

Countering the Counterfeiters

Counterfeiting is nothing new – indeed it has often been called the world's second oldest profession (no prizes for guessing the first). Counterfeiting of money has been going on ever since the invention of physical money in around the 6th century BC. The main deterrent for counterfeiting in historical times was punishment – generally capital punishment, as it was considered a crime against the state. In our more enlightened time, technology is providing the answer.

In this issue, we take a look at four new developments to protect gold bars and commemorative coins from counterfeiting.

Digital passport for gold

First, digital fingerprinting specialist Alpvision has announced that it has been accredited by the LBMA Gold Bar Integrity (GBI), which will allow the company to partner with major players across the global precious metals industry as part of the GBI Security Features initiative. Launched by LBMA and the World Gold Council (WGC), the GBI initiative aims to digitally monitor gold as it moves through the entire global supply chain, making it easier to mitigate illicit trade risks and reduce the likelihood of fraudulent bars entering the formal supply chain.

Alpvision's Fingerprint® technology identifies the unique microscopic characteristics on an item's surface (its 'fingerprint') and converts this to a code that can be verified with a smartphone app. The solution, which is simple to deploy and involves no changes or additions to the product, can be implemented both during production and for products that are already in the market.

According to Fred Jordan, CEO and co-founder of Alpvision, 'this exclusive LBMA accreditation is the ultimate pledge of trust. It is a testament to the quality and conformity of our digital invisible anti-counterfeiting technologies that can be integrated into the manufacturing processes with no additional cost, and last for a bar's entire lifecycle. It's the gold's digital passport!'

The LBMA and WGC introduced the GBI Security Features initiative in 2020, and the associated application process opened in 2021. LBMA's review panel of technical experts considers the application and determines if it meets the criteria, which include:

- **Bar Integrity** – the Security Feature must not significantly affect the integrity or quality of the bar in terms of weight or purity.

- **Applicability** – the Security Feature must be applied during the production of the bar and prior to storage or dispatch.
- **Robustness** – the Security Feature must be robust and readable for the lifecycle of the bar.
- **Readability** – the Security Feature must be readable under normal vault conditions.
- **Infrastructure** – the Security Feature should not require significant investment in additional reading or handling equipment. The Security Feature should be readable using existing technology such as bar code readers or high-resolution cameras.
- **Longevity** – the Security Feature should be adaptable to ensure future proofing. It is expected that the Security Feature will adapt to ensure that unforeseen threats are mitigated against.
- **Cost** – The Security Feature should not significantly add to the production costs of the bar.

Ink-Based Security Solution

Another company that has just announced that it is now accredited by the GBI is Swiss-based security ink specialist SICPA, with BullionProtect®.

As described in the October issue of Coin & Mint News™, BullionProtect, which was jointly developed with the Swiss-based refiner and coating specialist Metalor Technologies, is an integrated solution comprising a security image applied directly to the bar and bespoke validation devices.

The security image is based on SICPA's OASIS®, an ink comprising liquid crystal pigments which produce a colour-changing design effect when viewed under a polarising filter. The ink adds negligible weight to the bar. Verification can be made in seconds, with a credit sized validator with two polarising lenses; under one the design turns green and under the other the pattern brightens.

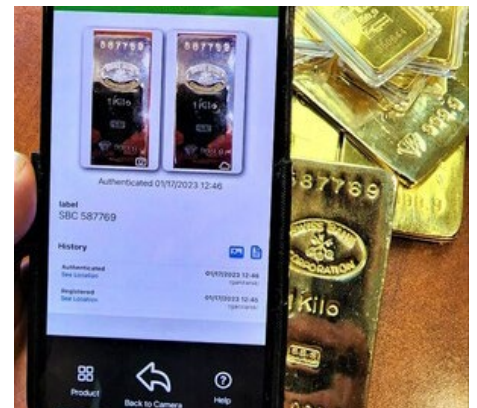


Visual authentication can also be performed with a specific flashlight – which is best suited for poor lighting conditions or large volume verification and which reveals, through two alternating beams, the same colour and pattern changes as the credit card-sized validator. With the flashlight option, up to 100 secure seals can be validated per minute.

In addition to the visual elements, a unique QR code is also embedded in the image, readable by any smartphone.

Creating a digital twin

A third company accredited by the GBI is US-based Alitheon which, like Alpvision, also offers a digital fingerprinting solution.



FeaturePrint® is an optical AI technology that digitises items to create a one-of-a-kind unique identifier that, again, does not involve any marking, modification or addition to the product. Using a camera, FeaturePrint enables identification, authentication, and traceability of individual items out of millions of similar ones.

According to Alitheon, the system is driven by optical AI algorithms that automatically identify and codify the unique attributes and features inherently existing on the surface of the item. It then creates the one-of-a-kind FeaturePrint, effectively a digital twin.

While FeaturePrint is well suited to the new worlds of distributed ledgers and NFTs, Alitheon says it is equally at home with old-world bars of gold.

In October 2022, Alitheon signed a letter of intent with blockchain-based platform aXedras to link and integrate its FeaturePrint technology into aXedras' blockchain-backed Bullion Integrity Ledger™. The aXedras solution is the underlying data platform ensuring data and product integrity in the bullion market along the value chain of precious metals.

The aXedras solution refers and connects to security feature technologies used by refiners to enable vaults and investors to