



PACKAGING PROTECTION TECHNOLOGIES TYPES OF UNAUTHORIZED COPYING

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Many brand owners and manufacturers of various products face the problem of manufacturing counterfeit products, including in Ukraine. According to the World Health Organization, counterfeit medicines make up about 10% of the global medicine market. In the CIS countries, this indicator reaches 20%, in Ukraine, according to various data, the share of falsified medicines is 15-25%. Every year, counterfeits take about 200,000 lives, and counterfeiters earn about \$50 billion from this [1].

According to Oleksiy Bezhevets [2], law enforcement agencies (in particular, the USA and the EU) report that Ukraine has turned into a center of international trade in falsified medicinal products, which is confirmed by high-profile investigations in recent years and, in particular, criminal cases involving Ukrainian citizens abroad. According to official information of the Office of the Prosecutor General, in the period from 2014 to 2020, 229 criminal proceedings were registered in Ukraine under Article 321-1 of the Criminal Code of Ukraine on the fact of falsification of medicinal products and their circulation.

Therefore, business owners face the task of securing their product, building a brand protection system, and ensuring its functioning at all stages of the product life cycle, including development, production, work with contractors, logistics, and sales. Maximum efficiency can be achieved only in case of synergy of all components. The set of measures to create a protection system includes the following components: analysis, development, implementation, and monitoring. At the analysis stage, it is important to research the vulnerability of the product, identify key potential problems of the product on the market, segment consumers, analyze existing security systems, and identify risk factors.

Based on the data obtained at the first stage, a multi-level protection system is developed and implemented for each product separately and for the brand as a whole. Monitoring the security system involves tracking the volume of sales, and the appearance of counterfeit goods, identifying weak points, and improving the entire system. Monitoring is the most important component, as protection must be comprehensive and dynamic. Constant modernization of the entire system in general and its components separately will minimize the appearance of counterfeit products. The implementation of a brand protection system should be considered as a business project with its business plan, as it not only provides an opportunity to reduce losses (unsold goods, damage to reputation) but also to increase profits. Security systems can be more effective than advertising. For this purpose, complex patterns are created, the forgery of which is impossible in an automated way (scanning, automatic image processing). Packaging protection is one of the most effective tools and at the same time affordable methods of product protection.



Protection measures can be divided into several types:

- visible (available to the naked eye);
- hidden (for example, images printed with hidden inks);
- special, which require instrumental assessment, special devices, for example, RFID tags, special graphic matrices, and optically hidden images.

One of the interesting innovations in this field proposed by the Croatian company is the modification of the SMUK image in such a way that when scanned in the infrared range it shows a different image. The advantage of special and hidden means of protection is the highest degree of security and the almost complete impossibility of counterfeiting. At the same time, the disadvantages are the high cost and complexity of implementation.

The most effective option is the involvement of clear means of protection, special graphic design, and the capabilities of modern digital printing technology. Among the advantages of this approach are the complexity of copying, the absence of the need for special hardware, and a simple visual assessment. In addition, such protection does not increase the cost of the final product and does not require a change in the entire layout.

An important trend that will determine the development of the packaging industry in the next few years is the constant strengthening of the convergence between packaging and protective functions. In addition, a feature of the packaging of the future will be the ability to interact with the consumer in every way, providing him with security, as well as integration and individualization. To solve these problems, Agfa company specialists offer the unique software product Arziro, based on the Fortuna software platform with a high degree of protection. The latest version of the Arziro software is designed to protect and personalize packaging and consists of two modules: Arziro Design and Arziro Authenticate.

Plug-in for Adobe Illustrator Arziro design is a powerful and intuitive software module for developing anti-counterfeiting images. Arziro creates complex patterns with the help of unique elements, backgrounds, dashed lines, rasterization, etc., which guarantee a unique multi-layered design and protection of each document since the final result is very difficult and expensive to forge. The instrumental method of protecting the AGFA Arziro Authenticate technology allows you to generate special QR codes [3].

References

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