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Peso goes polymer in Mexico

Banco de Mexico (BdM) issued its first polymer banknote on 30 September 2002. The 20 Pesos is similar in design to the paper banknote it replaces.

The major difference is the high security transparent window, which includes an emboss of the number “20”. The complex window is an integral anti-counterfeit feature of polymer banknotes, and is an effective deterrent to scanning and photocopying.

Mexico is the first North American country to adopt the technology. The decision comes after the success of Banco Central do Brazil, which successfully issued a high-circulation 10 Reais polymer banknote in 2000.

Banco de Mexico Governor Guillermo Ortiz (right) and Australian Treasurer Peter Costello hold the new 20 Pesos

The new 20 Pesos featuring the portrait of Benito Juarez

The primary reason for Mexico’s switch to polymer is the note longevity.

The 20 Pesos paper notes change hands rapidly and deteriorate faster than other banknotes, and the move to polymer will improve the longevity and circulating condition of banknotes.

The new banknotes were printed at the BdM printing works, with a smaller initial quantity supplied by Note Printing Australia. The banknote incorporates a host of security features in addition to the complex window, including magnetic security thread, shadow image and see-through registration. The clear intaglio on the front of the note also provides the tactility the public is familiar with.

Quality assurance

– an effective counterfeit deterrence technique

In this edition of IPCA Bulletin, President of San Diego Magnetics, Dr Tomasz Jagielinski (pictured), explains the significance of quality assurance in the making of polymer substrate and magnetic features.

Magnetics technology has been used to add hidden information in polymer banknotes and high value polymer documents. Magnetic materials are used in the special inks and threads used in polymer substrate.

In the case of paper notes the thread is inserted into the substrate and the note becomes thicker in the area of the thread (protrusion). Therefore, position of the thread in paper notes of the same denomination has to vary to avoid a stacking problem.

Unlike paper notes, threads in polymer notes can be placed in exactly the same position. A magnetic-type thread is encompassed into polymer substrate during substrate production. One can determine there is no discernible thickness difference between the thread area and the rest of the note, simply by touching the note in the area of thread.

The choice of unique, difficult to duplicate material, and tight control of its properties is the first step in creating an effective magnetic security feature. The quality of the incoming materials is certified. Then the position, intermittent pattern or shapes are precisely controlled during the substrate production process.

San Diego Magnetics

Unlike other verification systems that perform post-production quality assurance of single notes, the Securency system – using the MicroDAST™ sensor from San Diego Magnetics – detects the level of magnetics embedded in polymer substrates prior to printing currency. This system provides 100% in-process verification of the material, resulting in less waste, higher efficiency and enhanced security in the end product.

During production of the polymer substrate, the MicroDAST™ Sensor Array System detects and measures the amount of magnetics and their location in the polymer material. This quality control capability guarantees consistency in the feature and provides banknote substrate that requires no further testing to verify magnetics.

Device testing

Cleanroom photo lab at San Diego Magnetics

Dr Jagielinski has more than 25 years of experience in high technology fields including magnetics, sensors, thin film devices, data storage, bio-sensors, and currency and document security. San Diego Magnetics is a leading independent commercial source for specialty thin film devices and thin film detector system solutions.

Nepal's currency goes to the top of the world

Regal designs blend with leading edge technology for the Nepal Rastra Bank (NRB), with its issue of the 10 Rupee polymer banknote on 30 September 2002.

The note features a portrait of King Gyanendra Bir Bikram Shah. The complex clear window, a prominent feature of polymer banknotes, houses a security vignette of the crown (head dress). Nepali coronation text encircles the "window" and His Majesty also appears as a "shadow image" on the right side of the note. Key security features include microprinting and metallic thread.

With a circulation of 50 million notes, the launch was timed to coincide with the country's biggest festivals Dashain and Tihar. The note will replace the paper 10 Rupee.

The new Nepal 10 Rupee

Regional Symposium on currency strategies

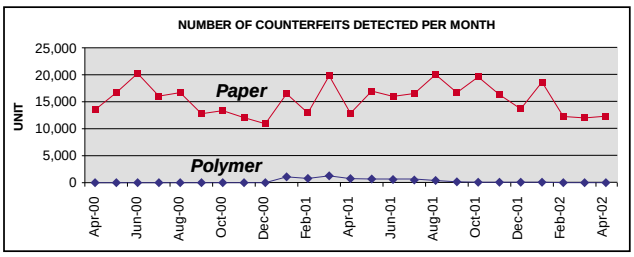
Jointly hosted by Banco Central do Brasil (BCB), Casa da Moeda do Brasil (CMB) and Securency, the Regional Symposium on Currency Strategies was held in Rio de Janeiro from 30 June to 3 July 2002.

The Symposium provided an opportunity for delegates from central banks and state printing works in the Latin American region to meet and exchange information on currency strategies.

The event featured a line-up of informative presentations as well as constructive discussions on polymer banknote experiences. Topics encompassed the security and durability of Guardian® polymer banknotes, highlighted by facts and figures of financial and operational benefits currently enjoyed by polymer issuers.

The Regional Symposium panel (from left) Sergio Detoie (Securency), Alvaro de Oliveira Soares (CMB), Myles Curtis (Securency), Fernando Malburg da Silveira (CMB), John Leckenby (NPA) and (standing) Jose dos Santos Barbosa (BCB)

In his presentation, Jose dos Santos Barbosa, Head of Note Issue Department, Banco Central do Brasil, revealed comparative figures between the paper 10 Reais and polymer 10 Reais, which are currently circulating simultaneously.



Source: Banco Central do Brasil (BCB), July 2002

The data shows the stark contrast in counterfeit levels for both banknotes.

Brian Lang, Chief Manager – Currency Department, Reserve Bank of New Zealand stated, "In calendar year 2001 we discovered just 1.2 counterfeits per million notes in circulation, compared with 6.05 in 2000 and 10.67 in 1999".

"Also, most of the forgeries detected in recent times are the former paper note design. Attempts to counterfeit the polymer design have been negligible," he added.

Polymer. Your questions answered

Q. What are the criteria for designing a polymer banknote?

A. The critical consideration when designing polymer notes is the marriage between substrate design and traditional print elements. A good design creates a very secure note, utilising unique properties of the substrate and a selection of security features.

Window features, with or without internal devices such as transitory emboss, vignettes or DOE (Diffractive Optical Element), yield a secure element which makes it extremely difficult to forge. An important consideration with window design is to create a complex shape around the outer edge, and also to surround the window with a complex offset design.

Q. What is a complex window?

A. A complex window is a polymer security feature that combines the "clear window" and "shadow image" security features. In fact the complex window becomes an optically variable feature that has two distinct phases. In reflected light the shadow image is not evident and the clear window appears as a glossy surface, the public will only see the contrast of the clear window and the background printing or substrate.

Secondly, in transmitted light the shadow image becomes evident.

The combination of the clear window and shadow image creates a complex integration of multilayer designs, where the clear window and shadow image combine to produce a sophisticated multi-tonal security feature.

The clear window or transparent section of the banknote is now much harder to counterfeit and easier to identify when a fraudster attempts to "cut and paste" a piece of clear plastic into a photocopied paper simulation of a polymer banknote.

Mexico 20 Peso complex window featuring emboss of the number "20"

International events

Conference	Location	Date	Website
2003			
Pyrabelisk – Security Printing Conference	St. Petersburg, Russia	January 23–24	www.security-printing.com
Banknote 2003	Washington DC	February 2–5	www.banknote2003.com
Intergraf – 19th International Security Printers Conference	Montreaux, Switzerland	May 13–16	www.intergraf.org
2nd South East Asia Security Printing Conference	Shanghai, China	September	www.security-printing.com
Pacific Rim Banknote Printers' Conference	Banff, Canada	September 7–12	
IMF (International Monetary Fund) Conference	Dubai, UAE	September 23–25	www.dubai2003.org

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For more industry news, polymer facts and currency hot topics, look out for the next issue of IPCA Bulletin.

Your questions, comments and feedback are always welcome, including any information on industry events for inclusion in to the International events calendar.

Back issues of IPCA Bulletin can be found on the IPCA website: **www.ipca.au.com**

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