

# Foiling the Fakers

Roland Meylan looks at the latest developments in anti-counterfeiting technology.

The recent Organization for Economic Co-operation and Development (OECD) report of 4 June 2007,<sup>1</sup> evaluating the economic impact of counterfeiting and piracy, listed the pharmaceutical industry as a prime target for counterfeiting.

With the report highlighting “medicines used for treating cancer, HIV, malaria, osteoporosis, diabetes, hypertension, cholesterol, cardiovascular disease, obesity, erectile dysfunction, antibiotics, etc,” it seems no medicine is safe from counterfeiters. And counterfeiting is less risky and much more profitable when compared to other fraudulent activities. For example, during a recent international anti-counterfeiting congress in Geneva,<sup>2</sup> a Pfizer representative mentioned that where heroin trafficking could generate a 200% profit, a counterfeited Viagra active ingredient could generate one of 2186%.

One may be tempted to think that Europe is safe from drug counterfeiting. But the globalization of the supply chain has led to recent cases that have shown this not to be true. A July 2007 seizure of 600000 antibiotic pills with a street value of €300000, at Brussels airport, intended for European distribution, is one example.<sup>3</sup> We acknowledge the reality of the globalization of trade, but are we aware of the globalization of counterfeiting? Buying medicines on the internet is now a likely way to end up with fakes: recent estimates show that half the drugs bought online are actually counterfeit.<sup>4</sup> And now even the supply chains of legitimate companies are in danger due to the ingenuity of the defrauders, who are attracted by high profit and low risk.

## Should buying drugs online be prohibited?

Christophe Zimmermann, head of the anti-counterfeiting task-force of the World Custom Organization in Brussels, thinks so.<sup>5</sup> But can the worldwide penetration of online shopping be stopped? Leading drug manufacturers have already recognized that online buying is a convenient and efficient way for many people to get the medicines they need, as long as the authenticity of the drugs can be assured.

This is the heart of the issue. Though customs and tax authorities may be losing revenue and there may be damage to the reputations of genuine manufacturers, the potential damage to consumer health is the most crucial concern. So will there be a point when the consumer is in a position to distinguish genuine medicine from fake medicine, whether it is bought online or elsewhere?

## Current technologies

Many anti-counterfeiting trials and roll-outs are being conducted by the leading pharmaceutical manufacturers. The most well known is the introduction of radio frequency identification (RFID) tags on Viagra pill boxes in some markets.<sup>6</sup> Other manufacturers are using DNA markers in the form of hidden molecular tags. But these processes require special detection devices, such as electromagnetic readers or dedicated chemical scanners, which are as yet unavailable to consumers.

Another approach is based on the individual identification (track and trace) of each package with a unique electronic product code (EPC). This code can be contained in a new two-dimensional pattern, similar to a bar code. A camera phone or a webcam can be used to read the EPC and send it to a central server. The server will send back information issued from the manufacturer’s supply chain, provided it maintains an online database tracking each individual package.

But with hundreds of millions, even billions, of items needing to be managed individually, the cost of such a service is extremely prohibitive. Moreover, as the two-dimensional codes are visibly printed on packaging, counterfeiters can easily reproduce them and thereby disrupt the whole EPC information system. Other counterfeiting techniques also use genuine secondary packaging with genuine EPC coding



filled with fake primary conditioning or a mix of genuine and fake content. Therefore a visible identification is not enough to really protect a genuine product.

## Covert or overt?

Just as for the banknote — the most frequently counterfeited product since commercial business as we know it began — a sound anti-counterfeiting solution should combine two or more security features. Visible ones can focus the

counterfeiter’s attention, while invisible marking will really do the job. But how could the individual consumer verify the presence of invisible security marking?

Recently, Swiss-based company AlpVision introduced an invisible marking<sup>7</sup> that can be applied to the entire primary (blister pack) or secondary packaging without altering them. The process uses standard ink and packaging production lines. The authentication is performed either via flatbed scanners, digital cameras or camera phones driven by dedicated software running on any PC or PDA phone (**Figure 1**). A secured server located in a safe location and managed by the original manufacturer can remotely analyse the image of the primary or secondary packaging taken by a flat-bed scanner or a camera phone. The verdict “genuine” or “fake” is returned after a few seconds. As the solution only uses off-the-shelf consumer electronics and standard production lines, it is the most cost effective of the market, and it could be used by hundreds of millions of consumers already equipped with PCs or camera phones.

## Things to come

The ongoing proliferation of the internet and consumer electronics development will continue to provide new opportunities for counterfeiters. But they may also provide new solutions to help in the fight. On one hand, counterfeiters can now reach

anyone in the world with an internet-connected PC or mobile phone to offer their wares. The end-user, however, will be able to access information centres that can perform authentication processes any time, anywhere, regardless of their position in the supply chain. But this will need more investment from the original manufacturers.

No standard, universal solution can cover the wide variety of drug conditioning. Carton boxes, aluminium and polymer foils, glass and polymer bottles all need to be considered. This will increase the solution providers with specific expertise for solid, liquid or folding box and blister packaging. The future promises to be very interesting. It will certainly show an increase in the involvement of the consumer organizations. Any serious brand manufacturers interested in effectively fighting counterfeiting from the early stage of their product development will surely be required to invest more heavily in the information technology.



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### About the Author

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