination?

If you have a clear understanding of the label's purpose, you will be able to identify its properties that can change, and where you should focus your attention.

While every labeling process is unique, basic considerations like these are great starting points when you want to improve your productivity and reach your production goals.

PLAY 20 (OR MORE) QUESTIONS TO IMPROVE LABELING PERFORMANCE

By Bill Gonio | Regional Quality Manager, RRD Label Solutions

When working with labels, engineers have a surprising number of things they need to consider to ensure they work properly and last for the right amount of time. Whether your label includes safety information or instructions, the importance of making sure it is applied correctly and remains on the product is a continuing struggle.

Every stage of the labeling process requires your attention, and it's sometimes hard to know where things have gone wrong when it doesn't work properly.

Was it applied incorrectly?

Are the materials of lower quality?

Are you using the wrong adhesive for the substrate?

Asking these basic questions (and many more like them) is the best way to avoid issues from the manufacturing stage to many years after.

The questioning process

When it comes to label problem solving, don't complicate the process unnecessarily. Keep it simple, and follow these three easy steps.

1. Start at the beginning

Begin with the possibilities that are determined by your requirements. Most of these will be questions about compliance and regulations regarding your label:

- Are there any environmental label design requirements?
- Does the EPA or CPSIA restrict certain materials?
- Is the surface area where the label is applied textured, rough, oily, painted, curved?
- Do labels need to be UL certified?
- Will the product be outdoors? Underwater? If so, for how long?
- Will the product be subject to extreme temperatures?
- How long does the label need to remain on the product? A day? Ten years?
- Will the label be a fire hazard if applied in the wrong place?

These are the questions that solidify your concrete constraints, which are the elements of a label that cannot change and need to be considered when creating a label constrictor.

PLAY 20 (OR MORE) QUESTIONS TO IMPROVE LABELING PERFORMANCE (cont.)

2. Refine the selection process

Then proceed to the questions that refine your selection process based on design and product specs. An example of this includes identifying the type of material(s) used in the product's label application surface. This helps determine:

- Effectiveness of the adhesive (is the label meant to be removable?)
- The different shape of the application surface or products
- Different locations for placement, size, and thickness

Additional label application criteria involve where you work. Labels require clean environments and stable temperatures in order to be applied correctly. Are you applying labels in a cold area? Are there large amounts of dust in the air? Leaving these questions unanswered can often affect the long-term performance of the adhesive.

3. Save questions around preference and price for last

From there, proceed to questions regarding preferences and price. This may include colors, printers, label material (plastic, fabric, etc.), whether the label is in one piece or multiple, and so on. Most of these questions are based on your personal working preferences, or what the designers want to see.

These should not be determined until all of the other questions I've brought to your attention first are addressed. If you're figuring out the color of the label before you know where it's going or what it's going to say, then you're only creating a headache for yourself later.

Generally, most problems with label compliance come from a process that is being rushed or wasn't thought all the way through.

Are your labels discolored after just a couple of days?

Are they falling off after a few minutes in the fridge?

Are they wrinkled after application?

If so, odds are an important question has not been asked (or answered). Taking the time today to ask all the right questions — at every step of the labeling application process — will save you time and effort later.

Bill's Top FAQs for Engineers

To improve performance, understand your label's problem before you start fixing it. To do so, start by answering these:

- What are the most common complaints about the labels? Are they application related, or design-related?
- Do you regularly review each step of the labeling process? In your opinion, which step takes too long? Do any have loose quality control?
- Are the issues you're facing a result of the technology you use, or the people on your team?
- Do you completely understand the end use of the product receiving the label?

IS DIGITAL PRINTING STILL THE INFERIOR ALTERNATIVE?

By Alan Etheridge | Director of Customer Engagement, RRD Label Solutions

Today, the number of digital presses being installed is twice that of conventional presses. This is a huge reversal from just a decade ago, and is a direct reflection of our changing marketplace.

Just a few years ago digital printing was known as the inferior alternative — print quality was low, costs were high, and companies had not yet connected the value of its offerings. Currently, however, those barriers have been removed, even if a few misconceptions remain.

RRD alone owns and operates a number of digital presses domestically and we are witnessing the growth of digitally-printed labels firsthand. Here are four reasons why:



Digital printing requires less up-front investment

Realistically, the barriers to entry for digital printing are nominal compared to flexographic labels (also known as traditional printing of depositing layered ink from plate to substrate).

Plates, cylinders, custom inks, 4-color process acuity, journeyman press operators, engineering drawings — traditionally, these are the required components necessary before printing ever happens on a flexo machine.

Digital offers you a speed-to-market like no other printing method out there.



Digital printing offers maximum flexibility for graphics and design

Traditionally, flexo printing has limited the graphic artist, stifling true creation and governing design by limiting colors, vignettes, security features, and variability in art. Digital print breaks the chains on this age-old dilemma, and presents a limitless canvas for design. Some examples of this flexibility are listed here:

- No color maximum
- Zero trap range around images
- Photographic quality without degradation of spot colors
- In-line variable print
- Micro-print for security
- Reverse-out text with perfect registration
- Zero cost penalty for SKU variation



IS DIGITAL PRINTING STILL THE INFERIOR ALTERNATIVE? (cont.)



Digital printing allows for small, customizable batches

Gone are the jobs that require weeks of production/planning time, a minimum number of labels per copy, inventory-based spending, and accurate forecasting of supplies for business continuity.

A digital platform and service offering allows new and repeat work to be printed and complete just five business days from receipt. It also enables printing of multiple small batches with different designs in the same pass. Print what you want, how many you want, when you want it all without it costing you a small fortune.



Substrate possibilities and ink stability open up new markets

One early misconception (and limitation) of digital print was that it eliminated a large sector of material substrates for commercial use. With HP's priming unit (which allows our HP electro toner to adhere to any type of substrate) and the introduction of the UV inkjet presses (such as Domino), traditional limitations on materials are all but gone.

From polypropylenes to polycarbonates, and electro-toner to fade-resistant UV inks, digital print has muscled its way into the durables and environmental labels space — and now it's obvious why.

THE STRATEGY BEHIND LAYERING COVERT SECURITY FEATURES

By Stan Chess | Applications Engineer, RRD Label Solutions

Counterfeiting is a problem no company likes to think about, but it is not something you can ignore. From defense equipment to watches, counterfeiting globally was projected to reach \$1.82 trillion in 2020.*

What's your strategy when it comes to a label's security features? That's an important question, and it's one that doesn't lend itself to any easy answers. A good rule of thumb is to start with simple and low-cost security options, work your way up from there, and try to include at least two to three different features at once.

To stay one step ahead of counterfeiters, consider these best practices (all gleaned from a department that has over 50 years of experience in developing and printing security features).



Layer technologies

Multiple layers of security stand the best chance of deterring counterfeiting. I mean "layering" both figuratively and literally.

Today, one security feature is no longer enough when it comes to industrial labels, no matter what your product is. However, the size, material, and use of your products may limit which security features you are able to use. Regardless, always use more than one feature whenever possible.

The types of security features available to you are abundant:

Material-based security includes tamper-evident or destructible material, voidable adhesives, and retro-reflective materials.

Print-based security includes microlines (miniature text that appears as a solid line or image) or hot/cold foil printing.

Ink-based security includes ink that is color-shifting, penetrating, thermochromic, visible or invisible, UV fluorescent, and pen- or rub-activated.

Digital security includes consecutive and variable numbering or QR codes, icons, and taggants, which are nano-sized forensic fingerprints that must be read with a scanner.



A taggant is a nano-sized forensic fingerprint. Applicable anywhere in your supply chain to verify authenticity, taggants can be used in invisible inks and, when printed, are completely undetectable.

The only way to read the information on a taggant (not just recognize its presence) is with a custom reader. This means this security feature creates no visible change to the label. Now when counterfeiters buy or steal your products to replicate them, they have no reason to remove, alter, or destroy the labels.

THE STRATEGY BEHIND LAYERING COVERT SECURITY FEATURES (cont.)



Interchange overt, covert, and forensic methods

If counterfeiters can copy one overt feature, they can copy another. By combining overt and covert features you can increase the complexity of counterfeiting exponentially.

Overt features are visible to the eye, and the lowest cost. They allow authentication without the need for a special tool, like a hologram.

Covert features are hidden in the product. These can be detected by low-cost tools depending on the feature.

Here's a quick example of the two working together through the use of a QR code:

We commonly execute QR codes that contain overt and covert features. In this process, we print icons that can be read by an app (so the printed icon cannot be copied). We also incorporate special inks that can only be seen when rubbed with a special pen, and invisible fluorescent inks printed with an image that can only be read with a black light.

There are also forensic features that are undetectable and can only be authenticated by specially-equipped labs. Products with forensic security are uniquely encoded and useful for high-value products and as evidence admissible in court.



Modify the product design often

Of course, security isn't just about the features. It's about making your product hard to replicate. Changing the design of your security features allows you to preempt any counterfeiters close to replicating your product. Change the design often by switching inks, microline words, or location.

For example, birth certificates always have a microline security feature around the border, and unless you look very closely, you would never notice that just one of the words is misspelled. This word, and its location, is changed every few years to stay ahead of fake certificates.

No matter how advanced your security, fakes can catch up. Which is why every label should be designed from the beginning with security in mind. It's essential.

* ResearchAndMarkets.com, "The Global Brand Counterfeiting Report, 2018"



PROMINENT, COMPLIANT, DURABLE — AT THE SAME TIME

Relaying critical instruction as well as product and safety information is serious business. RRD has the expertise to provide material options based on your specific needs whether it's a custom or off-the-shelf solution.

Each application has its own unique requirements.

RRD will help you select the proper facestock, adhesive and coatings that match the optimal technology used to print your labels.

Label specialists. Application engineers. Material experts. Material test labs. We combine local in-field support with unmatched technical resources that are dedicated to solving your toughest challenges.

The right material
for your application
rrd.com/labels

