

5 April 2022

SMX successfully enables industrial scale ‘three times loop’ recycled content of plastics

- SMX has successfully completed a trial in a fully commercial industrial facility for marking recycled plastics, which studied the impact of different feeding methods on final PCR readings to verify the accuracy and reproducibility of our unique proprietary marking technology.
- The successful trial comes as the UK and other countries have or will soon implement their recycled Plastic Packaging Tax Legislations, enabling companies which use SMX’s automated auditing technology, the ability to avoid potential human/manual-paper auditing errors and provide increased cost savings.
- SMX technology can be used as platform from polymer and resin to product and recycler in the most efficient and commercial way.
- The successful marking of recycled plastics enables a closed loop circular economy for global brands and industry consortiums.

Security Matters Limited (ASX: SMX) (Security Matters or the Company), a company focused on digitising physical objects on the blockchain to create a circular and transparent solution for the closed loop economy, is delighted to announce it has successfully completed marking recycled plastics by studying the impact of gravimetric and volumetric feeding methods on final PCR readings and verifying that the accuracy and reproducibility of the markers was high in both methods. This successful trial comes as the UK and other countries have or will soon implement their recycled Plastic Packaging Tax Legislations.

The compounding master batch and extrusion processes of these trials were performed on a pilot scale in a fully commercial and industrial facility. The marker, master batch (MB), was successfully added into Post Consumer Recyclate (PCR) during the compounding phase by a recycling facility. During each melt extrusion a new marker system was incorporated via a MB form to indicate the start of a new loop. Throughout production days of the trials, SMX was tested with blind tests to ensure SMX’s capabilities were successfully completed. The marked PCR pellets were sent to a bottles manufacturer to produce different bottle configurations to validate the accuracy and precision of PCR in the bottles.

The SMX team successfully demonstrated the ability to manage the process remotely, ensuring the viability of industrial scale adoption. The marked PCR and bottles were scanned using an SMX handheld portable reader. All readings were digitally recorded on a digital platform for traceability. The methodology utilized approximately 50 different bottles, produced with different inclusion levels, layer configurations and pigment choices, which were produced in the three loops:

Following these trials, it was found that:

- In all cases the quantification of the PCR was successful
- The layers configuration didn’t affect the accuracy of the PCR reading
- Addition of pigments didn’t affect our detectability
- Regrinding material had no effect on detectability

- No sensitivity to thickness variation

The successful trial provides plastic manufacturer and importing companies with a proof of concept, enabling them to accurately identify and audit, via an automated transparent reporting system, the polymer type, number of loops and the amount of recycled content despite the size and colour of the plastic. As a result, these companies will be well positioned to promote their operations as being sustainable and environmentally friendly. Combined with SMX's ability to digitally certify the materials, clients will have the ability to avoid human/manual-paper auditing and use technology/automated auditing, thus reducing the potential for human errors and providing increased cost savings.

Since COP26, companies have seen the need to accurately identify and increase the use of recycled content within all their products. SMX has the unique ability and solution to be able to track, trace, certify and authenticate all gas, liquid, and solid products across a supply chain from raw material, through production, to product and waste and recycle and reuse. Thus, SMX is the one true solution to create a circular economy.

This system follows SMX's ongoing work and developments in the Plastics department, including but not limited to, joining NextCycle Michigan, the recent release of the SMX Generation 2.0 online unit and being awarded the Frost and Sullivan 2021 Global Waste Management & Recycling Digitalization Technology Innovation Leadership Award and the successful implementation of SMX's technology into BASF's ReciChain project in North America in 2020.

SMX Founder and CEO, Haggai Alon, commented:

"SMX is extremely proud of the successful outcome of these trials which will enable companies to join the global sustainability effort and to comply with the new plastic regulations as they endeavour to meet their business goals.

Our revolutionary and innovative technology will provide companies with not only an economical solution to identify and report transparently on their recycled content used in plastic packaging, but also remove their dependency on human and paper auditing. The ability to recycle and reuse plastics efficiently and cost effectively, ensures a more sustainable future for the planet."

SMX's latest plastic articles

- [Security Matters Limited Streamlines Compliance with UK's Plastic Packaging Tax](https://au.finance.yahoo.com/news/security-matters-limited-streamlines-compliance-102000140.html)
https://au.finance.yahoo.com/news/security-matters-limited-streamlines-compliance-102000140.html
- [Security Matters accelerates in North America, lends weight to Great Lakes sustainability push](https://stockhead.com.au/tech/security-matters-accelerates-in-north-america-lends-weight-to-great-lakes-sustainability-push/)
https://stockhead.com.au/tech/security-matters-accelerates-in-north-america-lends-weight-to-great-lakes-sustainability-push/
- [Security Matters launches end-to-end 'plastic circular economy' platform](https://themarketherald.com.au/security-matters-launches-end-to-end-plastic-circular-economy-platform-2021-12-29/)
https://themarketherald.com.au/security-matters-launches-end-to-end-plastic-circular-economy-platform-2021-12-29/
- [Security Matters \(ASX:SMX\) receives global recognition for its contribution to the innovation of recycling and waste management](https://finance.yahoo.com/news/smx-lvmh-m-tiers-dart-200000413.html)
https://finance.yahoo.com/news/smx-lvmh-m-tiers-dart-200000413.html
- [Security Matters expands global footprint with new recycling partnership in Singapore](https://stockhead.com.au/tech/security-matters-expands-global-footprint-with-new-recycling-partnership-in-singapore/)
https://stockhead.com.au/tech/security-matters-expands-global-footprint-with-new-recycling-partnership-in-singapore/

- [Recycling plastic into digital tokens; Haggai is patently disrupting plastics](https://www.ausbiz.com.au/media/recycling-plastic-into-digital-tokens-haggai-is-patently-disrupting-plastics?videoid=12863§ionId=1885)
<https://www.ausbiz.com.au/media/recycling-plastic-into-digital-tokens-haggai-is-patently-disrupting-plastics?videoid=12863§ionId=1885>
- [Security Matters introduces 'SMX Plastic Circular Economy Online Unit'](https://finance.yahoo.com/news/security-matters-introduces-smx-plastic-070000999.html)
<https://finance.yahoo.com/news/security-matters-introduces-smx-plastic-070000999.html>
- [BASF Canada pilot to share SMX tech with plastics majors](https://stockhead.com.au/tech/basf-canada-pilot-to-share-smx-tech-with-plastics-majors/)
<https://stockhead.com.au/tech/basf-canada-pilot-to-share-smx-tech-with-plastics-majors/>
- [BASF and Security Matters collaborate to accelerate progress towards a circular economy for plastics](https://www.basf.com/lk/en/media/news-releases/global/2020/04/p-20-183.html)
<https://www.basf.com/lk/en/media/news-releases/global/2020/04/p-20-183.html>

--Ends--

By order of the Chief Executive Officer.

For further information, please contact:

Media Enquiries

Melissa Hamilton

Media and Capital Partners

P: 04 1775 0274

E: Melissa.hamilton@mcpartners.com.au

About Security Matters Limited

Security Matters has commenced the commercialisation of its unique, patented technology that uses a hidden chemical-based 'barcode' to permanently and irrevocably 'mark' any object, be it solid, liquid or gas. The barcode is read using the company's unique 'reader' to access the corresponding stored data, recorded and protected using blockchain technology.

Follow us through our social channel  @secmattersltd