Completing the circle

ERJ at tire TECHNOLOGY EXPO 2026

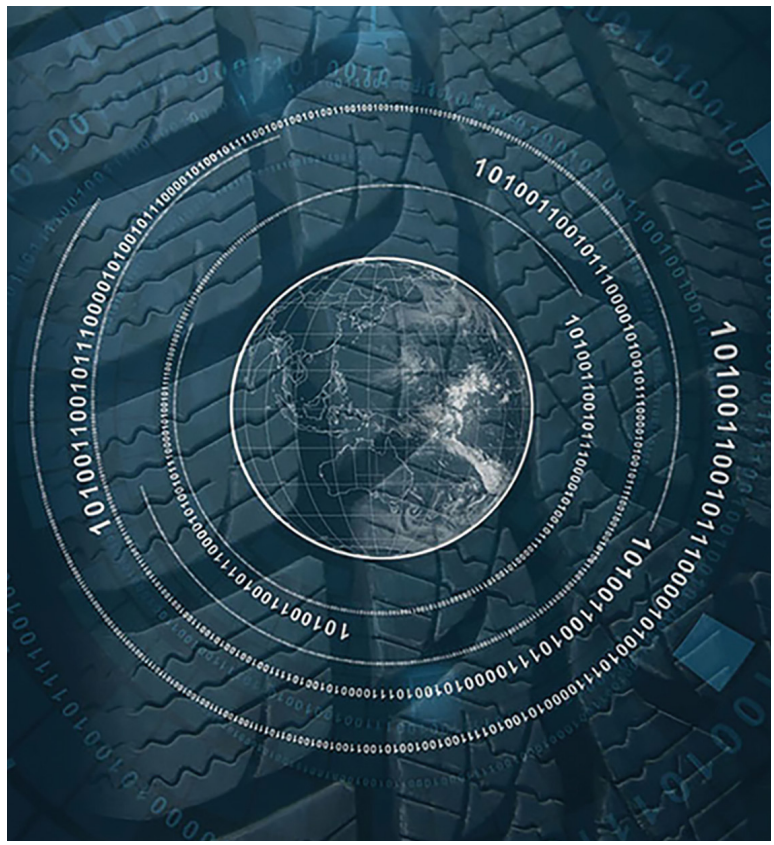
Upcoming conference and expo event will reflect increasing regulatory and commercial pressures on tire makers

Issues around sustainability, the circular economy and new-mobility will take centre stage at the Tire Technology Expo 2026 conference and trade fair event, being held 3-5 March in Hanover, Germany.

Setting the scene at the plenary opening session will be a presentation on the emergence of autonomous vehicles by Andreas Topp, VP for platform development and Industrialization at Continental Reifen Deutschland GmbH.

In his talk, Topp will explain how developing smart tire technologies that meet the unique technical needs of autonomous vehicles as well as the more conventional needs of fleets is a key challenge for the future.

The presentation will explore opportunities in the areas of smart vehicle dynamic controls, optimised



Pick of the papers: Market trends

Outlook for the tire industry
Outlook for tire sales worldwide; effect of tariffs and anti-dumping duties on tire imports and tire production; expansion of production bases of low-cost tire makers
Robert Simmons, director, tire and rubber research - GlobalData

Ongoing transformation of the global tire industry
Trade barriers; industry consolidation; global expansion of Chinese tire makers; Impact on big brands; Trends towards more flexibility, more collaboration and yet more uncertainty.
David Shaw, CEO - Tire Industry Research

fleet operations, product circularity and fully connected tires for fully connected fleets.

On the materials front, meanwhile, a Michelin paper will focus on the introduction of renewable and recycled butadiene as part of strategies to decarbonise and to enable circularity based on "trustworthy, traceable, low-carbon circular supply chains with real, measurable content."

Co-presenters Garance Lopitaux, R&D sustainable monomers program director and Christophe Durand, VP sustainable materials and solutions will examine the steps needed to deliver this goal – citing BioButterfly technology developed by Michelin, IFPEN and Axens, which converts renewable ethanol into butadiene.

Tire wear will be a recurring topic throughout the conference, starting with a talk by Nicolas Tissier, director, research Tire Industry Project (TIP) - World Business Council for Sustainable Development.

Tissier will report on recent progress from the TIP on tire and road wear particles (TRWP) and tire emissions, including new findings from ongoing studies on TRWP generation, environmental fate, and ecotoxicology.

The TIP research leader's talk will cover methodologies for assessing tire emissions that can be used in evaluating mitigation scenarios in the use phase - towards informing decision-making and sustainability strategies across the tire industry.

Giving a vehicle maker's perspective, Simon Rushton, technical specialist, wheels and tires at JLR will examine how tire abrasion legislation could affect tire-sizing and 'target-setting' methodology.

Meanwhile, Adam McCarthy, secretary general, Tyres Europe will explore how EU regulations are shaping the future of tire design. From Euro 7 to the Ecodesign for Sustainable Products Regulation (ESPR), and looking ahead to the forthcoming Circular Economy Act, the presentation will highlight how policy is driving innovation, material choices and product performance.

McCarthy will also reflect on the balance between environmental objectives and technical feasibility, and how the industry is adapting to ensure compliance while maintaining safety, quality and competitiveness in a fast-evolving regulatory landscape.

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Meet ERJ at Hanover show

European Rubber Journal with be exhibiting at Tire Technology Expo 2026. Members of our editorial, commercial and support teams will be there to welcome visitors at our show booth 8100 at the Hanover show.

Learn more about ERJ print and online information services for the global rubber & tire industry, including our programme of features, special reports, data-products and event activities planned for the year ahead.

Having reported on the global rubber & tire sector for over 130 years, ERJ's website, magazine, newsletters and digital supplements are highly regarded as authoritative and trusted sources of up-to-date information for these industries.

Based around ERJ magazine, published six times a year, our news, features and opinion coverage addresses all significant commercial and technical trends in natural and synthetic rubber – taking in the whole supply-chain from rubber growing, formulation, design and manufacture to end-use application and recycling.

If you have yet to do so, take the opportunity at Tire Technology Expo 2026, to subscribe to our website and ERJ Daily Newsletter, delivering news and insights around the latest developments as they happen.

Pick of the papers: Tire wear emissions

Improvement of the abrasion test in accordance with the new Euro 7 regulations.
Günter Leister, CEO - twms-consulting

Tire abrasion testing methodologies – technical and regulatory developments
Nicolas de Mahieu, secretary general - ETRTO (European Tyre and Rim Technical Organisation)

A study on separation methods for TRWP and typical microplastics
Masatoshi Kobayashi, manager - Sumitomo Rubber Industries

Parameters influencing tire wear: Current challenges for development under the aspects of new regulation
Pavel Ignatyev, R&D, tire innovations and applied research - Continental Reifen Deutschland

Michelin research on TRWP: Around the tire, inside the particles
Frederic Biesse, senior fellow, tire physics and modelization, Michelin; Guillaume Lemasson, senior fellow in tire physics and performance modelization, Michelin

Cutting-edge tire and road wear particles collection method
Yasuhiro Shoda, manager - Bridgestone Europe

Laboratory perspective for TRWP collection and detection
Shinya Nakano, manager, Sumitomo Rubber Industries; Marzieh Salehi, R&D manager, VMI Group

Evaluation of wear particle leachability
Erick Sharp, CEO - Ace Laboratories

ERJ at tire TECHNOLOGY EXPO 2026

Issues around the introduction of the EU's Digital Product Passport (DPP) will provide another important talking-point in Hanover. Among those addressing this development will be Claire Fioretti, head of standards and regulations for the connected mobility, Michelin

In a paper titled 'Enabling the Tyre Digital Product Passport', Fioretti will present a smart DPP architecture for compliance, scalability and business growth and explain how Europe's modular approach can simplify global DPP rollouts, including in China.

Bridgestone's path to circular economy will be detailed in a presentation by Marcela Castaño, principal applied researcher, sustainability and circular economy, Bridgestone Americas and Marco Musaio, head of end-of-life tire and circular economy – Bridgestone.

Delegates will learn about the tire group's journey of transition toward a "circular business model, holistically considering resource efficiency at every stage of our products' lifecycle and across the value-chain."

Continuing the sustainability theme, Martin von Wolfersdorff of Wolfersdorff Consulting Berlin will ask the question: Three decades of recovered carbon black (rCB) – what has changed?

While major production facilities are being built and commissioned both within and outside of Europe, important challenges remain unresolved, including

SELECTION OF KEY EXHIBITORS

C118: ACE Laboratories - Latest insights in the fields of testing and materials development for the tire industry.

C209: Alpha Technologies - Instruments and software for precision analysis of rubber and elastomeric materials, including DMA and fatigue testing technologies gained through 2025 acquisition of Metravib.

3030: Ametek / Micro-Poise Measurement Systems - Will present its latest advances in marking systems, measurement technologies, RFID, tire uniformity and X-ray inspection.

C208: Arlanxeo - Showcasing portfolio of one of the world's largest synthetic rubber producers with more than 10 production sites in 8 countries, and 4 R&D locations worldwide.

C417: Asahi Kasei Europe - Synthetic rubber major will spotlight newest grades of SSBR and Li-BR offering enhanced rolling resistance, wet grip, and wear resistance properties.

C620: Barbe GmbH - Focus on anti-tacks, handling automation solutions, liquid dosing systems, release chemistry, tire uniformity geometry and balancing. Show features will include anti-tacks for tire compounds, release agents, and lubricants.

C150: Bekaert - Material science of steel wire transformation and coating technologies, including innovative materials and services for new-mobility applications.

C224: Birla Carbon Europe - Global manufacturer of carbon black, including sustainable solutions that enhance the performance of tires.

C504: BKT Carbon - To present sustainable carbon black materials from OTR tire maker BKT's plant in Bhuj, India.

C615: Cabot Corp. - Major carbon black supplier will focus on safety and sustainability.

4020: Chem Trend - Global supplier of release agents, purging compounds, and other process chemical specialties.

C114: DRC - Doctors of Rubber Compounding - Turkish-based supplier of high-performance compounds to global tire manufacturers, supporting applications across tread, sidewall, inner-liner and a wide range of technical tire components. DRC also produces a range of tire-related semi-finished products, including retreading products and calendered rubber materials.

4002: DRI Rubber - Ravago Group company focused on logistics solutions, natural rubber, reinforcing materials, synthetic rubber, tire recycling. DRI is a global supplier of circular products and solutions for the tire industry.

C340: Ecombine Advanced Materials - Focusing on the research and production of high-performance rubber new materials, especially via liquid phase mixing technology.

C218: Endurica Europe - Answer the question "How long will it last?" through the application of comprehensive CAE workflows for fatigue analysis of elastomers, Endurica will showcase its latest advances in simulation, characterisation and testing of fatigue performance for new or existing design ideas.

C421: Ergon International - Global supplier of process oil solutions for a wide range of tire applications, including passenger vehicles, heavy-duty trucks, off-road vehicles, aviation and motorcycles. At Tire Tech Expo,

Pick of the papers: Manufacturing

Data-driven process control in rubber mixing
The monitoring extension of the Advise control system enables supervision of rubber mixing operations and early anomaly detection.
Tim Bommer, senior R&D engineer - HF Group

AI-driven transformation in tire manufacturing
Artificial Intelligence is transforming how the tire manufacturing industry is meeting demands for enhanced efficiency, superior quality and sustainable production.
Bill Henderson, head of US tire vertical - Siemens

Trends in compounding – drive for automation
Compounding has remained one of the only subjects in the tire industry where information is kept close to the...
Jacob Peled, executive chairman - Pelmar Engineering Int.

Artificial intelligence enhances organizational knowledge of the calendering process
Minerv-AI is an AI-powered agent for industrial knowledge capture and procedure automation developed for the calendering field.
Alberto Vigano, automation officer/R&D - Comerio Ercole

Influence of sustainability on the rubber extrusion process
The current development towards e-mobility and the associated changes in requirements for tire production also pose new challenges (or...
Dennis Preick, senior engineer rubber processing tire extrusion - Troester

EoW, rCB specifications and accessibility of ELT feedstocks.

Von Wolfersdorff will examine the current state of the rCB industry, as well as its trajectory over the next 5-10 years.

'The lion in the cage – risk versus danger' is the intriguing title of a paper to be given by Stephan Rau, technical director of German rubber industry association the WDK.

When it comes to material recycling of end-of-life tires, Rau will urge a shift away from the EU's current preventive approach that merely looks at content of substances. Instead, he will argue, "a risk approach is needed since even bio-available substances can be harmful."

Elsewhere, it will be interesting to learn full details of Toyo Tire Corp.'s recent development of a tire using 96.5% renewable and recycled materials. The fuel-efficient tire is said to employ a proprietary butadiene rubber synthesised from carbon dioxide.

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Ergon will explain its vision to be the world's preferred partner for innovative and specialised technologies.

C440: Evonik Industries - A global leader in specialty chemicals, Evonik will focus on offerings including silica, silanes, and polybutadienes to enhance tire performance and sustainability.

C230: Kraton Chemical - Latest developments from global producer of specialty polymers and bio-based pine chemicals.

2050: Lanxess - Will present capabilities in fields of: Adhesion resins, anti-tacks, bonding agents, curing systems and technologies, marking systems, release chemistry, rubber process additives, specialty chemicals and tire recycling

6000: KraussMaffei Extrusion - Integrated extrusion line systems for manufacturing tire components including treads, sidewalls, inner-liners, and small components.

C320: Schill+Seilacher "Struktol" GmbH - Global player and technological partner in the fields of anti-tacks, rubber process additives and specialty chemicals will focus on its role in supporting tire manufacturers on the journey to a more sustainable future.

C410: Siemens AG - Automated systems and technologies, data acquisition, electrical drives, engineering services, factory management, handling automation solutions, logistics solutions, motion control components, RFID, tracking and Identification, tire design & simulation software, tire mould technology, tire recycling.

C237: Skyhem Chemicals - Istanbul-based supplier will present its latest developments in the field of sustainable, bio-circular process oils offering innovative, eco-friendly solutions for the tire and rubber industries.

C240: Solvay - Will showcase innovations within its broad portfolio of highly dispersible silica (HDS) for the global tire manufacturing industry – including specialty grades in all tires parts providing advanced levels of environmental performance.

C316: Synthos - New advances in the development of innovative synthetic rubber materials for major tire manufacturers worldwide.

C219: Teijin Aramid - World leader in aramid production will present tire reinforcement materials offering enhanced strength-to-weight ratio, heat resistance and in-use performance and recyclability – from production bases in The Netherlands, Thailand and Japan.

4060: Troester - Advanced rubber processing solutions for the tire industry

C310: UPM Biochemicals - Will highlight how its lignin-based renewable functional fillers (RFF) offer a sustainable alternative to carbon black and precipitated silica in tire & rubber applications – and provide an update on the progress of its new industrial scale biorefinery in Leuna, Germany to convert solid wood into next generation biochemicals.

2009: Zeon Europe - Will highlight its leading-edge capabilities in elastomer technology, including being "one of the best" S-SBR/Li-BR technology owners, particularly in terms of advanced control of molecular structure and chain termination modifications. At the Hanover expo, Zeon will also explain how its tire elastomers and C5 aliphatic resin contribute to meeting continuously increasing modern eco tyre requirements.

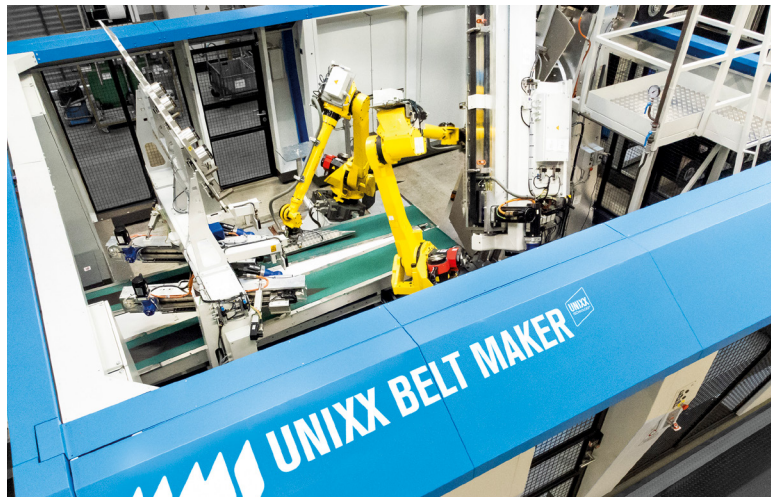
Pick of the papers: Materials science

Reinforcement control in SSBR for next-gen tire performance
Will evaluate Synthos' new generation of functionalised SSBR in combination with silica of varying surface areas and resins – towards delivering an optimised balance of rolling resistance, wet grip, wear resistance and processability.
Topics will include: Influence of selected functionalized SSBR on rubber formulation reinforcement characteristics; Mode of interaction of functionalised SSBR with different silica grades and with resins in rubber compounds; Pathways for improving high-performance tire formulation wear and rolling resistance properties.
Sven Thiele, senior R&D leader, process and product development - Synthos Schkopau

Evolution of Enliten Technology – realizing innovative material ideas
Bridgestone's latest achievements and progress towards "ultimate customistion" of the tire, as well as challenges faced in creating such innovative materials.
Noriaki Yukimura, VP, advanced material - Bridgestone Americas

Functionalized polymers – a game-changer for modern low RR tires
How Asahi's latest generation of functionalised SSBR and Li-BR can enable major advances in wet grip, abrasion resistance and rolling resistance as well as improved silica-intake and mixing efficiency.
Eshwaran Subramani, strategic technical lead, Asahi Kasei Europe

Development of new SBR with reversible bonds for sustainable tires
Introducing reversible bonds into the main chain of SBR: the effects on the compound structure and on the mechanical and dynamic properties; insights into the design of sustainable tire materials.
Kanyou Shin, R&D specialist - Eneos Materials



Toyo's initiative is part of a broader effort to evolve sustainable technologies from concept development to motorsport applications and, ultimately, to commercial products.

ERJ at tire TECHNOLOGY EXPO 2026

Advanced manufacturing

Advances in the field of tire manufacture represent another important theme at Tire Tech Expo 2026, not least those leveraging the power of artificial intelligence (AI).

In his paper 'AI-driven transformation in tire manufacturing' Bill Henderson, head of US tire vertical at Siemens will report on how AI is transforming tire manufacturing and enhancing efficiency, improving quality and providing options for more sustainable manufacturing.

Henderson will focus on three critical applications: AI-driven quality and predictive logistics in raw material handling, generative AI for process optimisation in rubber mixing, and advanced AI-powered inspection for final product quality assurance.

Meanwhile, Steven Nguyen, global industry lead, Auto, Tire, EV & Battery, Rockwell Automation, will explore how data can be leveraged at each stage of the tire lifecycle to create new value-points across the supply chain.

Nguyen will explain how connecting data across materials, production, and performance, can enable manufacturers to improve decision-making, raise throughput

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SELECTION OF KEY EXHIBITORS

8100: European Rubber Journal - The leading publication for the global tire & rubber industry, offering print and on-line news, data and information services. Stand visitors can also get the latest update about the ERJ Future Tire Conference 2026 in Prague.

8084: ARP Technologies - Automated systems and technologies, curing systems and technologies , handling automation solutions, hydraulic systems, measurement technologies, tire building machine technologies

9045: AP2 - System integrator for applications including calendering lines, extrusion lines, mixing, tire building machinery and retreading machinery.

8048: Black Donuts Inc. - Engineering and technology partner from concept to execution – delivering turnkey solutions for tire factories and tire development, covering both greenfield & brownfield projects.

9057: Carter Bros - Engineering services, extruders and extrusion technology, mill room solutions, rubber mixing technology

8006: Comerio Ercole - A leader in the design and manufacturing of complete rubber calendering lines for the tire industry, including fully integrated turnkey solutions.

8016: Harburg Freudenberger Maschinenbau GmbH (HF Group) - Automated systems and technologies, curing systems and technologies, rubber mixing technology, tire building machine technologies – including sustainable solutions for the tire manufacturing industry.

7042: L&T Rubber Processing Machinery - Rubber processing machinery for the global tire manufacturing industry.

7052: Mesnac - Comprehensive solutions for smart manufacturing in the tire industry, including in the fields of Internet of Things, new materials, energy conservation and environmental protection.

9016: Prodicon International - Major supplier of: cooling systems and heat carriers; Cutting technology; Mill room solutions

8064: VMI Group - Bead lines, extruders and extrusion technology, mill room solutions, rubber mixing technology, tire building machine technologies

7065: Zeppelin Systems - Advanced systems and solutions for silo storage, pneumatic conveying, weighing and feeding of powders, chemicals, solids and liquids. In Hanover, Zeppelin will also spotlight its recycling technologies, managed by automation packages.

ERJ at tire TECHNOLOGY EXPO 2026

Short course programme

Tire Technology Expo will include a series of expert-led short courses during the week of the event covering topics ranging rom tire mechanics and regulations to tire reinforcement:

Tire Mechanics
(2-5 March)

University of Akron course designed for engineers, chemists, and scientists, this four-day immersive course delivers a review of fundamentals and cutting-edge insights into tire design and performance for both newcomers and seasoned professionals.

Tire Regulations
(2-5 March)

Delivered by TÜV SÜD expert Lars Netsch, the course will focus on practical relevance and up-to-date knowledge: empowering professionals to navigate compliance challenges and contribute to product innovation and market readiness.

and quality, enhance sustainability, and accelerate the development of better tires.

Also of note is a HF Group paper titled 'Data-driven process control in rubber mixing: Benchmarking and deviation analysis.' Presenter Tim Bommer, senior R&D engineer will discuss HF's introduction of a monitoring extension of the group's Advise control system that enables supervision of rubber mixing operations and early anomaly detection.

This functionality is said to reduce production waste, stabilises process performance and material quality, and allow engineers to focus on efficiency and quality improvements in the mixing room.

STOP PRESS: MORE HANOVER HIGHLIGHTS

Conference: Endurica at the conference in the session: Building a sustainable tire industry – advances and initiatives

Better assessment of tire retread suitability will be addressed in a paper presented by Mahmoud Assaad, senior technical advisor at Endurica. The presentation will examine how predictive modelling of oxygen diffusion and antioxidant effects can be used to understand rubber degradation in tire casings through critical oxygen concentration. The work will show how this approach helps reduce uncertainty in retreading decisions, supporting safer casing reuse and more consistent tire life.

Conference: ACE Laboratories at the conference in the session: Test, analysis and mitigation of wear and particle emissions

Improved insight into wear particle leachability from tire tread compounds will be presented in a paper by Erick Sharp, CEO of ACE Laboratories, exploring how filler selection, polymer type, and wear generation methods influence the migration of 6PPD and other migratable ingredients into water, based on controlled wear particle generation and leachability analysis. The study supports more informed material and formulation decisions in response to growing environmental scrutiny.

Expo: ACE Laboratories will highlight its latest capabilities in analysing tire wear particle chemical leachability into water, as well as comprehensive testing support for recovered carbon black. This includes the full suite of ASTM rCB test methods and ongoing work to expand rCB screening and classification, supporting more reliable material decisions as rCB moves into higher-value tire materials applications.

Tire Reinforcement - Materials, Applications and Fatigue Testing

(2 March)

This one-day course on the day before the conference is designed for engineers, chemists, scientists, product managers and technicians of tire manufacturers and their reinforcement suppliers, who have a special interest in tire reinforcement design, manufacturing and RAD/QA material laboratory testing.

It will provide an introductory overview on tire construction & components, diversity of reinforcement material types, their construction & manufacturing, specific properties and static/fatigue testing methods for the aimed tire component and field of application.

Tire Mathematical Modelling Short Course

(2-4 March)

Whether you are developing cutting-edge electric vehicles, working as a supplier to OEMs, optimising motorsport performance, or leading innovation in vehicle dynamics, understanding tire behaviour through advanced modelling is essential.

This three-day course will explore the tools, techniques, and insider knowledge needed to master tire simulation and bring real-world results to your projects.

Tire Technology Expo Awards

A regular feature of the annual Tire Technology Expo event In Hanover is the announcement of winners of an industry awards event, recognising advances in tire development and manufacturing across a broad range of categories:

Environmental Achievement of the Year – Tire Design

This award will recognize achievements in tire design that are focused on improving the environmental sustainability of the product

Environmental Achievement of the Year – Manufacturing

This category will acknowledge advances in production processes and technologies aimed at reducing the environmental impact of tire production

Environmental Achievement of the Year – Industry Contribution

This award will recognize the contribution of a person, company or organization to improving environmental responsibility across the tire industry

Chemicals and Compounding Innovation of the Year

Focusing on the latest advances in chemical engineering and compounding, this award will showcase the latest breakthroughs in tire composition

Materials Innovation of the Year

This category will recognize the latest advances, discoveries and applications of new materials in tire manufacturing

R&D Breakthrough of the Year

This award will showcase the latest research projects, collaborative investigations and scientific breakthroughs unveiled in the last 12 months

Tire Manufacturing Innovation of the Year

This category will recognize the leaders in tire building and construction, equipment suppliers and industry partners

Tire Industry Supplier of the Year

This award will acknowledge the valued component experts and suppliers providing the best performance, technology and service to tire builders

Tire Concept of the Year

This award will recognize the most innovative concept tire designs unveiled since March 2025

Tire of the Year

This award will be presented to the manufacturer of the most accomplished new tire design to be unveiled in the last 12 months

Tire Manufacturer of the Year

This category will recognize the accomplishments of leading tire makers across all aspects of the industry, from technological breakthroughs to environmental achievements, R&D advances and more.

EXHIBITORS

COMPANY	STAND
4Jet	5040
A	
Aarti Steel International Ltd	C232
Ace Laboratories	C118
Alligator Automations India	8035
Allnex Belgium	C226
Alpha Technologies	C209
Ametek / Micro-Poise Measurement Systems	3030
AP2 - Automazione Processi Produttivi Srl	9045
Applus+ IDIADA	C443
Arduro	C639
Arlanxeo	C208
ARP Technologies (Suzhou) Co. Ltd	8084
Asahi Kasei Europe GmbH	C417
Avantes BV	C138
B	
Bansal Wire Industries Ltd	C606
Barbe GmbH	C620
Bartell Machinery	8032
Beckhoff Automation	7064
Beontag	5070
Biolanic	C216
Birla Carbon Europe	C224
BKT CARBON (BKT TIRES)	C504
Black Donuts Engineering Inc.	8048
Bogimac NV SA	C329
BST eltromat International	4051
C	
C.M. srl	6040
Cabot Corp.	C615
Calemard by Spoolex	8037
Carter Bros International Ltd	9057
Cassioli srl	8061
Chem Trend (Deutschland)	4020
Cimcorp Group	9078
Coesfeld GmbH & Co. KG	C508
Color Service srl	8046
Comerio Ercole SpA	8006
ContiBladders	4018
D	
Dalian Baofeng Machinery Manufacturing Co.	9044
Datria Sro	5020
Dekati Ltd	C412
Desmasa	3059
DRC – Doctors of Rubber Compounding	C114
DRI Rubber	4002
Dynamic Design	3060
E	
Ecombine Advanced Materials	C340
Ecopower (Yongxiu) New Material	C438
EGE Kimya Sanayi ve Ticaret	C120
Electronic Systems SpA	8008
Elsewedy	C124
Emissions Analytics	C510
Endurica Europe	C218
Eneos Materials Europe	C214
Engage Automation	7082
Ergon International	C421
Erhardt + Leimer	3000
Euroimpianti	2058
European Rubber Journal	8100
Evonik Industries AG	C440
F	
Facts Inc.	9049
Fischer TireTech	8080
Flexilis GmbH	C610
Fraunhofer Institut für Integrierte Schaltungen IIS	1016
Fraunhofer-Institut für Techno- und Wirtschaftsmathematik ITWM	1016
Fundacja Twargum Recycling Solutions	6048
G	
Gama Consulting doo	7084
GCAPS	2027
General Equipment Technology Development Ltd	8069
GfA De Pryck	2040
Gibitre Instruments	3070
Gislotica Lda	3040
GL Inspect GmbH	5049
Glebus Alloys Europe Sro	8060
Glospect Machinery	3049
Gottschol Alcuilux CZ, spol sro	2030
GRP Ltd	C525
Güdel Germany	C415
H	
H&R Group	C330
Haiyang Technology	C238
Hana Technologies	4006
Harburg Freudenberger Maschinenbau GmbH (HF Group)	8016
Hefei Wide Way Mould	4030
Henan Yongxin Chemical Co. LTD	2026
Henkel	6060
Herbert Tire Tooling	4040
Himile Mechanical Science & Technology (Shandong)	7080
Hofmann Maschinen-und Anlagenbau	5018
Horizon Laser Technology	4027
I	
Icaplants	2010
Ilmberger Maschinen- und Zahnradfabrik	6010
Inmess	2029
Intralox	8020
Isogra	C431
Italmatic	3039
J	
Jade Chemical	C112
JiangSu CheeShine Performance Materials	C630
Jiangsu Rebo New Material Technology	C217
Jiangxi Black Cat Carbon Black	C506
Jiangyin Sanliang Rubber & Plastic New Material	C616
Jinan Ever-growing Rubber Additive	C414
Junma Tyre Cord	C540
K	
Kado Intelligent Technology (Shanghai)	3050
Kengic Intelligent Technology	8086
Kobe Steel	7046
Koenig & Bauer Coding	3069
Kokusai	4029
Kokusai Europe	4029
Konimpex Chemicals	C132
Konimpex	C132
Kraton Chemical	C230
KraussMaffei Extrusion	6000
Kuraray Europe	C640
L	
L&T Rubber Processing Machinery	7042
Lanxess Deutschland Gmbh	2050

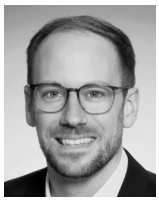
EXHIBITORS

COMPANY	STAND
Lawer	9032
LCS Group	9060
LG Chem	C328
Lifting Solutions	9080
Link Engineering	C146
Link-Asia Smart Technology (Suzhou)	8053
LKY Wartungs Und Industrie Service	4000
M	
Madura Industrial Textiles	C210
Mae Industria Gomma	1010
Matteuzzi	9064
Mecaconcept	8037
Megaride	C614
Mesnac Co. Ltd	7052
Micro-Epsilon Messtechnik	1000
Milliken Textiles	C220
Momentive Performance Materials	C420
Mondon SAS	7083
MTS	4001
Muench Chemie International Gmbh	3010
Murata Electronics Europe BV	4050
N	
Nakata Engineering Co. Ltd	1006
Nanjing Green Gold Giant Rubber & Plastic High-Tech	C148
Nissha Co. Ltd	C142
Norka Instruments Shanghai Ltd	C442
NTE Process Srl	7048
NV Bekaert SA	C150
Nynas AB	C436
O	
Otego	1014
P	
Pagani Works	5050
Pelmar Engineering Germany Gmbh	9032
Perfect Id India Private Limited	5001
Phoenix Solution Co., Ltd	1008
Prodicon International Srl	9016
Prozax Sro	9020
Q	
Qingdao Crown Chemical Co., Ltd	C416
Qingdao Hailang Intelligent Equipment Co., Ltd	7054
Qingdao Huashine Intelligent Technology Co., Ltd	8050
Qingdao Kangwei Fibre Co., Ltd	6020
Qingdao Kingerobot Co., Ltd	5060
Qingdao Xiangjie Rubber Machinery Co., Ltd	5064
Quechen Silicon Chemical Co., Ltd	C520
R	
Rain Carbon Germany Gmbh	C215
Rajratan Global Wire Ltd	C526
Rea Elektronik Gmbh	2060
Rerun Rubber Products Bv	C524
Rjs Corp.	8054
Rockwell Automation Bv	7096
Rodolfo Comerio Srl	7068
Roland Electronic Gmbh	6009
Rubber Conversion Srl	8006
Rubicon Gummitechnik Und Maschinenbau Gmbh	2041
S	
Safe-Run Intelligent Equipment Co., Ltd	8094
Saspol - Sasmac International Srl	8006
Bt Ultrasonic Technology Co.,Ltd	9067
Schill+Seilacher "Struktol" Gmbh	C320
Schubert & Salzer Control Systems Gmbh	9036
Sds Systemtechnik Gmbh	3070
Sedlecký Kaolin A.S.	C610
Seichter Gmbh	3011
Sella Srl	5057
Sennics Europe Bv	C530
Sew-Eurodrive Gmbh & Co Kg	5030
Shandong Daye Co, Ltd	6030
Shandong Reida Technology Group Corporation Ltd	6050
Shenma Industrial Co.,Ltd	5000
Shougang Century (Shanghai)	5010
SI Group Germany (Deab) Gmbh	C629
Siemens Ag	C410
Sinochem International Advanced Materials (Hebei) Co., Ltd	C106
Skyhem Chemicals	C237
Smithers	4028
Solvay	C240
Starrett Bytewise Measurement Systems	2019
Sustek Gmbh	5057
Synthomer Middelburg B.V	C502
Synthos	C316
T	
Techno Waxchem Pvt. Ltd	C429
Teijin Aramid Gmbh	C219
Tekna Automazione E Controllo S.R.L.	2048
Test Industry Srl	3015
The Poling Group	3020
Tianjin Reager Technology Co Ltd	9047
Tianjin Saixiang Technology Co Ltd	8036
Tkm Gmbh	2059
Tmsi Llc / Kingerobot Americas	4041
Transsystem Spolka Akcyjna	9015
Troester Gmbh & Co Kg	4060
U	
Ueshima Seisakusho Co., Ltd	C430
UP-Labels GmbH	2057
UPM Biochemicals GmbH	C310
UTH GmbH	4010
Uzer Makina	8052
V	
VIPO as	8068
VMI Group	8064
W	
Weber & Schaer	C207
Wipotec	2020
Wuhan Huagong International Development	9000
Wuhan Yugong Laser Microjet Technology	4007
Wuxi Double Elephant Rubber & Plastics Machinery	9046
Wyko Tire Technology (UK)	7066
X	
Xingda	C110
XSensor Technology	C136
Xunrui Technology	C612
Z	
Zeller+Gmelin	5002
Zenith Steel Group (Huai'an) New Material	C516
Zeon Europe	2009
Zeppelin Systems	7065
ZF Friedrichshafen	2000

Inline process monitoring

Article by Julian Heukäufer, team lead, automation R&D, Tim Bommer, senior R&D engineer, HF Mixing Group

Tim Bommer



Julian Heukaeufer

The rubber processing industry is facing significant challenges as increasingly strict environmental regulations and a rising CO_2 price demand a reduction in production waste, while soaring energy prices continue to drive up costs.

Digitalisation can provide solutions but also presents new challenges: The intelligent analysis of measurement and production data is crucial for efficient manufacturing. However, the increasing volume of data makes it more difficult to maintain an overview and respond quickly to production errors.

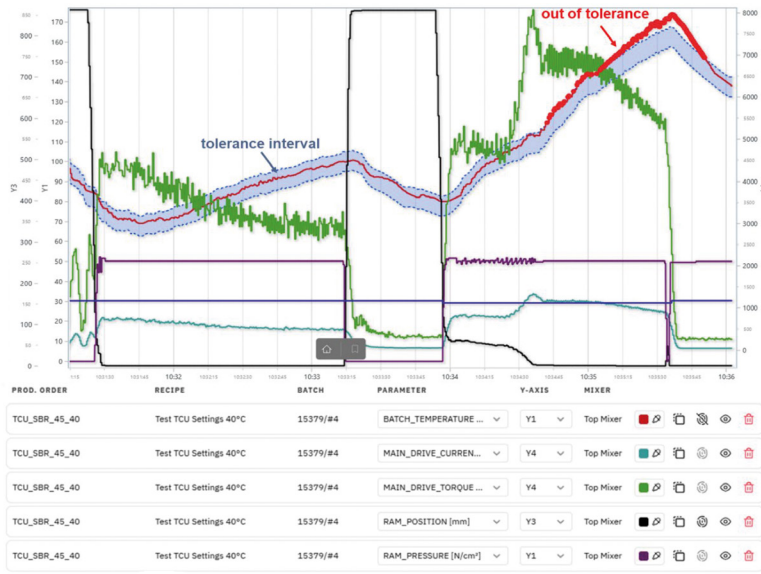
Meanwhile, qualified employees with expertise in data analysis and production process monitoring are hard to find.

To address these issues, HF Group is further developing its Advise mixing room control system with the introduction of 'inline process monitoring' (IPM) – an intelligent data evaluation tool designed to monitor the mixing process and support process and production engineers in supervising the mixing room.

Advise is a flexible, modular automation system, designed to automate the entire mixing room process. It manages key stages, including raw material handling, automated weighing of components, the design and control of the mixing process, downstream equipment, and the storage of compounds.

The system is scalable, allowing for the integration of individual applications based on specific requirements, and also enables process data evaluation of mixing, machine and weighing data.

As an extension to the Advise system, the IPM application is designed to allow users to monitor production in the mixing room and quickly identify anomalies during the upstream (eg weighing of fillers), mixing and downstream (eg extrusion) process.



The IPM application illustrates a temperature curve that is outside the tolerance due to a malfunction in the temperature control unit, while a detailed report is generated listing all out-of-tolerance conditions for a production order

By detecting issues as early as possible, it helps reduce the amount of off-spec material produced. Additionally, it supports process and production engineers by easing their supervisory tasks, enabling them to focus on optimizing production processes for greater efficiency and quality.

How it works

1. **Data collection:** Initially, relevant measurement values from the mixing process are collected. This data includes historically recorded process parameters and recipe values that represent the target state. Only data from processes where the material quality has been tested and confirmed satisfactory will be selected. Any data or processes deviating from this standard will be manually excluded from the dataset.
2. **Master curve creation:** Using the collected data, a master curve is created for each parameter. This is then assigned to the specific recipe and stored. Master curves can be created for parameters, such as main drive power, material temperature or specific energy.
3. **Tolerance configuration:** For each master curve, a tolerance interval is defined, allowing precise configuration for each process step and measurement parameter. The tolerance interval and master curves are connected and stored with a specific recipe.
4. **Analysis and feedback:** During the mixing process, all parameters are continuously analysed and compared with the master curve and the defined tolerance interval for the recipe. If any anomalies are detected, feedback is provided to the operator and/or supervisor.

Conclusion

The IPM application enhances the Advise system by enabling monitoring of the mixing process and early detection of anomalies. By collecting historical mixing process data, creating master curves for key parameters, and defining tolerance intervals, the system ensures continuous comparison of production data against predefined benchmarks.

If deviations occur, reports are provided to operators and supervisors, allowing for quick corrective action. Examples of such deviations include malfunctions in filler or oil weighing systems, variations in raw material quality, or issues with mixer temperature control. Additionally, off-spec material can be immediately identified and separated, preventing it from entering further production steps.