QUESTIONS & ANSWERS

Banknote Technology Webinar Series

(Nov. 19 -21, 2024)

During the webinar presentations, some questions from the audience could not be answered due to time limitations. Please find in this document the answers, which were provided by the presenting companies after the webinar.

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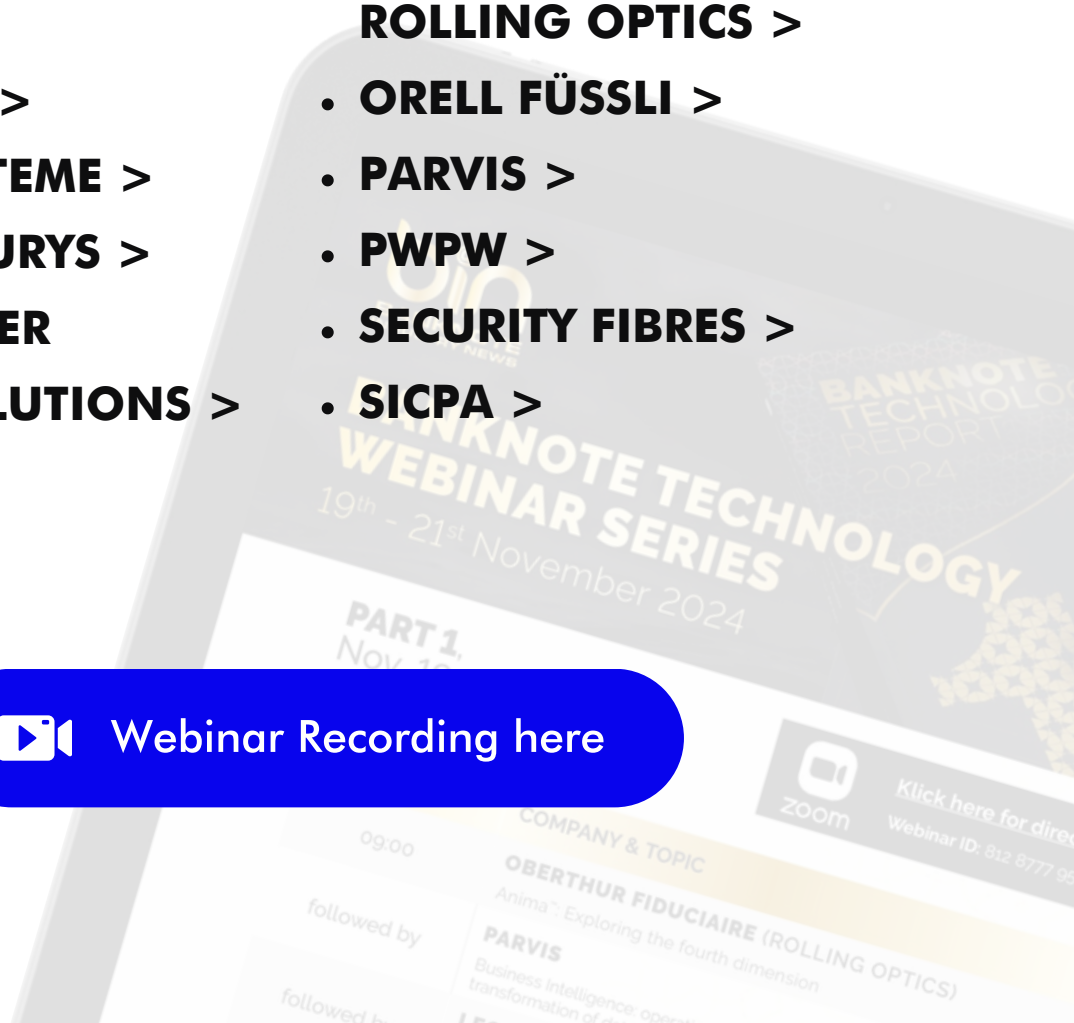


Webinar Recording here

BANQUE DE FRANCE

Q: You mentioned Everfit, a high durability solution that combines durable paper with polymer lamination. Could you provide more details about it?

A: Since the end of 2023, with the help of players in the circular industry and economy, we have launched the Banknote Life ® network with new application such as Interior design furniture 100% Everfit banknotes or industrial pallets made with shredded material and recycled plastic compound.

100% Shredded Everfit banknote stool are already commercialized by our partner Maximum Paris (see here)

Regarding our compound application (80% recycled polymer / 20% shreds) for plastic injection, the recycling industry gets off the ground. The compound is ready for commercialization. First application, producing re-usable polymer palettes, to implement circular economy with our paper mill customers is on the way. Call for tenders has been launched and the first palette will be in use end of 2025. Other applications are under discussion with partners .

Q: What stage have you reached with your shredded material valorization projects?

Since the end of 2023, with the help of players in the circular industry and economy, we have launch the Banknote Life ® network with new application such as Interior design furniture 100% Everfit banknotes or industrial pallets made with shredded material and plastic compound.

100% Shredded banknote stool are already commercialized by our partner Maximum Paris (see here)

Q: How significant is the contribution of production processes to the overall environmental footprint of banknotes.

A: Production (Raw material, Paper & Printing) represent only 13% of the environmental footprint of banknotes, 82% is distribution!

BLENDPAPER

BLENDPAPER

Q: Can you recycle printed banknotes, including threads, holograms and iridescent ink, and turn 40% of them with 60% fresh fibres?
A: Yes, we did it. Nowadays we are producing colored paper with 100% of recycle fibers and for banknote we already produced 100% too, but the best results are until 30% of recycle fibers.

Q: What about Eco breath paper, how we can apply this technology in other countries?
A: We can transfer the technology and to some papermill near of the central banks, than we can save energy for transportation.

Q: Does BP supply paper only for Latin America?
A: No, BP security supplies banknote paper for others countries, included Asia and Africa.

Q: Can BP provide the cylinder mould or BP buys from someone?
A: We can our watermark workshop, can we can produce our mould covers.

BOBST BOBST

Q: Holographic features with Bobst machine are usually applied on printed sheet or blank sheet?
A: In general holograms can be applied on printed or blank sheets. This depends on the application.

Q: Do you have 100% inspection control in line?
A: No, the NOVAFOIL 106 HOLOGRAM is not equipped with an inline inspection control system. However, BOBST does offer inline quality control systems, like ACCUCHECK, for other solutions. A potential integration into the NOVAFOIL 106 depends on the specific use case and could be reviewed.

Q: Does the machine makes real time traceability on single sheets?
A: No, the NOVAFOIL 106 HOLOGRAM offers not a real time traceability. However, BOBST might be able to offer a solution depending on the specific use case.

Q: Is there any printer on the market that are using this machine within the banknote production?
A: Yes, the NOVAFOIL 106 HOLOGRAM is used within the industry for banknote production. Demonstrations or tests can be arranged in the BOBST Packaging Centre at Lausanne, Switzerland or together with LEONHARD KURZ at Fürth, Germany.

Q: Can ACCUREGISTER work also without register marks?
A: ACCUREGISTER is an optical sheetfed registrations system, which assures a perfect registration either by printed register marks, sheet edge or print image. ACCUREGISTER reduces feed related stops at the intro section by up to 80 % and allows efficient processing of challenging material.

BOBST
(CONTINUED FROM PREVIOUS PAGE)

Q: Is the NOVAFOIL always equipped with HOLOGRAM modules?
A: No, not always. NOVAFOIL 106 allows maximum versatility for the converter. Depending on the required application the NOVAFOIL can be equipped with inline foil, cross foil and hologram modules.

Q: What does it mean "DMT" and can the DMT also be placed next to the machine?
A: DMT stand for DIGITAL MAKEREADY TOOL. By using a projector, the digital artwork file can be projected on the honeycomb chase. Stamping dies can be easily aligned to the projection without the need of a plastic film. DMT reduces drastically the downtime during a setup and simplifies the operator intervention. DMT also reduces the quantity of waste sheets during the setup. DIGITAL MAKEREADY TOOL can be attached to the machine above the stamping station or can be installed "offline" above a chase changer or attached to a wall e.g. within the tool preparation department.

Q: What does it mean "OACS" and how does it work?
A: OACS stands for Optimized Advance Calculation System. Everything starts with an idea of a brand owner. And such ideas are treated within digital files for the artwork and structural design. Within OACS Connect, digital files can already be used within the prepress department to calculate best film advance combinations and of course film consumption. By doing so, the machine itself is not blocked. As soon as prepress has defined all relevant parameters, they can be sent to the NOVAFOIL. The operator can use such presetting and reduce downtime during a machine setup.

BUNDESDRUCKEREI

Q: How much black ink is needed for the production of one banknote?
A: There is no black ink needed, because the banknote is dyed directly at the papermill using dye and not ink.

Q: Can any PMs produce black substrate or specific know how is needed?
A: Anyone can produce black substrates and there is no specific know how needed. The papermill only needs to have a possibility to dye or colour the substrate.

Q: Are there any plans to use a black banknote in circulation?
A: We would highly appreciate to realise a commemorative banknote benefitting from the innovative new design possibilities of printing light on a black substrate. Discussions about this are already taking place.

Q: How do you detect if there is dirt on a black banknote?
A: This depends on the sensitivity of the detection. On a black substrate it is difficult to detect dirt immediately and this is also an advantage of a black substrate. Of course, on foils and bright colours the dirt can be detected more easily.

Q: How is the cost situation of a black (substrate) banknote vs standard?
A: Since all you need is a black carbon pigment the colouring does not have such a big impact. Besides, polymer substrates need to be printed as well after production.

BUNDESDRUCKEREI (CONTINUED FROM PREVIOUS PAGE)

Q: On your last slide, we could read »more to come«. What does that mean? Are there more black notes to come?

A: We plan ExNihilo to be a series of four black banknotes. They are all interconnected not only in terms of their theme but also their denomination. You've surely noticed that there is no conventional denomination on our house notes. It is not a 10 Dollars or 50 Euros denomination. It is a temperature instead: the average surface temperature of the sun. And so are the other notes of our new series: They all show different temperatures. These temperatures indicate different states of carbon. And these states connect precisely the corner stones of the story we want to tell: The story of black carbon as it unfolds in the universe.

Q: You were an essential part of the team who designed the Swiss banknotes and you were responsible for the design concept. Now you made a concept for black banknotes. Can anything from the Swiss be recognized in the black banknotes?

A: With both, I placed great emphasis on a stringent and compelling story, a story that is not limited to one single note but that is extended over the whole family. And they both bear witness to my passion for particle physics and astrophysics. In ExNihilo, we illustrate the journey of carbon from stardust to diamonds. And on the 200 Swiss Franc there is an illustration of the big bang and the particles emerging from it. They both share a sense of radicalism: A radicalism for the story that can be discovered in every detail, even in the microcosm of the note: Because even the smallest raster detail is designed to match the theme and to become part of the story. And last but not least, something very trivial: Both have the same layout: Both are in portrait format.

BUNDESDRUCKEREI (CONTINUED FROM PREVIOUS PAGE)

Q: How did the industry react when you confronted them with the idea to create black banknotes?

A: When they realised that we were serious about it, they were actually all very enthusiastic and developed many ideas to overcome this challenge. Because they all knew: If you find a solution that works on black you will be way ahead of the others. It gives you a security advantage over the other ones making your solution and making black banknotes in general even more secure.

Q: Does the journey from paper to nothingness tell us something about what money is? Does it change the way we answer this question?

A: Yes, I think it does. If electronic or digital money works (what it obviously does) it tells us what money is not. Money is not necessarily something material. The essence of money cannot be constrained to something material. Money works perfectly in our society without having a material representation or manifestation. So, money must be something in our head: a convention, a rule, a system or maybe even a way of organising the world. Money can have a materialistic representation but it doesn't necessarily need to have it.

CASH INFRA PRO

CashInfraPro
cash and cashless infrastructure

Q: What is in your option the main drivers for automation in cash centers?
A: The prime objective of the cash center operators is to increase process efficiency, accuracy and speed through automation and digitalization. The underlying factor is scalability, as automation supports to trade larger cash volumes and shipments in the same space with higher speed. Labor market issues, for example in many European countries, are forcing companies to make their operations resilient and less dependent on personnel costs.

So, high labor costs and dependancy on personnel (cost and qualification) is one of the main drivers besides efficiency gains.

Q: Everyone immediately asks about robotics and AGVs when they think of cash center automation - why do you only talk about “simple logistics on wheels“?
The initial investment costs and the operating costs for the systems are the main deciding factors as to whether a new technology is installed or not. Studies in other industries and by Cash InfraPro show that the return on investment (RoI) for AGVs/ AMRs does not meet customer requirements - meaning the cost of the technology must continue to fall in order to be competitive with easy-to-use manual systems.
Nevertheless, investments in cash boxes and trolleys should be made in the "right systems" that can be upgraded later without the need for new investment in the basics.

CASH INFRA PRO
(CONTINUED FROM PREVIOUS PAGE)

Q: What should be a first step to automate in a cash center? What are the advantages?

A: The RoI are positive for greenfield investments to automate the storage systems in a vault. New technologies are available which enables the clients to plan the future cash processes differently based on automation of the vault by AS/RS technique. These systems utilize goods-to-person technology to optimize space, improve order-picking speed and accuracy, and cut labor impact. By seamlessly integration with Warehouse Management Systems (WMS) and data-driven Warehouse Control Systems (WCS), the AS/RS provides continuous, real-time inventory reporting and enhance storage density in comparison to a manual or semi-automated vault organization.

So, investments in WMS and in AS/RS system pays off for greenfield cash centers , and depending on the building structure as well for brownfield cash centers.

Q: The integration of the various technology systems is a critical point in the implementation - how can this challenge be overcome?

A: The answer is to set up the project with the right organization and qualified personnel resources who know and master the critical points in the project. These may be internal experts or experts from outside the organization. However, no one should be under the misapprehension that a general contractor/ turnkey provider is always the right alternative, whether from a technical or legal perspective. This is because no supplier worldwide can cover all the trades required in a cash center project. Therefore, we recommend to engage project experts/ engineers who can manage and control the suppliers on behalf of the client - to ensure the success of the project - especially at the interfaces between the trades/ between the suppliers.

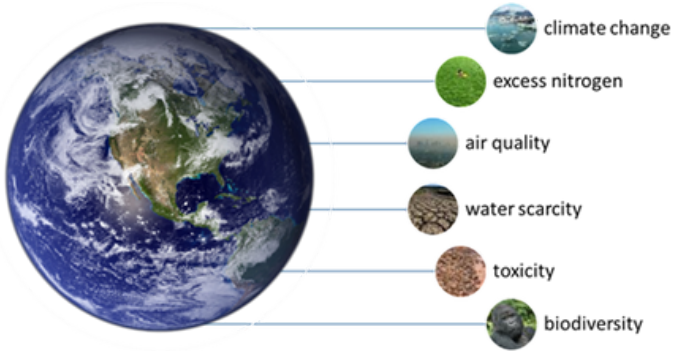
CCL SECURE CCL SECURE

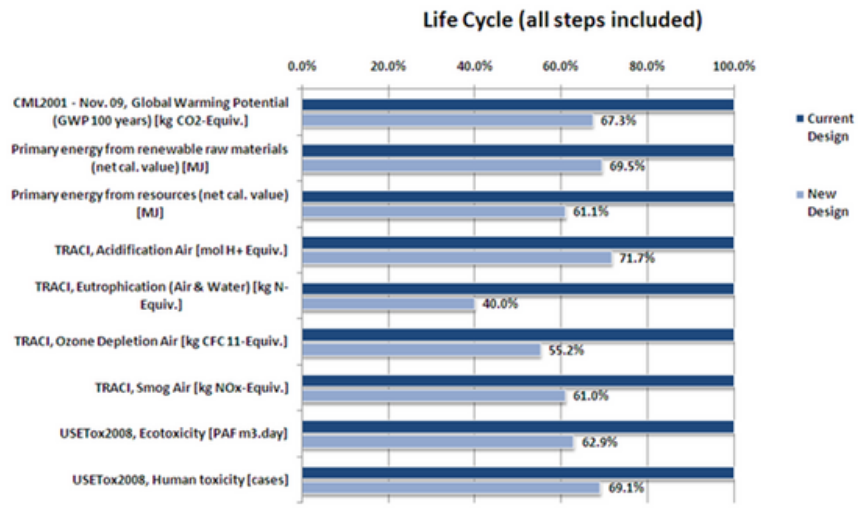
Q: Has CCL Secure conducted a full lifecycle (Cradle to grave) carbon footprint analysis to compare a cotton banknote with a polymer banknote and how does it compare?

A: Studies have been completed by Banco de Mexico (as presented in this webinar), Bank of Canada and Bank of England have and the LCA's are all published. In all three studies polymer banknotes had between 30% and 99% less impact on the environment across all measurement categories.

The measurement categories can be grouped into 6 areas, as shown below, so don't just cover global warming but all factors impacting on sustainability:

The measurement categories can be grouped into 6 areas, as shown on the right, so don't just cover global warming but all factors impacting on sustainability:

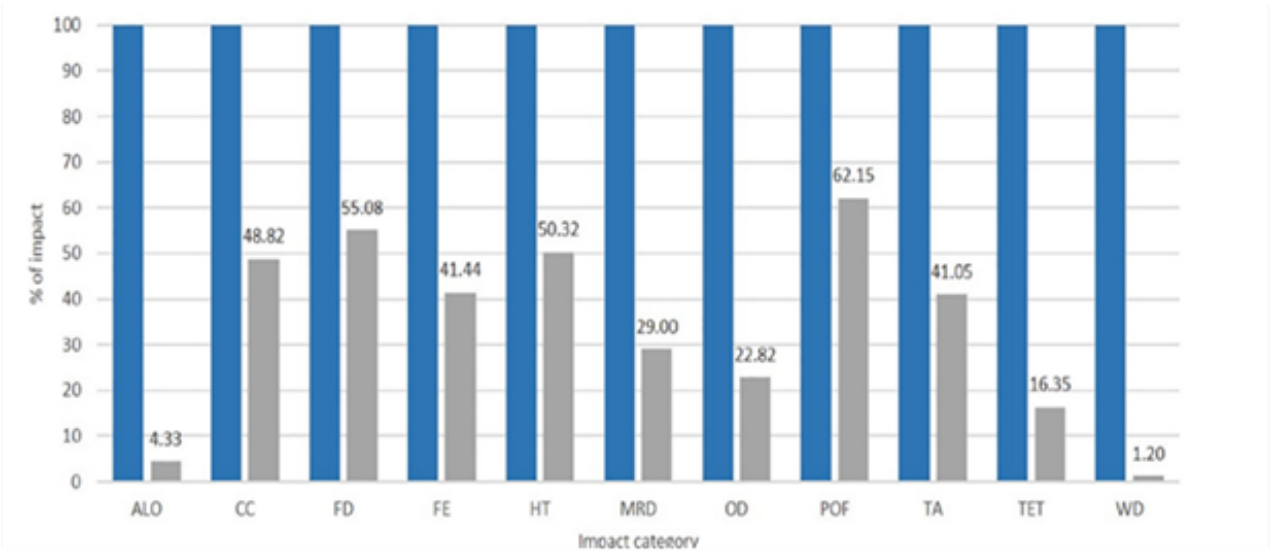




The BoC Summary across their categories (dark blue is paper, light blue is polymer). Polymer notes had 30% to 50% less impact on an assumed note life of 2.5 times. In reality the BoC measured note life is 3-5 times that of paper

CCL SECURE (CONTINUED FROM PREVIOUS PAGE)

The BdM Summary: (Light blue is long life paper and grey is polymer). Here the impact is 40% to 99% less.



ALO (agricultural land occupation), CC (climate change), FD (fossil resource depletion), FE (fresh water eutrophication), HT (human toxicity), MRD (mineral resource depletion), OD (ozone depletion), POF (photochemical oxidant formation), TA (terrestrial acidification), TET (terrestrial eco-toxicity), and WD (water depletion). Each figure is normalized to the highest value

Q: What about waste beside substrate or Banknotes for a Central Bank? If you think of features and inks or cash cycle aspects in terms logistics, ATM etc.

A: Yes, we consider this too. If 3 to 5 less notes need to be replaced every year, there is also 3-5 times less inks, foil carrier, printing, packaging, transportation for production and around 50% less notes in CiT transport and sorting from the central bank to cash centres. Cash cycle recycling also helps here, to increase the number of notes checked for authenticity and wear in circulation without being transported back to a central bank. We therefore have some good machine readable features in polymer notes for high level authentication by machine.

CCL SECURE (CONTINUED FROM PREVIOUS PAGE)

Q: What advice would you offer to a polymer using central bank seeking to recycle low annual volumes of waste, but with no local recycling facilities?
A: They can use a regional recycler. So store the polymer shred until there is enough volume to fill a shipping container. We do this in Central America where banknote shred is taken back to our CCL/Innovia plant in Mexico. In most countries we however find a local recycler.

Q: How do you know how many banknotes are recycled every year?
A: The cash cycle is ideal for recycling as it's a closed system. All waste is reconciled and notes are recorded when issued and withdrawn by the Central Bank, so there is little to no loss from this system. CCL can therefore trace each sheet and banknote printed on Guardian until its deemed unfit. We then know if the central bank is storing their note shred or have a system set up for recycling.

Q: How do you know the life of a banknote? Or phone?
A: Many Banks issuing polymer notes have studied the transition and see note life is 3 to 5 times that of paper. This is also reflected in their note issue and destruction figures. The ratio is not dependent on factors such as climatic conditions but the ability of Banks to issue and withdrawal notes from circulation. In many counties from Mexico to Romania polymer notes are in circulation over 6 years.

CRANE CURRENCY

CRANE CURRENCY

Q: Are there any plans for a MOTION SURFACE® patch?

A: I believe this was one of the answers we fielded during the broadcast. It is one of the advantages of MOTION SURFACE® that we can design in areas that are fully transparent, as well as print over it, so we have seen most central banks interested in working with a stripe to achieve a desired integration and final result. This is also helped by the feature's ability to have several discrete visual effects, including strong 3D visual cues, movement and animations. There are one or two central banks with which we continue to work on patch designs but in general most enjoy working with the larger creative area afforded by a stripe.

Q: For polymer windows, is it possible to have different colours of MOTION SURFACE on either side of the note in the polymer window area?

A: No. We have not as yet encountered this request from central banks. The primary interest remains the creation of strong (high contrast) visual effects that are easy to verify. It is worth noting, however, that when the inclusion of additional colors can increase public ease-of-use, there is strong interest. This has been the case with RAPID® Vision in which the additional complexity of multicolor movement has been shown to promote faster public authentication.

Q: How wide is the MOTION SURFACE stripe in the Crane new house note? In the Banco de Mexico note?

A: The width of the MOTION SURFACE stripe on the Jalisco House Note is 12 mm, and on the 'Beauty of Life' House Note it is 18 mm. As noted, the Jalisco House Note was completed last year, and the Beauty of Life House Note will be distributed next year.

CRANE CURRENCY (CONTINUED FROM PREVIOUS PAGE)

Q: Do you really turn around a full MOTION SURFACE design in just a day, or over a single night?

A: While our design software makes it possible (and we managed to do it during the Global Currency Forum), we would never do this for a central bank's banknote. The design process produces its best work through iteration, and that is one reason why the software is so valuable. It allows us to create virtual renderings of all the possible visual effects that are desired by a central bank very quickly and customize them for integration into the overall design of the banknote. It's a process that usually takes some weeks. You can read more about how Crane worked with the Banco de Mexico on its Jalisco Note here. The exercised demonstrated how talent, software and experience all came together to create a very positive outcome.

Q: **What would you say is the benefit of these MOTION SURFACE stripes versus for example, Crane's latest RAPID Vision security thread?**

A: Thanks – MOTION SURFACE enables the creation of effects that to date no other security features are capable to produce, and these are strong 3D animated and morphing effects and high contrast movement effects. MOTION SURFACE is a feature that can tell a story: simply, dependably, and securely. The feature's ease of use is deceiving. Even a single visual effect is extremely difficult to produce, but a MOTION SURFACE stripe can support several different effects. These are all uniquely created and yet can still be designed to communicate a unified theme. In this case size, i.e., 'more' and 'bigger', is not about more of the same, but an enabling innovation that unlocks a great potential to communicate quickly and securely.

On the other hand, RAPID® Vision, RAPID® HD, and MOTION® security threads offer great security in a different way. These provide it through effects that are verified extremely quickly and easily based on movement effects that are themselves very difficult to produce or even simulate.

CRANE CURRENCY (CONTINUED FROM PREVIOUS PAGE)

Q: What interest do you see from Central Banks? – For example, those using polymer banknotes versus paper banknotes?

A: In terms of MOTION SURFACE, interest by central banks issuing banknotes on both paper and polymer. Of course, we see as nearly universal that all central banks are interested in the latest security technologies, but especially those having track records of proven high performance in durability, design integration and in-the-field performance (note again the rigorous testing conducted by, for example, Banco de Mexico). For central banks issuing polymer banknotes, there is an acknowledgement that paper banknotes have historically had more options from which to choose. In this respect the durability and security of MOTION SURFACE on polymer is eliciting strong interest, which will be demonstrated soon in the form of polymer banknotes issued with MOTION SURFACE.

DE LA RUE

DeLaRue

Q: How is ASSURE™ differentiated from competitors level 3 taggant banknote polymer features?

A: Apart from the method and parameters of detection which we can't discuss in this forum. The principal differentiation is that ASSURE™ is embedded into the polymer core of theSAFEGUARD® substrate. This means that ASSURE™ is distributed across the whole banknote and in the layer of the banknote which is most highly protected. Most other Level 3 features are introduced into a banknote in either the later print layers or varnish and only in specific areas of the banknote, potentially making them vulnerable to wear in service.

Q: So does the ASSURE™ feature gets applied only into the DLR polymer substrate?

A: The ASSURE™ taggant is included into SAFEGUARD® during the manufacture of the core polymer film, before the additional opacification layers are applied i.e. right in the heart of the banknote, protected from all banknote wear mechanisms.

Q: How many central banks are using ASSURE™?

A: Since its launch at the beginning of 2024, ASSURE™ has been adopted by 3 Central Banks and issued in multiple denominations.

Q: What impact does ASSURE™ have on onwards banknote printing applications?

A: ASSURE™ has no impact on any onwards banknote manufacturing processes.

DE LA RUE (CONTINUED FROM PREVIOUS PAGE)

Q: Are there any issues with installing the required sensors on high speed cash processing equipment?

A: There are no issues with installing the required sensors on modern high speed cash processing equipment. Our technology partners, Authentix, developed the sensors to be compatible with G&D, CPS and Toshiba equipment and will closely manage the installation and operation of the sensors. The sensor installation is a tried and tested process that has been completed in multiple central banks on over 600 cash processing machines, including Single Note Inspection Machines used in banknote manufacturing.

Best Regards,

DIAVY SRL

DIAVY

Q: Could a stripes application machine of a different supplier be retrofitted with Diavy technology?

A: Yes and we have already done two succesfull retrofit on two MHS machines

Q: Can the DMB machine work on polymer substrate?

A: Yes, positive traisl has been already conducted from an important player

Q: What is the advantage of DMB machine compared to alternatives on the market?

A: The advantages are:

- Vertical production: design, construction, assembly software from Diavy
- Modularity of the machine and a total integration of all the unit
- Complete customization and personalization due to a unique supplier for the full line
- State of the art Diavy proprietary machine control to have perfect and constant workflow all along the entire production process
- Easy integration of third party tools or additional components for the process

HUECK FOLIEN

Hueck Folien

Q: Does Hueck Folien produce foil products for polymer banknotes?
A: Not yet, but we are working at the moment on the qualification for Polymer substrates

Q: Can your products be overvarnished or printed?
A: Yes, all HUECK FOLIEN products can be overvarnished or overprinted.

HUNKELER SYSTEME

Hunkeler SYSTEME

Q: What is the footprint and capacity of a shredding system. How big/small it is compared to Single note inspection machines?

A: The footprint of a shredding system varies with the processing requirements of the central or national bank in terms. The HDDS 30 offline shredding system which is in use at the Croatian National Bank has a footprint of 1.8m² which is significantly smaller than the highspeed note inspection machines while allowing the Bank to shred at a rate of 100kg/h.

Q: Have you supplied your equipment to any paper mill having capacity of 500 kg/hr

Yes, comparable systems with higher destruction capacities were installed in several paper mills within the last 5 years. The shredding capacity of 500kg/h is a very standardized system size, Hunkeler System can provide systems up to a shredding capacity of 2’000kg/h on one system.

Q: Are there any compromises in terms of security or technical performance due to the use of compact standard components compared with industrial systems?

A: No, there are no restrictions with regards to security or technical performance. All standard and compact components fulfil all requirements from the national and central bank environment and the used technologies are identical but scaled in size according to the requested offline processing capacity.

HUNKELER SYSTEME
(CONTINUED FROM PREVIOUS PAGE)

Q: What criteria can central banks use to significantly influence the design and setup of banknote disposal systems positively?
A: The most important point for central & national banks is to ensure, that they are aware on requirements for shredding and briquetting systems to ensure a smooth and efficient processing over the system lifetime.

There is no bigger annoyance than realizing after a few years of operation that the chosen system no longer meets the requirements of operations. Therefore, the requirement engineering for shredding systems shall take strategic shall take the mid to long term strategies of a central bank into consideration (e.g. volume development, substrate strategy, etc.). Onboarding a capable supplier during an early project stage often helps to refocus on key points and specifications and therefore influences the design solution match positively. And of course, the possibility for future extensions and upgrades increases flexibility.

IN GROUPE/ SURYS

Q: Would it be possible to apply a Plasmogram™ Reverso patch or stripe on paper?

A: Yes, it is indeed possible. Our advanced technology allows for seamless integration with various substrates, including paper as it is only a matter of adhesive which must consequently adapted.

By incorporating Plasmogram™ Reverso on paper, you can benefit from its advanced security features, such as micro and nano texts, Alphagram, and high-resolution design. This makes it an excellent choice for securing documents, certificates, and other important paper-based items.

Plasmogram™ Reverso offers bespoke colors and designs tailored to your specific needs, ensuring optimum human recognition and easy authentication. This customization allows you to create unique and visually appealing paper-based products.

Q: In the article, you are mentioning a new reference coming soon: could you give us more information?

At this moment, I am unable to provide more detailed information about the new reference. However, I can assure you that we will share more information soon.

Please stay tuned for our upcoming announcements, and feel free to reach out to me directly if you have any further questions in the meantime.

Q: What is the difference betweem Plasmogram(tm) Reverso and Kinegram Color?

A: Products are fundamentally distinct. With Kinegram Color, dyes are applied to create color on one side of the substrate. In contrast, Plasmogram™ Reverso offers vibrant, non-fading colors on both sides, along with a third color visible in transmission, all perfectly aligned thanks to a specific array of nanostructure.

KOENIG & BAUER BANKNOTE SOLUTIONS

KOENIG & BAUER

Q: Why Simultan Offset + Screen?

The combination of the Simultan Offset and Screen modules comes naturally by their process characteristics and, in majority of cases, the current printing sequence.

Q: What does AKTINA Simultan Offset / Screen bring versus the existing machines?

A: AKTINA (both Simultan Offset and Screen) proposes increased speed/capacity, they offers simplicity and robustness. AKTINA screen gives more flexibility for screen process (number of colours), while Simultan Offset serves as a fundament for combination of processes. Finally, AKTINA Platform opens enhanced possibilities and increased evolution potential.

Q: How does AKTINA create value?

- Unique in-print feature creation
- Sustainable in terms of footprint, energy, lower operation cost (1 time feeding, 1 time delivery), resources
- Faster, cheaper and simpler production of any existing or future banknote and security documents

Q: Is the Pre-press the same?

A: The AKTINA Simultan Offset/Screen uses the existing K&B BNS Pre-press equipment.

KOENIG & BAUER BANKNOTE SOLUTIONS (CONTINUED FROM PREVIOUS PAGE)

Q: How do you handle my current process Simultan - Intaglio - Screen with a combined machine?

- Intaglio is a specific process, presenting significant challenges if combined with other printing processes. We have therefore dedicated a separate solution to ensure that the unique specifics of this process are optimally taken into account.
- In fact, one of the main reasons to print Intaglio before screen is to close the paper porous (not applicable to polymer), leading to optimized ink consumption and reduction of waste. Alternatively, the same result could be achieved by applying the calendaring unit. Thanks to the modular and flexible design of the AKTINA, the calendaring unit could be envisioned to be a part of the AKTINA product portfolio, thus allowing to modify the existing process flow.
- Otherwise, any possible process combination before or after intaglio including the AKTINA printing modules, existing and new one, could imagine. In brief, AKTINA is about process integration when and where it makes sense and creates new types of value.

Q: Can I transfer my current production, which is on a 10-color machine, to the AKTINA Simultan with the same quality/register?

A: Obviously yes, AKTINA gives this possibility to have 8, 10, 12 and more units, while guarantying the Simultan register precision necessary for the banknote printing quality. It is a Simultan press capable of printing existing Simultan security features

LUMINESCENCE SUN CHEMICAL SECURITY

Q: Another ink company produces black ink from waste bio products and algae, does Sun Chemical Luminescence use a similar technology?
A: This is an area that we are currently investigating.

Q: Why have you been supplying mineral oil free offset inks for 20 years but have not gained more recognition for leading in this area?
A: Frankly speaking, we should have been publicising this sooner. We made the changes as it was the right thing to do, which was also why we stopped using cobalt containing driers many years ago in both offset and intaglio inks. This part of an unwavering commitment to sustainability within our company.

Q: Are your mineral oil free intaglio inks in circulation?
A: We are currently going through production qualification trials of our mineral-oil free intaglio inks with various partners.

Q: What are Sun Chemical's sustainability targets?
A: Sun Chemical is on track to reduce CO2 levels by 30% by 2030 and become carbon neutral by 2050. We don't only look at the production processes but also the impact of our inks on their final product. We follow the 5 R's approach by looking to Reduce, Reuse, Renew, Recycle and Redesign.

LEONHARD KURZ STIFTUNG

KURZ

Q: Kinegram Volume: Are there any further innovations in this technology, for example could it be converted to a thread?
A: There currently are no new developments for KINEGRAM Volume, it is in use in two Banknote Series among which the current Swiss series of Banknotes. If one would be interested it could be used in thread or patch format as well.

Q: Is there any further developments on Kinegram Dynamic - when will it be on a circulating banknote?
A: We continue to work on KINEGRAM Dynamic, at the moment we can not comment on when it will be on a circulating banknote

Q: How has KURZ group integrated sustainability into their company processes over the past decade?
A: Everything the KURZ Group does for Sustainability (and it is a lot) can be found at Eco-Friendly Finishes for Sustainable Products (see here) including our new Sustainability Report

Q: Are there machine-readable features for your foil?
Yes the KINEGRAM elements can be enhanced with machine readable features like UV, Infra-Red or specific taggants

Q: What advantages does the KINEGRAM® technology offer compared to other security features for banknotes?
A: The KINEGRAM has a wide range of advantages compared to other security features, the technological benefits can be found here. Apart from the technological advantages there are other benefits as well when working with KURZ

NANOVISTA Nanovista

Q: What more can Nanovista™ offer in comparison with other industry players?

A: Hueck Folien and IQ Structures are independent suppliers with an expertise of more than 25 years in the security elements industry.

By aligning our competences, we can achieve greater synergy and ensure the success of every project.

The result of our collaboration you can see in our first product. The Nanoswitch®.

Q: What is unique about Nanoswitch®?

A: Nanoswitch is the unique combination of nanoengineered optical structure with partial ColorSwitch. With the use of the Nanoswitch element you can highlight certain design elements.That enables easy authentication for consumers and authorities.

Q: Are there any limitations to the Nanoswitch® technology or design?

A: There are almost no limitation when it comes to design a Nanoswitch® Stripe.

You can choose your favorite color out of six different color switching shades and combine it with nanoengineered optical structure.

What I always recommend is using light colors instead of dark colors to highlight the Nanoswitch® element in your stripe solution.

As bigger the Nanoswitch element is as more secure and attractive it is.

Q: What do you mean by integrating the Nanoswitch® with the printed design?

A: By integrating the Nanoswitch(R) with the printed design I mean the Integration of the Nanoswitch® Element into the overall design of the banknote.

It is not only about the printing it is also about the watermark, security thread or other elements.

NOTE PRINTNG AUSTRALIA

Q: Does NPA pass all notes mandatorily through single note inspection machines?
A: Yes, NPA uses single note inspection for all banknote production

Q: If there has been one major change to NPA's quality approach in the last two years, what would it be?
A: With the focus on investment in Quality, the greatest change has been the enhanced commitment to Quality from our production and support teams. They recognise that NPA supports their existing quality focus, and their own increase in commitment to high-quality production has been extremely apparent.

Q: How has NPA's approach to quality changed given its large commitment to export work?
A: There is no change to NPA's approach - we ensure we are committed to customer-led quality standards to deliver quality product.

Q: What is the next area of quality capability improvement for NPA?
A: NPA is focusing on upgrading our on-press inspection systems, to further focus on improving quality at the source.

OBERTHUR FIDUCIAIRE / ROLLING OPTICS

Q: What is the thickness of the product
A: The thread is about 45µm when being fed into the papermachine

Q: Can Anima incorporate multiple colours within one security thread?
A: This feature is under development

Q: Is it resistent against moisture, dust and crumpling?
A: Yes, Anima passed all standard CPR tests, either embedded or not

Q: What width are you recommending for Anima?
A: Anima comes in widths 3-6mm but for the more advanced features we highly recommend 5mm or more.

Q: How many references do you have?
A: The product has been launched only a few months ago. We have 2 banknotes which will be put in circulation very soon and there are more to come in Q1 / 2025.

Q: How many papermakers are qualified?
A: 3 (LQ, VHP, BP papers) – 2 more to come in Q4 2024

ORELL FÜSSLI

orell füssli security printing

Q: What is the licensing scheme?

A: So far we do not license the software but we are evaluating the possibility to do so.

Q: Can you integrate other criterias such as Security, Aesthetics, Saftey, Economics?

That is certainly possible and these elements may be added in the future.

Q: Who can provide information on the service terms?

A: Please get in contact with me directly here.

Q: Based on your experience what is the Carbon footprint of paper and polymer substrate

A: There is no single answer to this question. The result depends on a number of factors:

- Number of sheets produced
- The location of the production site and print site.
- Chosen scope: Production only or full life cycle?
- End of life treatment
- Clean Note policy

Q: Does the software incorporate any environmental standards etc..?

A: The calculations of background data were based on the publicly available databases UVEK:21 and EcoInvent

Not sure if this addresses the question, if in doubt, please reach out to me here.

PARVIS PARVIS

Q: Does the software utilise AI?

A: It's a big opportunity that we're evaluating for the next releases, studying also with universities how to use it and get advantage from it in the best and secure possible way.

Q: How do you collect data from old equipment that may not have onboard PC?

A: At the moment we collect data with 100% accuracy thanks to sensors specifically designed by PARVIS and installed on machines.

These can also be installed on very old machines, however. For other systems, as long as they generate transferrable data, Valda is able to manage a huge amount of different data source's format.

Q: How confident are you about data reliability on dashboards? Where do data come from?

A: We know user can trust on our data since they come from our Abaco-MES installed on printing machines, collecting productivity, efficiencies, inefficiencies etc.

As said, they're 100% accurate and reliable since collected by specific sensors, internally developed among about 30 years of experience.

Q: How easy is the integration of new data (e.g. maintenance, quality or others) into Valda?

A: Really easy and immediate, the data flow just needs to be configured and tuned but we are already prepared for that. Valda has been designed to be a scalable solution, receiving data coming from several and different data sources.

PARVIS
(CONTINUED FROM PREVIOUS PAGE)

Q: How easy is it to create new dashboards by yourself? Whether/how customizable are they?

A: Every dashboard has been already provided with an exhaustive set of filters (defined during customer's demo, visits etc.) allowing the user to customize the view and analyse the data in the best possible way. Anyway, if it is not enough, for the future we're planning the possibility to train our customer users also to create dashboards by their own.

POLSKA WYTWÓRNIA PAPIERÓW WARTOSCIOWYCH

PWPW
POLISH SECURITY PRINTING WORKS

Q: Which type of Varnish can PWPW produce - Free radical/Cationic or both? Which one do you recommend for paper banknotes?
A: We focus on developing cationic varnishes. These are recommended over radical varnishes due to their much higher surface quality, better anti-soiling properties, and longevity.

Q: While screen printing is the preferred printing process for iridescent, can it be used for other print applications?
Iridescent requires printing methods that can transfer larger pigments. Silk screen is the first choice, but we have applied these effects on our other products with flexo using our dedicated inks.

Q: Do you sell the inks or are they just for internal use?
They are available for purchase; we are open to collaboration.

Q: Could you combine IR, UV, and visible features into a single iridescent stripe?
A: These are possible, but each project must be considered independently. Adding too many additional pigments into the ink may cause printability issues.

PWPW
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Q: What trends do you observe in the ink and varnish segment of the security industry?

A: The primary trend in the ink and varnish segment is a shift towards sustainability, focusing on eco-friendly and efficient solutions. Additionally, digital printing for security printing is gaining momentum.

Q: How significant are Level 1 security features in the context of payment digitalization?

Despite the rise of digital payments, cash is not disappearing anytime soon. As cash usage declines, the importance of Level 1 security features is increasing. These features need to be more distinct and effective since people no longer handle banknotes as frequently as they used to.

SECURITY FIBRES

Q: How many colours can you have on a fibre?

A: Paper fibres can be up to 7 colours in 365nm with complimentary colours in 254nm giving almost endless combinations

SICPA

SICPA

Q: How is SICPA disposing the waste in the ink production environment through sustainable ways?

A: The treatment and valorization of our ink waste mainly depend on the availability of local infrastructures and services. Our main processes include using our ink waste in cement manufacturing plants for thermal and material valorization, and incineration with heat recovery for thermal valorization.

Q: What adaptations are necessary on printing presses to print your sustainable products?

A: In general, no adaptations/modifications on printing presses are needed when the chemistry of the formulation is conserved : for example, from our current oxidative-drying series to our more sustainable oxidative-drying product range, or from our current UV-curing formulation towards a more sustainable UV-curing formulation. The only exception is when a printing process changes from using oxidative-drying formulations to UV-curing (or UV LED-curing) formulations, which then requires specific adaptations of some components of the printing press. In this case, SICPA and the press supplier are available for accompanying this move.

Q: Why didn't you take CO2-emissions as a dimension in your product sustainability framework?

A: Reducing CO2 emissions is a crucial part of our sustainability strategy, which we are currently addressing on a global scale rather than focusing on individual products or product lines. Our efforts will however in the long term translate into a progressive reduction of the Product Carbon Footprint of our products.

Will it be possible to reach 100% biorenewable material for all product types?

Achieving 100% material is a significant challenge given the current availability of biorenewable alternatives in the chemical industry, especially in UV chemistry. With that in mind, we aim to maximise the use of biorenewable materials while maintaining cost-effective solutions.

CONTACT

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