

The MITAS Touch – Marks Everything But Air!

At the recent *Tax Stamp Forum™*, we were happy to welcome Kyle Parker, Group CEO of MITAS Corporation, who spoke about the group's 28-year journey from its original activity of producing human-readable product markers, to being 'pulled in the direction' of brand protection, authentication and track and trace.

The name 'MITAS' is composed of the first letters of the group's main offerings: Marking, Identification, Traceability, Automation, Authentication, Systems and Solutions.

The corporation is based in South Africa and encompasses a number of direct fully owned divisions, as well as associated businesses with a partial or major shareholding.

The businesses include:

- Traceability Solutions, the group's core business, involved in marking and identification technologies for the primary metals, engineering, automotive, aviation, mining and construction industries;
- TracePack, a marking, labelling and coding company;
- Pagemark Africa, for secure document, coding and printing technologies – including technologies for tax stamps;
- Informed Decisions, an 'Industrial Internet of Things' (IIoT) company offering customers visibility with regard to the performance and supply chain of their products. For example, the company's *SmartDraught* technology is a complete flow-monitoring and asset management solution for beer management.

In all, MITAS consists of 11 business units divided into three companies, and employing a total of over 40 people, based in South Africa, with a presence in seven other African countries.

The associated businesses provide complementary offerings which leverage other entities in the group, to create end-to-end, bespoke solutions. 'Our diverse portfolio of businesses provides the most comprehensive range of solutions offered anywhere in the world. From tagging red hot billets of steel at over 1200°C, to marking items immersed in liquid nitrogen; from marking products on stationary or slow manufacturing lines, to 120,000 items per hour – and faster; and from standalone to portable – the only thing we cannot mark is air... and we are working on that!' declared Kyle.



Over the years, the group has built up products and solutions for 'every manufacturing environment you can mention,' said Kyle. It all started with the human-readable marking of products, and moved over time into machine-readable markings for traceability purposes.

Initially, the focus was on Direct Part Marking (DPM) for proof of manufacture and batch ID needs, using technologies such as laser and *Pinstamp®*, for deep penetration marking, as well as the complementary technologies of labelling, tags and inkjet printing. (DPM is the process of permanently marking product parts with information that includes serial numbers, part numbers, date codes, and barcodes, in order to allow the tracking of the parts through the full life cycle.)

As the marking needs of clients started to change – in response to the growing threat of illicit trade in various industries – the MITAS group moved into the domain of machine-readable and unit-level traceability technologies, as well as covert and forensic technologies to assist in authentication, and solutions to help industries with governance and compliance to standards.

So where do tax stamps come into this?

As Kyle explained, the move into tax stamps came about as a result of his African clients coming to him for assistance in implementing their tax stamp systems, rather than him reaching out to them. However, in his view, tax stamp systems represent a number of challenges that may in some cases be better served by direct tax marking solutions.

'African countries face some special circumstances when adopting tax stamps,' said Kyle. 'These include old manufacturing lines that are more labour-intensive than those in modern first world countries, and infrastructure challenges from physical locations, IT systems, networking connectivity, skill levels and technical know-how. In addition, large multinationals are faced with multiple configurations and government requirements, where no two countries and production lines are the same. Furthermore, high-speed lines such as those used for beer cans require considerable changes to comply with the application of physical tax stamps.'

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Kyle therefore believes that direct digital tax stamping (DDTS) should be considered when:

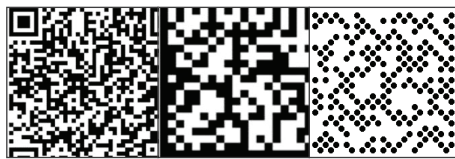
- The use of physical tax stamps will reduce production line speeds;
- The value of the product – or its risk of being the target of illicit trade – is low (ie. water/beer compared to wine/spirits);
- There are space constraints and other limitations in existing production plants for stamp application equipment;
- There are budget and timeline constraints for implementation;
- The shape of, and space available on, the product pose challenges in applying physical tax stamps (ie. beer cans);
- The risk of re-use of primary packaging is low (ie. beer cans).

So what do direct digital tax stamps look like?

Kyle explained that a secure DDTS system can consist of a human-readable alphanumeric sequence and a unique machine-readable 2D barcode that can be scanned by a smartphone for verification, and that is printed with security inks.

He advised that the different 2D code symbologies that are currently best suited for DDTS are QR codes (which are commonly seen but slower to print), as well as DataMatrix (which are versatile codes with wide adoption in many industries), and DotCode (which are well suited to high-speed printing).

As far as application of the codes to the product is concerned, Kyle advised that the best method of applying DotCode and



2D codes – QR, DataMatrix and DotCode.

DataMatrix is by continuous inkjet (CIJ). CIJ can print more than 700 metres per minute, or 120,000 items per hour, depending on the number of lines of print. It can also print with inks embedded with taggants and other security features, and can be combined with secondary security markings such as UV inks or coatings.



Another form of inkjet printing is thermal inkjet (TIJ), which is slower than CIJ but delivers a higher resolution. This is ideal for small and medium manufacturers and can also be used to print UV and food-grade (edible) inks. Kyle also recommended combining DDTS with additional, multi-level authentication solutions. While the codes themselves can be encrypted and printed with embedded covert features such as taggants and invisible UV/IR- luminescing ink, they should ideally sit side-by-side with visible features, such as colour-shifting ink and holograms, which cannot be effectively incorporated into an inkjet-printed code.

In fact, Kyle conceded that, with all its advantages, DDTS alone cannot currently offer the same high level of security as a tax stamp, given that, among other reasons, the range of security features available for printing on a tax stamp, or other kind of label, exceed the range of features that can be embedded into a directly printed code.

As a last point, Kyle recommended bringing in other elements of the product packaging (such as the bottle, label and closure of an alcoholic beverage) to create a combined tax stamping, anti-counterfeiting and anti-illicit trade solution that also engages the consumer and his smartphone.

‘Don’t underestimate the power of consumer involvement,’ he advised.

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