Tue, 6 May 2025
Weekly Newsletter

DVN Lighting

NEWSLETTER #903

Editorial

Let's Dare !

Citroën's New C5 Aircross was just revealed last week. Based on parent company Stellantis' new STLA Medium architecture — like the Peugeot 3008 and Vauxhall Grandland — this second-generation C5 Aircross is the top model of an overhauled Citroën model range, above recently refreshed and renewed versions of the Ami, C3, and C4.

Citroën is well known in France for its avant-garde design. What a pleasure to see designers taking risks and being daring with exterior and lamp design! In my **DVN article about main takeaways at the DVN Paris autoshow**, I mentioned sculptural shape design as a trend, and mentioned the Citroën concept car. Usually, the real car is far from the concept (and far more conventional). When engineers apply all the technical constraints, and accountants impose the cost constraints, a great design often fades. But not at Citroën with the new C5 Aircross. They faced the challenges, solved aerodynamic challenges, met UN R26 (external projections), and passed severe brush and abrasions testing and possible pull-up testing, all without dulling or muting the fantastic design.

The engineer's job is to make a concept into a reality. I really like it when engineers triumph to bring designers' visions into reality. Great job to Citroën's R&D, lighting, and design teams!

Design sketches ==> Paris Autoshow 2024 concept car ==> mass production car

Paul-Henri Matha
DVN Chief Executive Officer and Lighting General Editor

In Depth Lighting Technology

DVN Field Trip: APT Guangzhou

L-R: DVN Anne, DVN CEO Paul Henri Matha, APT Vice President Dr Zeng Zhaoming, APT Engineer Esther Law, APT Marketing Manager Winna Chen

By Paul-Henri Matha

We took the chance to visit APT LED manufacturing plant in Guangzhou during my trip to Shenzhen. APT was originated from Advanced Photoelectronic Technology, a Hong Kong company founded in 2003 by David Xiao (a cofounder) and incubated by the Hong Kong University of Science and Technology (HKUST). In 2006, APT Electronics was established in Nansha District, Guangzhou. They produced first high-power flip-chip LED chip in 2006 and flip-chip white LED package in 2010 in China. From this time, APT has always been focused on high power and high-end LED devices.

APT successfully listed on the Main Board of The Stock Exchange of Hong Kong Limited on November 8, 2024 (stock code: 2551.HK). The public subscription was oversubscribed by 5,678 times, setting a historical record for technology companies' IPOs in Hong Kong.

They are now focusing on LED package. Wafers are coming from Epistar and Chinese local LED chip suppliers. Automotive LED business was the fastest-growing business for past three years in APT. Main customers for automotive are Geely, GAC, Changan, Marelli and mainly automotive brand and tier1.

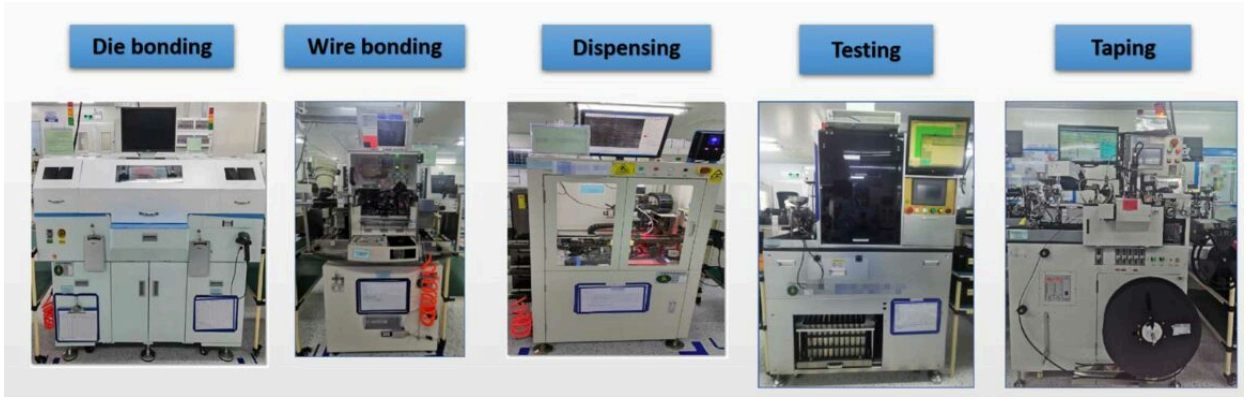
APT has recently expanded its LED manufacturing capacity from 120 million capacity unit per month to 300 million. APT has also developed modules business (PCBA) with Linux company.

APT is now able to propose Matrix PCBs (32-pixel), 108-pixel solution (Demo) and other different pixel integrated ADB module, and also Mini LED / Micro LED demo (with wafer from HC semitek) with different pitch values.

Mini LED ISD Proposal by APT is a package on Board proposal (POB) with pitch 1.5mm which provides robust design for curved solution (bended). Apt is able to propose a unique display 1,000 mm x 130 mm that may be flexible.

During LED plant visits, I took time to see in detail some interesting steps I never had chance to see in my previous experience:

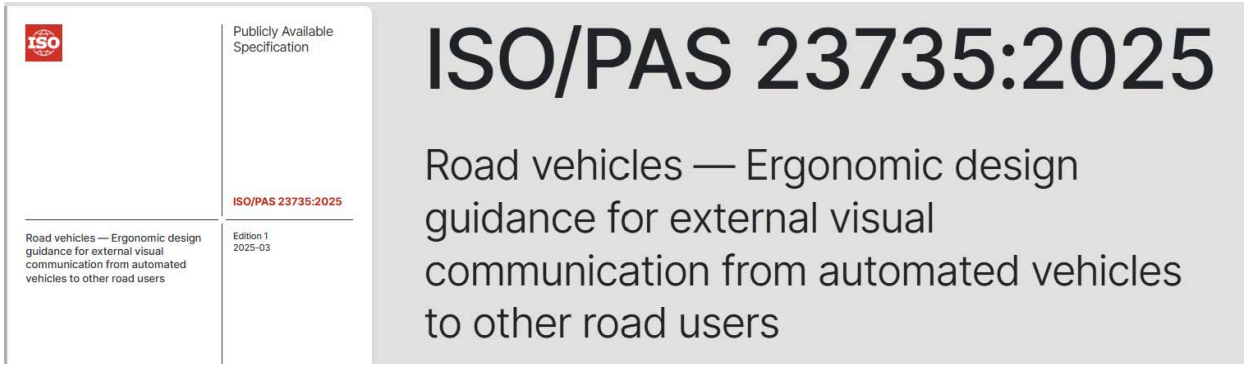
- Phosphor deposit on LED chip
- LED binning selection process at the end of assembly line (voltage, flux and color)
- Taping from a chip to a roll



Lighting News

ISO/PAS 23735 Ergonomic Design for AD V2X Comms

LIGHTING NEWS



By John Shutko

As AVs (automated vehicles) move closer to proliferating on the roads, new challenges emerge — especially in how these vehicles interact with the people around them. ISO/PAS 23735:2025 is a publicly-available specification developed by the International Organization for Standardization, which offers design guidance for how fully automated vehicles should use visual signals to communicate with other road users. Its aim is to support safety and promote trust as machines replace human drivers.

This document focuses on Level-4 and -5 AVs, and how these vehicles should visually communicate to other road users. On highways, in cities, and in rural areas, these vehicles will need to engage with other road users: pedestrians, cyclists, human-driven vehicles, and all other traffic participants and interactors. Because traditional human communication modes like eye contact or hand waves won't be possible, AVs must fill that gap in a universally intuitive, consistent manner.

ISO/PAS 23735 outlines a communication framework that categorizes road interactions into three types: encounters (simple proximity), interactions (requiring behavioural responses), and conflicts (users compete for the same space). It recommends combining implicit signals, like how a vehicle moves or slows down, with explicit ones, such as lights or visual displays that clearly indicate the vehicle's intent. The goal is redundancy and clarity: to reinforce intent through multiple channels and reduce uncertainty for nearby road users.

To be effective, these signals need to be designed well. Factors like brightness, vehicle location, and colour influence whether a message is seen and understood. Signals should be immediately, unambiguously recognizable without demanding too much mental effort or causing distraction. They should integrate seamlessly with the vehicle's actual motion, to avoid mixed messages which could create confusion or even danger.

The specification also emphasizes that AVs will interact with children, older adults, and people with disabilities, all of whom experience and interpret visual information differently, and these differences must be considered in design. Cultural and regional differences also matter; a visual signal that's obvious in one country may be misunderstood in another. The document encourages universally intuitive designs while

acknowledging that education and repeated exposure will likely be needed for wide-scale understanding.

Beyond design, the standard speaks to the human psychology of adoption. Acceptance of AVs isn't just about technology; it's about trust. Clear, consistent, and human-centred signals can help build that trust, while poor or misleading communication can do the opposite, potentially setting back public confidence in AVs.

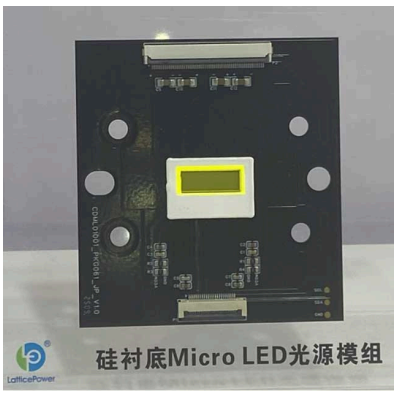
The document includes a comprehensive set of real-world use cases — scenarios like pedestrian crossings, traffic merges, and intersections — along with guidance on which signals work best in each case. It touches on safety standards and how these new systems might integrate with existing traffic infrastructure.

Xingyu, Oritek, LatticePower in Headlamp Partnership

LIGHTING NEWS

At the Shanghai Auto Show, Changzhou Xingyu Automotive Lighting, Shenzhen Oritek Semiconductor, and LatticePower officially signed a comprehensive strategic coöperation agreement. The three companies will collaborate on a 'fully autonomous industry chain ecosystem' to jointly develop the iVision Headlamp, which is set to enter mass production.

Changzhou Xingyu Automotive Lighting have built and maintained leadership in vehicle lighting manufacturing through decades of technological specialization, leveraging expertise and end-to-end manufacturing capabilities. Oritek are redefining the core ecosystem of intelligent lighting with cutting-edge automotive chip full-stack technologies, propelling industry transformation via advanced IC solutions. LatticePower, for their part, are specialists in vertical industrial chain integration, with innovations in self-developed silicon-substrate microLED technology. The three-way coöperation has integrated upstream and downstream resources across chip design, manufacturing, and system integration. This collaboration establishes China's first end-to-end autonomous supply chain for vehicle lighting.



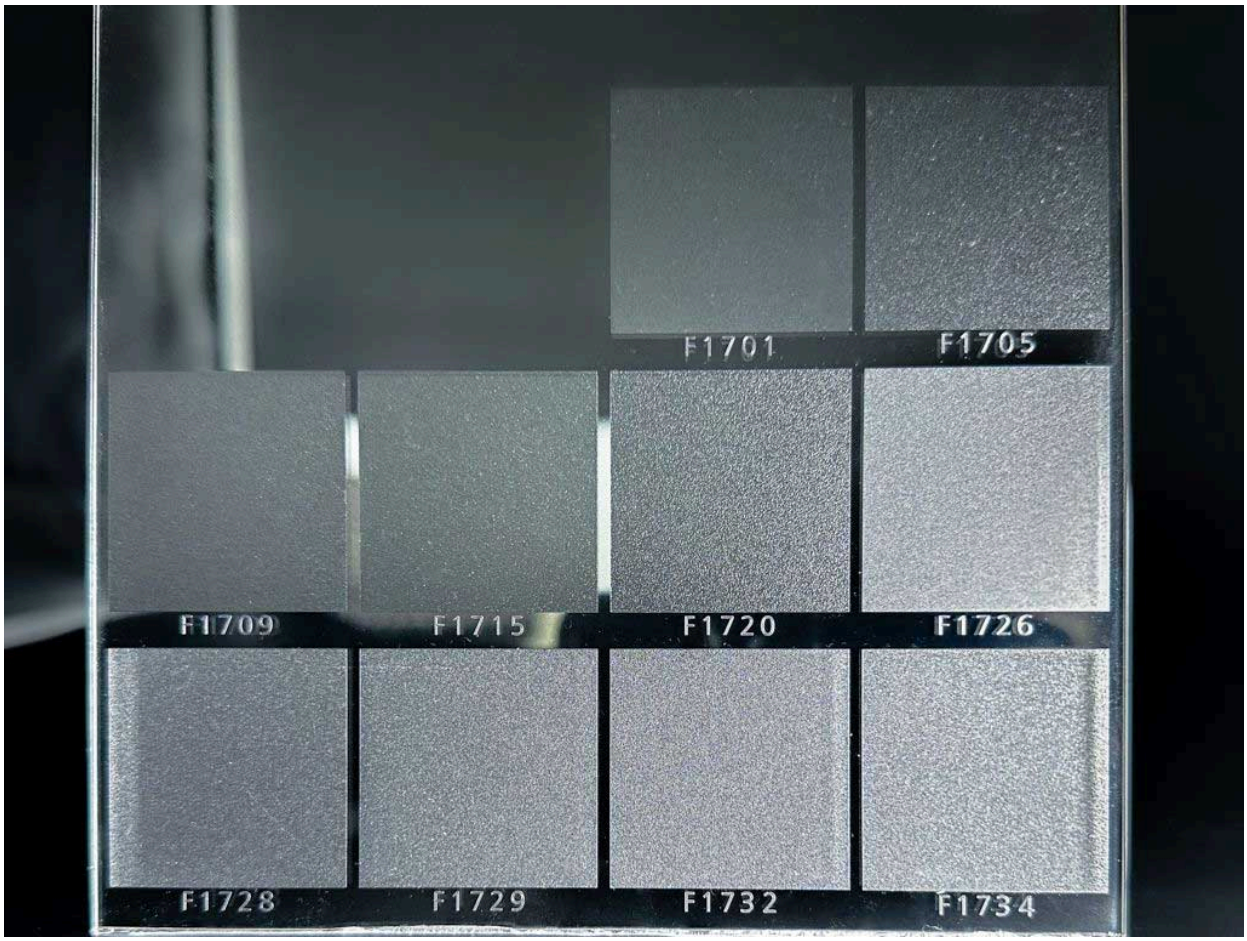
The iVision Headlamp combines the partners' technological strengths to achieve breakthroughs in full-domain ADB high beam control, self-closed-loop algorithms, domestic supply chain integration, ultrawide angles, and ultrahigh brightness and pixel density. It integrates the world's first automotive-dedicated SoC (system on chip) and China's first microLED light source chip, demonstrating full technological sovereignty from algorithms to optical performance.

The iVision Headlamp and its supply chain will accelerate technological innovations, enhance domestic R&D capabilities, and propel China's shift from manufacturing to innovation-led growth. It has a 40-kilopixel microLED projector unit with extended FoV of 24° × 6°, I_{max} of 75 kcd with a 50w × 30h mm lens, and it can do the complete ADB performance without any additional bi-matrix headlamp for high beam width.

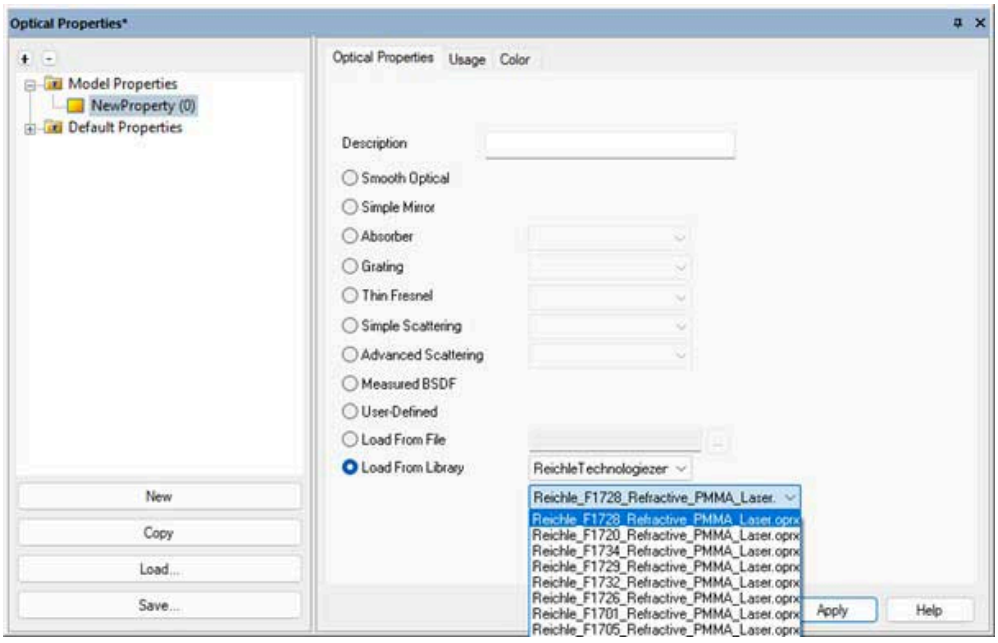
Multiple automakers have placed production orders for the iVision headlamp.

Reichle Structures, Materials in Synopsys SmartStart Library

LIGHTING NEWS



Reichle structures are now included in Synopsys' SmartStart Library of optical data for LightTools and the LucidShape software family for lighting systems development. Developers can now directly access Reichle laser structures in the software tools, and benefit from even more flexibility and control in product development. This will help automaker and tier-1 optical engineers shorten their R&D times.



OP Mobility Q1 2025 Revenue

LIGHTING NEWS

In € million	Q1 2024	Q1 2025	Change	LFL change[c]
Economic revenue[a]	**2,867**	**2,981**	**+4.0%**	**+3.3%**
Joint ventures	254	287	+12.9%	+14.8%
Consolidated revenue[b]	**2,613**	**2,694**	**+3.1%**	**+2.2%**

OP Mobility's Q1-25 revenue growth was up by 3.3 per cent and outperformed the market by 1.8 points. In Q1, revenues increased by 7.7 per cent in Europe to €1,557m; in Asia by 11.7 per cent to €500m, and decreased in North America by 4.1 per cent to €810m.

The Exterior & Lighting segment's revenue is stable at €1,394m for Q1-25, versus €1,383m in Q1-24. Exterior revenue continues to grow, mainly on strength of orders. Lighting revenue remains dragged by the weak order book prior to acquisition by OPmobility.

OPM CEO Laurent Favre says the company "maintained its growth trajectory in the first quarter of 2025, with revenue up 3.3 per cent. This performance is particularly noteworthy given the major disruptions the automotive industry is facing. It illustrates once again the relevance of our diversification strategy – whether technologies, geographies or customers – and opening up to new mobility markets. It also reflects the strong mobilization and adaptability of our teams. Despite a context of geopolitical tensions impacting the mobility industry, the Group relies on a solid start of the year and the current market forecast to maintain its outlook for the year. In this context, and in line with its ambition to combine long-term vision and short-term agility, the Group has reinforced savings measures across all its activities, subsidiaries and geographies, in order notably to continue deleveraging".

Forvia Q1 2025 Revenue

LIGHTING NEWS

	Q1 2024	*Organic growth*	*Currency impact**	**Q1 2025**
Group sales (€M)	6,531	*138*	*33*	**6,702**
Change		***+2.1 %***	***+0.5 %***	***+2.6%***

** appreciation of the US dollar and the yuan more than offset the depreciation of the brazilian real and the turkish lira*

WW auto production** (in mio units)	21,436	+1.3%		21,721
Outperformance (bps)		***+80***		

*** Source : S&P April 2025*

Group sales in Q1-25 were up 2.1 per cent compared to Q1-24, to €6,531m. This growth was driven by the Electronics and Seating units, and the ongoing acceleration with Chinese automakers, notably BYD.

Revenues in Europe + the Middle East increased by 3.3 per cent to €3,240m; increased in Asia by 7.1 per cent to €1,729m, and decreased in the Americas by 2.7 per cent to €1,733m.

Lighting sales were affected by the end of a program with a major American automaker, causing a decrease of 5.9 per cent to €935m compared to 2024.

Forvia CEO Martin Fischer says the company "achieved a solid commercial performance in the first quarter. This is a testimony of the strength of our market positioning. Restoring our financial structure through robust and structural net cash flow generation and significant asset disposals, is a key objective on my roadmap. Disposal processes are ongoing. Amid an unprecedented context, our focus is also on accelerating our operational excellence plan. In Q1, we have deployed our EU-FORWARD program and launched dedicated task forces to turn around underperforming plants. These past few months, we have proactively addressed the potential impact of enacted tariffs with agility and determination: securing pass-throughs with our clients, optimizing our supply chain, and maximizing cost flexibility. All the efficiency measures we are implementing, and the round-the-clock commitment of our teams will enable us to safeguard our performance in the market challenges ahead and achieve our full-year targets. Looking ahead, my priorities are on achieving best in class performance, transforming our business and invigorating our culture. By focusing on these three areas, we will be able to drive strong results, ensure our business remains competitive and engage our teams in this period of change".

Valeo Q1 2025 Revenue

LIGHTING NEWS

Sales (in millions of euros)	As a % of sales	Q1 2025	Q1 2024	Change	FX	Scope	LFL* change
Original equipment	85%	4,500	4,554	-1.2%	+0.4%	-1.2%	—%
Aftermarket	11%	574	597	-3.9%	-1.3%	-5.8%	+3%
Miscellaneous	4%	239	276	-13.3%	+0.9%	+1.2%	-15%
Total	**100%**	**5,313**	**5,427**	**-2.1%**	**+0.2%**	**-1.5%**	**-0.8%**

** Like for like[(1)].*

Valeo's first-quarter sales of €5.3bn is down by 1 per cent on a like-for-like basis.

In Europe and Africa, all divisions outperformed automotive production, with a Group outperformance of 10 percentage points. The Power Division benefited from a favourable basis of comparison in the high-voltage electric powertrain business, and a good level of activity in thermal systems for electrified vehicles. The Brain Division delivered an outperformance, notably in its Interior Experience business (in particular Phone-As-A-Key, telematics and displays), thanks to the ramp-up of production at several European automaker platforms. The Light Division also benefited from the ramp-up of production at several European automakers.

In China, the Group underperformed automotive production by 20 percentage points. Against a backdrop of faster growth for new-energy vehicles and market share gains by Chinese automakers, the Group continue to reposition their customer portfolio — around 50 per cent of original-equipment sales in the first quarter of 2025 and around 60 per cent of order intakes in 2024 were with automakers in China, excluding joint ventures.

In Asia excluding China, Valeo outperformed automotive production by 3 percentage points thanks to strong sales momentum for the Power Division in India in the high-voltage electric powertrain business, and in South Korea in thermal systems.

In North America, Valeo underperformed automotive production by 3 percentage points, with business affected by the postponement of production starts on particular contracts.

The Light Division underperformed automotive production by 4 percentage points (revenue €1,354bn). The division's business remains buoyant in Europe, thanks to the ramp-up of production at several European automakers. However, the division was affected by production-start postponements in North America, and an unfavourable customer mix in China and Japan.

Slate Electric Pickup Has Minimalist Design

LIGHTING NEWS

Founded in 2022, Slate Auto began as a project within Re:Build Manufacturing, a domestic manufacturing incubator co-founded by Jeff Wilke, the former CEO of Amazon's consumer division. The company are headquartered in Troy, Michigan, with a design studio in Long Beach, California, and are thought to be planning a production plant in Indiana.

Slate aim to offer this box-on-wheels electric pickup truck at a starting price of around USD $25,000. Ahead of the official announcement, Slate recently parked prototype vehicles on the streets of Venice, California, wrapped with branding for fictitious companies. These non-functional design bucks included a pickup truck, a coupé-like SUV, and a boxier SUV.

The whole thing looks like a great example of how to do a nice design with really basic components, that is really what they did if we look at the lamp design. Really fascinating!

Antolin Interior Lights In Mahindra BE6, XEV 9

LIGHTING NEWS

Antolin are proud and grateful to have collaborated with Mahindra on their new models in India: the BE 6e and XEV 9e. Antolin had the privilege of playing a key role in the development and production of the overhead lighting console and ambient lighting, the headliner substrate, and the front-end carrier for these vehicles.

To go further ...

EAV 2025 Summary

TO GO FURTHER ...

by Felipe Melhado

The SPE Plastics in Electric & Autonomous Vehicles (EAV) conference is a premier platform for showcasing the innovations driving the shift toward plastics, coatings, and engineered materials to enable smarter, lighter, and more efficient vehicles.

The event, held in Troy, Michigan, gathered engineers, material scientists, automakers, and tier-1 suppliers from around the globe to present innovations in everything from optical polymers for head-up displays to sustainable coatings, functional surfaces, and lighting systems. The articles we present capture the essence of the conference, distilling technical presentations into accessible summaries that highlight the materials, methods, and applications reshaping electric and autonomous vehicle design.

Through detailed insights from the likes of Henkel, Röhm, Dow, SABIC, BASF, Trinseo, Kingfa, Envalior, and Mankiewicz, this summary report explores how polymers and coating technologies are helping the auto industry meet evolving challenges like integrating digital UX and supporting circular design goals. Whether it's smart surfaces that light up on demand or recycled PMMA used in full-width center lamps, each innovation reflects a broader commitment to performance, sustainability, and user-focused design.

Be sure to read our detailed report and summary of the conference.