An overview of the counterfeiting landscape and the solutions which are helping organizations in the public and private sectors to push back against the fake goods trade.

Anti-counterfeiting solutions

The latest trends, applications and technologies

AVERY DENNISON

Introduction

Whether you are an iconic brand producing authentic, sought-after products or a governmental organization responsible for distributing vital documentation such as driving licenses and passports, counterfeiters are never too far away from causing serious harm.

The impacts of counterfeiting stretch far beyond taking valuable business away from legitimate enterprises. Health and safety issues can easily arise through unsafe manufacturing processes or through the substitution of components or ingredients which are masked as 'the real thing'. Moreover, the proliferation of fake documentation poses multiple security threats.

From fashion labels and artisanal food and drink products to false ID and bogus certifications, the counterfeiting landscape is widening and the techniques used to counterfeit are becoming more sophisticated.

A rising threat

The numbers paint a concerning picture. In a 2019 study into the trade of fake goods, carried out by the Organisation for Economic Co-operation and Development (OECD[1]), the business of counterfeit and pirated products accounted for 3.3% of all global trade and this percentage is expected to increase.

In the report, the OECD calculated the total value of imported counterfeit goods worldwide at $509 billion. Based on customs seizure data from 2016, this is significantly higher than the $461 billion recorded in 2013, when fake goods accounted for 2.5% of all world trade. By the time the next analysis is complete, these figures will almost certainly be higher.

The US is the most affected economy, with footwear, clothing, leather products, electrical equipment, watches, medical equipment, perfumes, toys, jewelry and pharmaceuticals representing the most counterfeited categories.

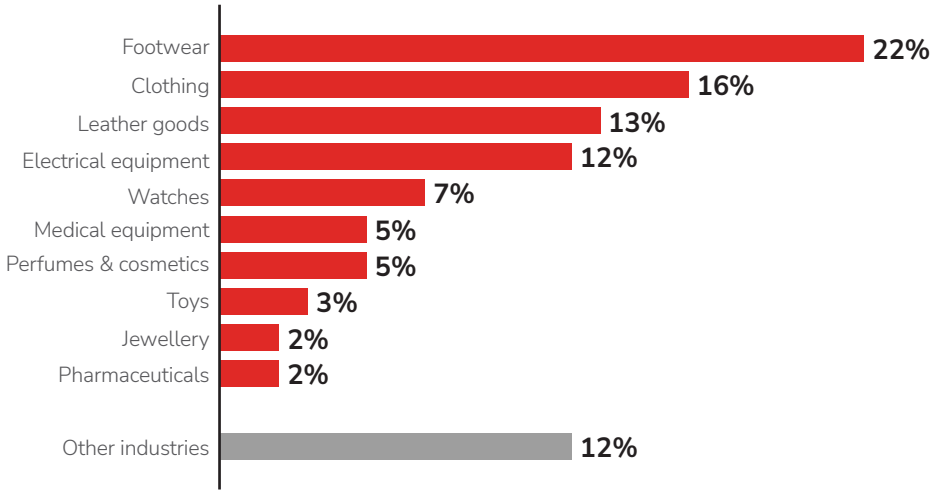

Chart: *Industries most hit by counterfeit and pirated goods, % shares of total value of seizures, 2016*
Source: *Trends in Trade in Counterfeit and Pirated Goods*

The industry response

Today, there are a wide range of anti-counterfeiting technologies available for public and private organizations – from using specialty adhesives to attach remote sensors to products to embedding covert identifiers within them. Each technology performs one or more of three critical functions: authentication, tracking and tracing, and anti-tampering.

Recognizing the fact that the market for anti-counterfeiting technologies is broad, fast-moving and not always easy to keep up with, the European Union's Intellectual Property Office (EUIPO) released a comprehensive anti-counterfeiting technology guide in 2021 to help organizations navigate the ever-evolving technology landscape.

At Avery Dennison, we too have been studying the counterfeiting landscape. Our team of material scientists is constantly developing cutting-edge anti-counterfeiting applications and technologies to help win the fight against fake goods.

1. https://www.oecd.org/newsroom/trade-in-fake-goods-is-now-33-of-world-trade-and-rising.htm

Trends

Counterfeiting, forgery and tampering is not new

Mary Butterworth, for example, started a counterfeiting operation in approximately 1716, using damp starched cotton cloths to lift ink from a genuine dollar bill before transferring it to blank paper with a hot iron and inking in the pattern by hand.

Over the years counterfeiting has of course evolved both in the volume and sophistication of methods used. From 3D printers to intricately forged signatures, fraudsters today are pushing the boundaries of copycatting.

Fortunately, organizations are equally able to call upon smarter, more effective solutions that can help to easily distinguish between fake and genuine products and combat counterfeiting crime.

‘Counterfeiting dates back to 27BC but has since advanced significantly, today requiring sophisticated combative technologies’

Photo: *Void labels are an excellent way to protect goods against unwanted access or usage.*

Photo: *Example of a hologram used in a bank note to demonstrate authenticity.*

Holograms

Anti-counterfeiting holograms are a technology used to improve security. When applied, they create three-dimensional structures on a two-dimensional surface, adding an additional layer of covert text or overt coloring that are both incredibly difficult to forge and easily identifiable. Typically, holograms are used in use cases such as bank notes, passports and other sensitive documentation to demonstrate authenticity. For maximum effectiveness, it is vital that holograms are resistant to tampering. They can’t be peeled away easily from the substrate that they are applied to without being destroyed. Equally, they must provide perfect optical transparency so that both the asset and hologram can be viewed in tandem.to easily distinguish between fake and genuine products and combat counterfeiting crime.

Security paper

Security paper equally helps to demonstrate product authenticity by being extremely difficult to remove. Typically applied to a product in the form of a label, security paper has very low internal strength. When combined with a strong adhesive, it becomes incredibly difficult to remove the label without tearing or otherwise destroying the security paper in the process. Here, it is critical that the adhesive remains resistant to tampering attempts such as heat changes and the use of chemical products.

Photo: *Woman verifiying the authenticity of a wine bottle by scanning a QR code.*

Void labels

Void labels are typically used to demonstrate that a package has not been accessed and the contents tampered with, providing peace of mind to the end recipient. Like security paper, void labels are applied with a highly strong and tamper resistant adhesive to ensure that they stay fixed to the substrate. Should someone try to delicately remove a void label to access the content inside, the top layer will peel away, leaving the bottom layer attached to the substrate. This clearly indicates to the recipient that the package is 'void' or has been tampered with. Such solutions are commonly used in healthcare to guarantee the integrity of medicines.

Digital ID technologies

ID technologies such as QR codes are now also being integrated with anti-counterfeiting solutions to provide an additional layer of security. Many organizations are providing apps where end users may scan a unique label or code, allowing products to be checked for authenticity and/or traced back to their origin.

Photo: *Example of a series of void labels.*

Applications – Commercial

From passports to bank notes

Public sector organizations are reliant on anti-counterfeiting technologies to protect a wide range of important and valuable types of documentation. For instance, ID documents such as passports have used hologram technology for many years, with modern passports now containing readable chips which hold biometric information.

Holograms are also used to prove authenticity of banknotes. They can be applied in threads, patches and stripes, with many banknote issuers increasingly turning to the incorporation of holograms in polymer 'windows'. Governments in the UK and Canada have recently followed in the footsteps of Australia and New Zealand in adopting this hologram application.

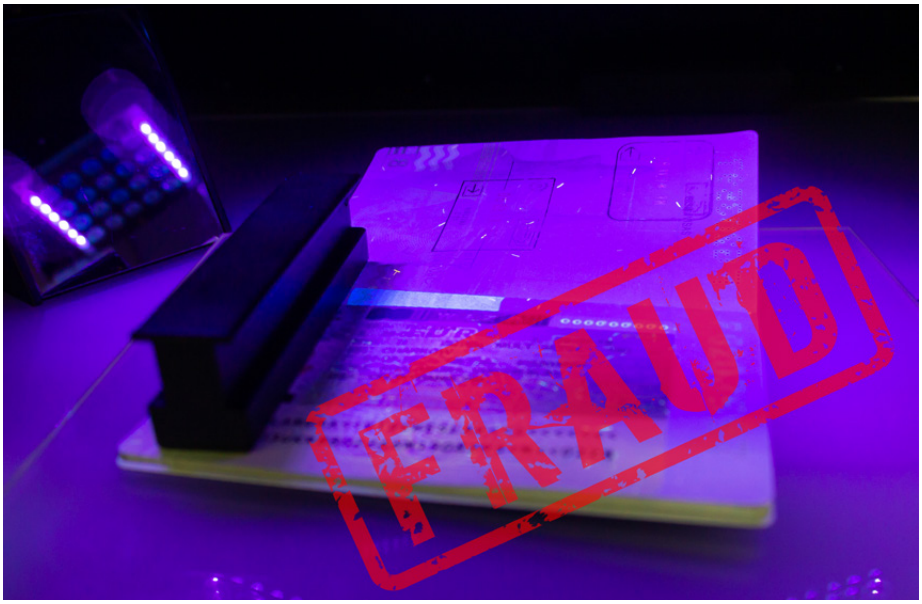

Photo: *Many safety features hidden in passports can be revealed by using UV light for visual authentication.*

Photo: *Bottles topped with digital tax stamps to combat illicit trade.*

Going digital

Governments are also making use of digital tax stamp solutions to combat illicit trade and increase excise revenues.

Digital tax stamps enable the linking of unique identifiers to products, which facilitates full traceability of genuine goods and helps authorities with the collection of taxes. The illicit tobacco trade, for example, is worth many billions of dollars. Here, solutions are compliant with the World Health Organization's FCTC (Framework Convention on Tobacco Control).

Applications – Commercial

Providing peace of mind

In the commercial sphere, anti-counterfeiting solutions are playing important protective roles which benefit both brands and their consumers.

For businesses and brands, various technologies are protecting the authenticity of their products. For example, there are numerous types of foils and holograms that are unable to be photocopied or scanned. These special features help prove the integrity of the product and show tell-tale signs where attempts have been made to remove them.

As well as giving confidence to brands that their products are protected from fraudsters, consumers also benefit by being reassured that the item they are buying is genuine and that no attempts to tamper with it have been made.

Anti-counterfeiting technologies also carry important health and safety applications. A good example comes from the pharmaceutical industry, which routinely makes use of physical barcodes and holograms to protect their healthcare products from copycats. In 2019, the European Union introduced the Falsified Medicines Directive which has made tamper-evident design a compulsory feature of pharmaceutical packaging.

Healthcare consumers are also benefiting from the use of digital watermarks. Scannable by smartphones, these are playing an increasingly important role in helping patients to authenticate the source of their medicines.

‘As well as giving confidence to brands that their products are protected from fraudsters, consumers also benefit from several reassurances’

Photo: *Authenticity of medication is crucial to be verified before taking it to avoid any health risks*

Technologies

One size never fits all when it comes to anti-counterfeiting technology. In fact, the more unique the security solutions used the better, as this makes it harder for criminals to use repeatable counterfeiting methods.

At Avery Dennison, we have a wide variety of adhesive technologies available that support the varied requirements of our customers. From high release or low release liners to transparent or colored adhesives, we're able to work with any organization to develop tailored solutions that meet their specific needs.

Unrivalled resistance

Our technologies ensure our adhesives can resist attempts of removing anti-counterfeiting security features by freezing and heating. In addition to withstanding high and low temperatures, Avery Dennison's anti-counterfeiting technology adhesives provide strong resistance to solvents, chemicals, plasticizers, moisture and UV light. Our tapes are also suitable for ultra-destructible surface bonding and allow for removal attempts to be noticed should physical exertion be applied.

User-friendly

Avery Dennison's tapes and adhesives balance practicality with security. Our pure acrylics, for example, are optically transparent to ensure they avoid interfering with holographic effects. Further, our thin transfer tapes offer good conformability to flat or curved surfaces with easy liner removal at point of use. This enables the application of anti-counterfeiting solutions to substrates to be quick and efficient. Multiple layers and various adhesives can also be combined upon request to support advanced technologies.

Photo: *Discover Avery Denisson's portfolio of pressure-sensitive adhesives and tapes, tailor-made for your anti-counterfeit bonding need.*

Please refer to **Tapes.AveryDennison.com** for complete terms and conditions, including warranty terms, relating to this product. You should periodically review the site as terms and conditions are subject to change without notice.

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