Securing Your Supply Chain – How to Prevent Counterfeit Plastic Parts and Products

While counterfeiting statistics are difficult to obtain because it is a "clandestine" industry, one thing everyone can agree on is that counterfeiting is big business. As the world has grown smaller and the supply chains for major corporations have gotten longer, the challenges of intellectual property theft and the manufacture of counterfeit parts and products has become more problematic – not to mention expensive for brand owners.

No industry or product manufactured today is immune to counterfeiters. Everything from automotive parts to toys to pharmaceuticals and food products has fallen prey to counterfeiters. Monetary losses to companies are estimated to be in the $200 billion annually and accounts for more than 750,000 jobs lost because of counterfeiting. ("*Intellectual Property: Facts & Consumer Opinions on Counterfeit & Pirated Goods"* by Erwin A. Blackstone, Joseph P. Fuhr Jr., and Steve Pocrask, July, 2013)

While there are incidences of counterfeit products coming from manufacturers in the U.S., most of the counterfeit products come from foreign countries, with the primary source being China. According to various reports, 70-75% of the world's seized counterfeit goods come from China. China also accounted for 87% of the value of counterfeit goods.

A study by 24/7 Wall St. and reported in USA Today in March 2014, revealed that the value of counterfeit goods seized rose by 38.1% in 2013, from $1.2 billion in 2012 to $1.7 billion in 2013, with $1.2 billion of that originating in mainland China.

What Products Are Counterfeited?

While consumers are being fooled by such counterfeit items as CDs and DVDs, high-end purses, clothing and accessories, in the B2B industrial sectors the concern is over counterfeit parts and components. In particular the authenticity of critical-to-safety parts is a big concern to companies in the automotive, aircraft and military industries.

Vehicle components, both the original parts and after-market replacement parts, are expensive. That is why counterfeiters go after these parts, and it is also the reason we want genuine parts. In a recent study conducted by Brady Corp., an international manufacturer and marketer of solutions that identify and protect

premises products and people, 39% of automotive firms encounter counterfeit components. Counterfeit component incidents have increased 241% over the past three years. Cost of recalls in the automotive industry alone average $9 billion annually.

Last February the big news in the automotive industry was Aston Martin's recall of 17,590 cars after the company discovered the accelerator pedal arm was molded from counterfeit plastic – not the DuPont material specified by Aston Martin. The discovery was made when a repair shop tried to replace an accelerator pedal arm that broke, and the "new" arm broke while the repair person was trying to install it.

Recalls in the automotive industry are extremely expensive both in terms of the replacement costs of these parts, but in terms of the company's reputation. As a brand owner you want to ensure your customers that the vehicles you produce meet the standards that your brand promotes. With 50% of today's vehicles made from plastic by volume (10% by weight), making sure that the polymer materials used in the manufacture a vehicle are the ones spec'd becomes critical.

Pharmaceutical products such as injectable medicines in pre-filled syringes or into vials for shipping, can be tainted if the medicine is put into syringes molded of the wrong plastic resin (resin not FDA certified) or using resin such as regrind that might be contaminated with dirt or be of uncertain origin. Certain resins can have a negative reaction on the drugs inside the syringes or vials, and the drugs can sometimes create a reaction with the plastic used in the vials or syringes.

Is it real? How can you be sure?

The major problem with the success of counterfeiting in the past has been the fact that brand owners are more often "reactive" in their response to the theft of their IP. They become aware of counterfeit components or products when the product fails in the field, ergo the Aston Martin accelerator pedal arm, or when the consumer has a problem with the product, returns the product demanding a refund and the brand owner discovers that the product is a knock-off.

U.S. Customs is a front-line defense against counterfeit products and parts entering the United States. They catch container loads of counterfeit consumer goods and industrial components every day, taking these fakes out of the supply chain *before* the products or components can reach the consumer or the OEM.

While that's an optimum place in the supply chain to intervene and pull the products – before they reach customers – it is still an expensive spot to catch counterfeit goods. Brand owners and OEMs have most likely already paid for the goods themselves because payment is often required prior to shipping, and they most likely have paid the shipping costs to get their products from Asia to the U.S.

The other problem with catching the counterfeit goods at this point in the supply chain is that OEMs and brand owners likely have more products on other ships somewhere in the Pacific, and probably have more products being manufactured. This extremely long supply chain makes it difficult and not very cost effective to intervene that far down the supply chain – at U.S. Customs.

As one brand owner noted, "If I have bad products failing in the field, I have bad products in Customs, and I have bad products on a container ship coming across the ocean, and I know I have more bad products being manufactured."

Being reactive, while is good in some respects, is not optimum when trying to prevent counterfeiting in an efficient and cost effective manner. That's where being proactive comes into play, and there are many ways that companies can be proactive in their fight against counterfeiting.

Proactive Measures to Prevent Counterfeiting:

Thwarting global counterfeiters is a full-time job and may even require multiple methods of counterfeit prevention to ensure product/brand protection. More and more companies are taking proactive, innovative measures to ensure that their products are not subject to "knock-off" counterfeiters. With plastics being a ubiquitous raw material from which myriad products across industries, packaging and components are made, there are a range of options when it comes to proactively preventing counterfeiting.

For OEMs and brand owners whose products are molded from plastic raw materials, such as toys, automotive components, electronics and electrical parts, medical devices and many others, it makes sense to begin with the plastic resin itself. Resin producers provide certificates of material compliance with lot numbers to provide traceability and ensure that the material specified is the material that was sent to the molder.

Compounders, those companies that buy resin from the resin producer and then add other materials to it through a "compounding" process, also receive these certifications and supply their own certifications of the additives (colorants, UV stabilizers, talc, anti-static, flame retardant, antimicrobials and material

taggants) for lot traceability and to ensure total compliance of the material throughout the resin production process.

For companies that make plastics packaging for food and beverage, and various medical and pharmaceutical products, there can also be a variety of ways to thwart counterfeiters in addition to material certifications. Since labeling is a critical part of the product – providing branding information as well as information about the product inside – the label can also be used to ensure product authenticity. However, glue-applied or pressure sensitive (PS) labels are the most widely used, the problem is that they can be removed or covered over by another label if counterfeiters want to hijack the product.

In-mold labeling (IML) is one anti-counterfeiting measure that many food and pharmaceutical companies utilize. IML ensures that the label secure by actually becoming part of the container or package through the molding (either injection or blow molding) process, making it impossible to remove. Additional measures can be taken with the label such as creating a special label with a unique marking such as a holographic image that can only be read under a black light, also ensure a secure supply chain. In-mold labels become an inherent part of the product and make it much more difficult for counterfeiters to create fake product labels to replace the authentic labels.

One of the latest techniques that can be used for all types of plastic products and packaging is an additive called a “taggants” that acts to “finger print” or encode the batch plastic used to manufacture the specific product. These taggants or “molecular tracers” actually become a part of the DNA of the plastic resin and allow manufacturers to ensure that their products are genuine and unique to that particular product or brand. These microscopic chemical or special markers are added to masterbatches during the compounding process. These materials are custom formulated for each customer, which means that no two taggants are alike.

Materials containing taggants can be tested using X-ray fluorescence and laser detection devices that can readily identify the presence and qualities of these taggants to ensure that your components or products are authentic and molded to the exact material specifications. Because the taggant provides a unique “marker” using taggants can protect the OEM or brand owner from costly recalls, repairs and even litigation by providing proof of the products’ authenticity. Tagging the product and the plastic packaging offers double security.

With everyone working together proactively – resin producers, label makers, plastics processors and OEMs/Brand Owners – we can stop counterfeiting and make the world safer for consumers, and more profitable for legitimate businesses.

Five Tips to Help You Be Proactive in Protecting Your IP from Counterfeiters:

1) Identify the gaps in your supply chain. There are numerous places along the supply chain where gaps can occur. The best starting place is at the production (molding) level where the OEM has spec'd a specific material with the specific properties that the supplier needs to use. Is it the right material from an authorized resin supplier? Did the material come with proper and authentic certification to allow lot traceability?
2) Next you can audit your suppliers and the entire manufacturing process. Is this a production issue or a post production issue? Why is this product now defective? Where did the chain break down?
3) If it is a warranty issue, you can audit the parts already on the market. If you used 'taggants' in the material, you have evidence to prove if, or if not, the product if yours.
4) Make sure that your data tracking systems are in place and that your suppliers also have systems in place to provide certifications throughout their supply chain. Use the technology that is available. At the end of the day it's about how the brand owner or OEM works with their suppliers on an issue, then finds a solution. It has to be a strategic approach. No one organization can stop the problem from happening. Everyone has to work together cohesively to close that gap in the supply chain.
5) Have a team in place that can focus on product/IP security and anti-counterfeiting strategies. Brand owners note that they have 5-7 years before the counterfeiters catch on which means the brand owner must always be looking for ways to thwart them. It's generally a multi-layered approach. No silver bullet that will solve the all the problems surrounding counterfeiting or IP theft. Counterfeiting is a problem for everyone – sales, management, R&D and production. It hits every aspect of the organization. Do your due diligence in all areas.

About Plastics Color Corporation:

Plastics Color Corporation, located in Chicago, I.L., is a global provider of colorants, compounds, additive masterbatches and custom polymer technologies for an extensive range of markets including pharmaceuticals, medical, consumer goods and others. Plastics Color supports virtually every type of manufacturing process and material. We engage our customers ***from concept to commercialization*** and help develop new cutting-edge products that lead the market. Plastics Color has 50 years' experience in the polymer industry and operates fully-equipped product development laboratories and manufacturing facilities in California, Illinois, North Carolina, and Nanjing, China. Plastics Color's Illinois and North Carolina labs are accredited by the American Association for Laboratory Accreditation, A2LA. Plastics Color also provides testing and product development services through the Solutions Center in Asheboro, N.C. For more information, visit www.plasticscolor.com or email info@PlasticsColor.com.