APEX & COVERIS FLEXIBLE PACKAGING COLLABORATION GENERATES MASSIVE CO_2 REDUCTIONS

GTT anilox technology means sustainability goals and cost reduction no longer mutually exclusive

A multi-year program between leading anilox manufacturer **Apex International (Apex)** and **Coveris Flexibles Austria GmbH (Coveris)**, the manufacturer and distributor of plastic packaging films and stretch films, has proven that ink usage – and therefore a converter's carbon footprint - can

be significantly reduced while also delivering optimum results and productivity.

Following the success of similar trials with a leading cartonboard converter, **Apex partnered with Coveris Austria**, to demonstrate that CO_2 emissions in flexible substrate printing can be reduced significantly using the new GTT 2.0 anilox.

Christian Huth, OEM Manager with Apex, explained that this latest ink reduction program initially began in 2020, with repeat testing over the course of five years to ensure robust data was collected.

> **The Apex GTT 2.0 anilox provides up to a 50% reduction in the cell wall area across the anilox roller, while reducing the required channel depth by an average of 25%**
>
> Christian Huth, OEM Manager

"More ink in the channel structure ensures a better filling of the cell walls and therefore better ink coverage compared to traditional anilox engravings, meaning the GTT delivers a much higher print consistency and ink density for the optimum coverage", said Christian.

"For the purposes of this ink reduction program, we compared ink consumption against previous years based on production and purchasing data for a single specific end customer in the beverage industry, to produce the most accurate data."

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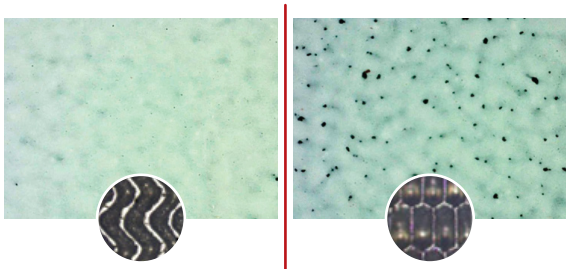
More than 26 tonnes CO_2 saving

The results were staggering, with reductions of between **18% and 20%** in the amount of ink used due to the advanced anilox design. This led to a significant reduction in the CO_2 footprint, dependant on the viscosity and opacity of the ink used in the run.

"When examining the weight in kilograms of CO_2 per kilogram of ink, the comparison of the viscosities of 14 seconds resulted in an incredible annual CO_2 saving of more than 26 tonnes," said Christian. "In terms of opacity, a comparison again results in a huge annual CO_2 saving, this time in excess of 16 tonnes."

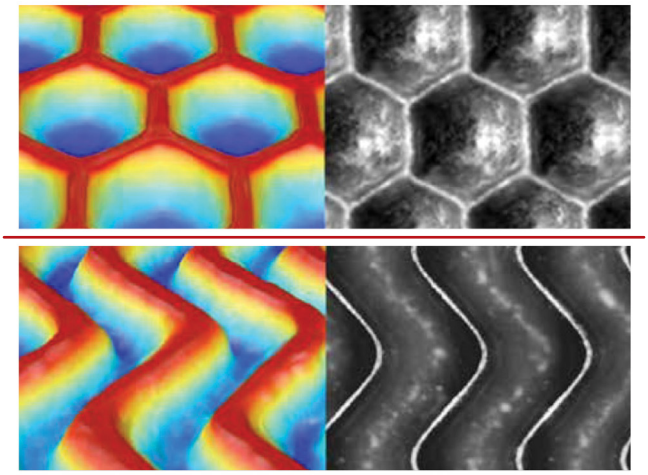
The GTT 2.0 provides a more consistent ink laydown on press, enabling printers to use less ink and varnish while still achieving the same high-quality results. "In simple terms, we are able to produce the same premium print quality while generating anywhere **between 20% and 30% fewer CO_2 emissions** linked to ink usage," said Christian. "Not only this, but with the lower ink volume requiring a reduced drying time, there is **a further 20% energy saving** for the printer."



GTT 2.0
12cm³/m²

Hex
240 LCM x 14.5cm³/m²
609 LPI x 9.35 BCM

HEXAGONAL



GTT 2.0 OPEN SLALOM CHANNEL

> **Duralite R50 contains at least 50% PCR (Post Consumer Regenerated) material, which is produced on-site with 100% renewable energy further adding to its sustainability credentials.**

The distinctive 'slalom' engraving of the Genetic Transfer Technology (GTT 2.0) anilox really transforms the printing process," explained Christian. "We partnered with Coveris on this project to show that GTT 2.0 not only elevates print quality, but moreover in the face of ever-changing legislation and customer demands, it aligns more closely with sustainability goals and, importantly, enables printing with reduced resource consumption."

Dr. Jan-Torsten Vollmer, Head of Operations (Engineering & Technology) at Coveris Langkampfen, said that the testing was conducted on counter print packaging with white backing, **on Coveris' Duralite R50 PE shrink film.** "Duralite R is a series of PCR regenerated films for shrink applications specially designed for beverage multipack applications without loss of performance," he said. **"Duralite R50 contains at least 50% PCR** (Post Consumer Regenerated) material, which is produced on-site **with 100% renewable energy** further adding to its sustainability credentials.

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For the purposes of the test data, opacity was improved with the mobile spectrophotometer X-Rite eXact 2 measuring white print over a black reference (100% opacity). Base weights were calculated using 10cm square measurement samples, with average values determined by five samples each, with the lower tolerances used. The calculated consumption quantities of the printing inks, in this case white, were then compared with purchasing data.

"The CO_2 reduction on only the white ink extrapolates to an astonishing 26.6 tonnes per press, per year," said Dr. Vollmer.

"The ink reduction program project was implemented with complete professionalism, and the results are as robust as they are exciting," he said. "This positive result supports our award-winning **Coveris NoWaste sustainability strategy**, which aligns our commitment on three levels – **'No Production Waste, No Packaging Waste, No Product Waste'** – and I'm delighted to say this project was awarded the NoWaste status."

He said that one of the project's main goals was to **maintain the same high-quality print results for demanding customers while using less ink, but without altering the ink formulation.** "As sustainability issues dominate the global agenda it has become increasingly important that we take steps to address climate change," he said. "The importance of achieving CO_2 reduction is evident, and we are delighted that through this project we have been able to do so while also delivering packaging of the very highest quality, giving beverage brand owners the opportunity to present their product in an appealing, sustainable package."

Christian Huth said this latest successful ink reduction program underlined the benefits of using GTT 2.0 previously presented at the DFTA symposium last year.

"Our customers across the supply chain all face the same challenges in today's world, and that is to reduce their corporate carbon footprint," he said. "**At Apex, we pride ourselves on helping our customers on their journey to more sustainable packaging production.** In our testing with Coveris, the values of CO_2 savings achieved through significantly reducing ink consumption were once again confirmed.

"In addition to the CO_2 reductions, we were also able to see a significant improvement in machine productivity due to a reduction in the length of cleaning cycles and longer service life of the doctor blades," he said. "The abrasive cell walls of hexagonal anilox plates wear the doctor blade, but with the **GTT printers save both time and money through the 25% longer lifespan** of the doctor blade - and all alongside the improved print quality.

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"We have again succeeded in demonstrating that achieving sustainability goals and cost reduction are not mutually exclusive, 'either or' choices," said Christian. **"It is now possible to easily implement in any existing process, with a short return on investment and truly incredible results."**

Christian noted that the distinctive structure of the GTT engravings provides several important operational advantages, such as lower maintenance requirements and increased press availability. "Printers have reported a significant reduction in plate cleaning and upkeep, which contributes to steadier print quality and longer continuous production runs," he said.

> **Applying less ink not only reduces material usage but also shortens drying times - typically by about 15 to 25%**

"Improved drying efficiency also means lower energy consumption, which becomes especially noticeable during longer runs, even if that is harder to precisely quantify. This will undoubtedly support compliance with forthcoming **ESG standards** related to energy use."

"We are very grateful to **Dr. Vollmer and the entire Coveris team** for their commitment to this long-term initiative and for providing us with the data," he said. "We are **delighted with the positive outcomes** and eagerly anticipate collaborating further to implement a CO_2 reduction program at other locations in the near future."

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