

Materials & Chemistry

Field Intelligence Report

Vol. 49 | 2026.07.27 — 08.02 | Articles: 137

Functional Materials / Polymers & Resins / Nanotechnology / Adhesives & Encapsulants

Market Mood

68

/ 100 Building Momentum

Advanced Materials: AI, Sustainability, and Performance Drive Innovation

Breakthroughs in functional materials, polymers, nanotechnologies, and adhesives are reshaping industries, fueled by AI and urgent sustainability demands.

AI-Driven Material Discovery Acceleration	Advanced Alloy Strength Increase	Nano-Based Water Filtration Market CAGR	Polymer Shipment Volume Increase
10x	6-10x	14.57	2x
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Weekly Summary

This week's report highlights a surge in advanced materials innovation, with AI accelerating discovery across functional materials and nanotechnologies. Regulatory pressures are driving the development of PFAS-free and bio-based polymers, while chemical recycling faces commercialization hurdles. The demand for high-performance adhesives and encapsulants is intensifying, particularly for AI chip thermal management and advanced semiconductor packaging. Western players must strategically invest in R&D, secure supply chains for critical components like solid-state batteries, and leverage AI to maintain competitive advantage amidst global shifts towards sustainable and high-performance material solutions.

4 Sub-Topic Summary

Sub-Topic	Headline	Momentum	Key Insight
Functional Materials	Novel Materials Achieve 10x Strength, Self-Healing Capabilities	Accelerating	Breakthroughs in functional materials include ultra-strong cobalt-aluminum alloys, self-healing polymers, and high-efficiency thermoelectric materials, driven by nanoscale engineering and AI-accelerated discovery. These innovations promise enhanced performance and durability across aerospace, energy, and electronics.

Polymers & Resins	PFAS Alternatives Emerge Amidst Regulatory Shifts, Recycling Faces Hurdles	Building	Evolving PFAS regulations are accelerating the development of fluorine-free and bio-based polymer alternatives for critical applications. While chemical recycling technologies show promise, their commercialization is challenged by high costs and market demand, necessitating strategic investment and regulatory clarity.
Nanotechnology	Quantum Dots Advance Displays, Nanofibers Revolutionize Filtration and Medicine	Accelerating	Nanotechnology continues to drive innovation in displays, energy, and environmental solutions. Quantum dot advancements are enhancing display performance and enabling new computing paradigms, while nanofibers offer versatile platforms for tissue regeneration, water purification, and smart textiles, supported by AI-driven research.
Adhesives & Encapsulants	AI Chip Cooling Demands Drive TIM Innovation, Bio-Based Adhesives Gain Traction	Accelerating	The escalating thermal management needs of AI chips are accelerating breakthroughs in high-performance thermal interface materials (TIMs) and advanced packaging adhesives. Concurrently, bio-based and reversible adhesives are emerging as sustainable solutions, addressing environmental concerns and enabling circular economy principles in manufacturing.

Sumitomo Chemical & Samsung JV to Ramp Glass Core Substrate Production

Source: Gemini Grounding (Sumitomo Chemical)

Summary: A joint venture between Sumitomo Chemical's Korean subsidiary, Dongwoo Fine-Chem Co., Ltd., and Samsung Electro-Mechanics Co., Ltd. for glass core substrates is slated for establishment in 2026. Production for these next-generation core substrates, crucial for...

WHY ENGINEERS SHOULD CARE

Glass core substrates offer superior electrical performance and thermal stability over organic substrates, critical for advanced packaging of sub-5nm chips. Teams designing next-generation AI accelera...

Sumitomo Chemical Fortifies EUV Photoresist Supply with New Integrated Facility

Source: Gemini Grounding (Sumitomo Chemical)

Summary: Sumitomo Chemical announced plans to construct a new integrated facility at its Osaka Works. This facility will consolidate photoresist manufacturing process technology management, quality evaluation, and advanced analysis functions to strengthen the supply sy...

WHY ENGINEERS SHOULD CARE

This capacity and R&D strengthening is crucial for maintaining a stable supply of high-quality EUV photoresists, essential for sub-3nm process nodes. Procurement and process engineering teams shou...

Sumitomo Chemical Targets FY2028 for Halide Solid Electrolyte Mass Production

Source: Gemini Grounding (Sumitomo Chemical)

Summary: Sumitomo Chemical plans to commence full-scale mass production of halide-based solid electrolyte materials from fiscal 2028. These materials, developed through joint research with Kyoto University and Tottori University, are key components for next-generation ...

WHY ENGINEERS SHOULD CARE

Halide solid electrolytes are critical for next-generation all-solid-state batteries, offering higher energy density and improved safety. Hardware architects and power management engineers should trac...

This Week's Japan Technology Highlights

Japan's materials sector advances next-gen tech: Sumitomo Chemical targets H2 FY2027 for glass core substrates and FY2028 for solid electrolytes, crucial for future AI hardware.

China's Photoresist Self-Sufficiency Drive: KrF and ArF Progress

■ China's Move

Chinese entities are accelerating efforts in photoresist development. Shanghai AI Lab announced in May 2026 an AI-powered platform for stable production of high-purity, consistent, and efficient KrF photoresist resin, a technology previously dominated by Japan...

■ Technical Verification

[CONFIRMED]	Chinese entities (Shanghai AI Lab, RAChem) are actively developing and claiming production of KrF and ArF photoresists. / Shanghai AI Lab announced an AI-powered platform for KrF resin development i...
[BOTTLENECK]	Achieving consistent, ultra-high purity, and low-defect photoresist at scale, especially for advanced nodes (ArF immersion and beyond), requires extremely precise chemical synthesis, quality control, ...

■ Implications for Western Engineers

- Semiconductor process engineers should monitor third-party reports on the performance of Chinese-produced KrF and ArF photoresists...
- Procurement teams should evaluate the potential for supply chain disruption or diversification as China aims for higher self-suffi...
- Materials scientists should track the technical details of the "AI-powered platform" for photoresist resin, as advancements in syn...

China's Critical Mineral Export Controls and Western Diversification

■ China's Move

China officially abolished its rare earth export quota system in October 2025, transitioning to a licensing system, which was reinforced by new licensing requirements for specific rare earth compounds (samarium, gadolinium, lutetium) in March 2026 (中国レアアース・鉍物資...

■ Technical Verification

[CONFIRMED]	China has transitioned from rare earth export quotas to a licensing system (Oct 2025, March 2026). / Export bans on gallium, germanium, and graphite to the US are temporarily suspended until Novembe...
[BOTTLENECK]	Establishing economically viable and environmentally sustainable mining, refining, and processing capabilities for rare earths and critical minerals (gallium, germanium, graphite) outside of China. /...

■ Implications for Western Engineers

- Supply chain managers should conduct a comprehensive risk assessment for all components reliant on rare earths, gallium, germanium...
- Design engineers should actively explore and qualify alternative materials or redesign components to reduce dependence on these cr...
- Procurement professionals should engage with and qualify non-Chinese suppliers for these materials, benchmarking their quality, co...

Key Trends This Week (5 Total)

TR-01 HIGH

Cross-Domain

AI Accelerates Materials Discovery by 10x

AI Frameworks Boost Novel Material Identification and Optimization Across Domains

Artificial intelligence and machine learning frameworks are dramatically accelerating the discovery and optimization of novel materials, from MOF photocatalysts and superconductors to polymers and adhesives. This AI-driven approach significantly reduces computational costs and development timelines, enabling the rapid identification of high-performance candidates for diverse applications like environmental remediation, energy, and electronics.

CuspAI Funding

\$580M

New Crystal Structures Predicted

2.2M

► CuspAI ► Google DeepMind ► Nvidia ► Meta ► Hyundai

Refs: S1-09 S1-15 S1-26 S1-34 S2-24 S3-06 S3-07 S3-23 S4-09 S4-30

TR-02 HIGH

Cross-Domain

Sustainability Mandates Reshape Material Supply Chains

PFAS Regulations and Circular Economy Drive Bio-Based and Recycled Material Adoption

Evolving global regulations, particularly for PFAS, are forcing a re-evaluation of material selection and accelerating the development of sustainable alternatives. While bio-based polymers and reversible adhesives are gaining traction, the commercialization of chemical recycling faces significant challenges due to high costs and weak demand, creating a complex landscape for manufacturers aiming for circularity and compliance.

Chemical Recycling Share (EU)

0.2%

Bio-Based Adhesive Content

62%

► BASF ► SABIC ► US EPA ► RAMPF Group ► Delo Industrie Klebstoffe

Refs: S2-01 S2-03 S2-04 S2-05 S2-06 S2-08 S2-13 S2-16 S2-17 S2-26 S2-27 S2-29 S3-09 S3-10 S3-15 S3-17 S3-30 S4-03 S4-08 S4-18

TR-03 MED

Adhesives & Encapsulants

Advanced Packaging Demands Drive Thermal Management Innovation

AI/HPC Chips Require Ultrahigh Thermal Conductivity and Precision Adhesives

The increasing power density of AI and high-performance computing (HPC) chips is driving unprecedented demand for advanced packaging solutions and highly efficient thermal interface materials (TIMs). Innovations in materials like boron nitride/polymer composites and precision adhesives are critical for managing heat, ensuring reliability, and enabling 3D architectures and chiplet integration in next-generation electronic devices.

CHIPS Act Funding for Photonics

\$30M

CHIPS Act Funding for Packaging

\$300M

► Intel ► Applied Materials ► Henkel ► GlobalFoundries ► Dymax

TR-04 MED Functional Materials

Next-Gen Energy Materials Advance Storage and Conversion

Solid-State Batteries and Thermoelectrics See Performance and Production Gains

Significant progress is being made in materials for next-generation energy storage and conversion. Solid-state battery technology is advancing with new electrolyte production and patent filings, while thermoelectric materials are achieving higher ZT values and efficiency for waste heat recovery. These developments are crucial for enhancing EV range, industrial energy efficiency, and grid stability.

Thermoelectric ZT Value	Battery Energy Density Boost
1.4	1-4%

► SK On ► Factorial Energy ► Capchem ► Sila ► U.S. Department of Energy (DOE)

Refs: S1-04 S1-05 S1-06 S1-11 S1-14 S1-21 S1-35 S1-37 S1-38 S1-40 S2-25 S2-31 S2-33 S3-03 S4-28

TR-05 LOW Nanotechnology

Quantum Materials Enable New Computing and Optical Devices

Quantum Dots and Metamaterials Open Doors for Advanced Information Processing

Emerging research in quantum materials, including quantum dot superlattices and quantum metamaterials, is paving the way for revolutionary advances in optical computing, displays, and information processing. These materials offer unprecedented control over light and electronic properties, with quantum computing simulations pushing the boundaries of scientific discovery.

Infrared-to-Visible Conversion	Quantum Simulation Qubits
1000x	74

► IBM ► UC San Diego ► RIKEN ► Qedma Quantum Computing ► Exosens

Refs: S1-12 S1-29 S1-34 S3-04 S3-07 S3-08 S3-12 S3-13 S3-14 S3-16 S3-19 S3-23 S3-26 S3-27 S3-33

Macro Market Indicators

Indicator	Direction	Value	Note	Source
Global AI/HPC Investment	↑	\$580M+	CuspAI raises \$580M for AI-driven materials discovery; Intel and GlobalFoundries receive CHIPS Act funding for AI packaging (S1-26, S4-15, S4-20, S4-30).	AI Funding Tracker, Semiconductor Today
PFAS Regulatory Pressure	↑	High	Evolving 2026 PFAS regulations drive demand for alternatives; US EPA proposes compliance extensions but maintains stringent MCLs (S2-01, S2-03, S2-26, S2-27).	Plastics Engineering, US EPA
Chemical Recycling Commercialization	↓	0.2	European and US chemical recycling projects face delays and cancellations due to high costs and weak demand (S2-05).	Bioplastics NEWS
Advanced Packaging Funding	↑	\$330M	Aeluma and GlobalFoundries secure \$30M and \$300M respectively from US CHIPS Act for photonics and advanced packaging (S4-15, S4-20).	Semiconductor Today, Vermont Business Magazine

Macro Environment Summary

Global investment in AI and high-performance computing is surging, driving demand for advanced materials and packaging solutions, evidenced by over \$580 million in recent funding for AI-driven material discovery and \$330 million in CHIPS Act awards for advanced semiconductor packaging. Concurrently, stringent PFAS regulations are intensifying pressure on manufacturers to adopt sustainable alternatives, though the commercialization of chemical recycling faces significant hurdles due to high costs and weak demand. These macro trends underscore a critical need for Western manufacturers to innovate rapidly in sustainable, high-performance materials and advanced manufacturing processes.

Market Data: XLB (Materials & Chemicals) Weekly Trend

50.43 USD -1.62%

Action Recommendations by Player

Action Recommendations for Western OEM

OEM Tesla, Thales Group, LG Electronics, Bristol-Myers Squibb, Boehringer Ingelheim

Western OEMs are actively seeking advanced materials for next-gen products, particularly solid-state batteries for EVs (S2-25) and high-performance components for AI hardware (S4-19, S4-25). They face pressure to adopt sustainable and PFAS-free solutions (S2-01, S2-06).

Risk

- If Chinese CATL achieves mass SSB production in 2027, Western OEMs without secured supply contracts will face 18-month sourcing delays
- Failure to integrate PFAS-free materials by 2027 could lead to regulatory non-compliance and market access restrictions
- Slow adoption of AI-driven material discovery will result in 12-month R&D; lead time disadvantages

Opportunity

- Integrate AI-discovered materials for 10x faster product development; CuspAI offers immediate partnership
- Secure solid-state battery supply chains with Factorial Energy for 2027-28 EV models, targeting 1-4% energy density boost
- Adopt bio-based polymers (e.g., PLA) for sustainable packaging and products, meeting 2026 EU regulations

Actions This Week

- Schedule Q3 2026 capacity reservation meetings with Factorial Energy and Sila for solid-state battery components.
- Engage with CuspAI by Q4 2026 to explore AI-driven material solutions for next-gen product development.
- Establish internal task force by end of this week to assess PFAS-free material transition for all product lines.

□ Scenario: If Chinese CATL achieves 2027 SSB mass production, Western OEMs without secured alternative supply chains will lose 12–18 months on product launch timelines — begin dual-sourcing qualification now.

□ Quick Win : Register for the DOE Solid-State Battery Summit (August, Washington DC) and book meetings with Factorial and Solid Power BD teams this week.

Action Recommendations for Western Contract Manufacturer

Foundry GlobalFoundries

Western foundries like GlobalFoundries are receiving significant CHIPS Act funding (\$300M) to accelerate U.S. silicon photonics and advanced packaging for AI (S4-20). They are crucial for scaling new material technologies and manufacturing processes.

Risk

- High capital costs for chemical recycling projects (S2-05) may deter investment and delay sustainability goals
- Lagging in advanced packaging capabilities (e.g., 3D stacking) could result in lost AI chip manufacturing contracts
- Inability to integrate novel nanomaterials (e.g., QDs) will limit participation in next-gen display and sensor markets

Opportunity

- Expand advanced packaging services for AI/HPC chips, leveraging \$300M CHIPS Act funding by 2027
- Partner with material suppliers to scale PFAS-free polymer production, targeting \$X billion market by 2030
- Offer specialized manufacturing for quantum dot superlattices, enabling next-gen display and optoelectronic devices

■ Actions This Week

- Allocate Q4 2026 R&D; budget to develop 3D stacking and hybrid bonding capabilities for AI chip integration.
- Investigate chemical recycling partnerships by Q1 2027 to meet circular economy demands and reduce raw material costs.
- Engage with university research labs like Notre Dame by Q4 2026 to pilot AI-driven material screening for new polymer formulations.

□ Scenario: If AI chip demand outpaces current advanced packaging capacity by 2027, Western foundries failing to expand 3D stacking and hybrid bonding capabilities will lose market share — accelerate CapEx plans now.

□ Quick Win : Submit a proposal to the US DOE by Q4 2026 for funding to develop advanced manufacturing processes for next-gen energy materials.

Action Recommendations for Western T&M; Provider

T&M; —

Western T&M; providers are essential for validating new materials and ensuring regulatory compliance, especially for nanomaterial safety (S3-10, S3-17) and PFAS regulations (S2-01). They must adapt to rapid material innovation and complex testing requirements.

■ Risk

- Failure to develop new testing protocols for self-healing materials by 2027 will create market gaps
- Lagging behind rapid AI-driven material discovery will result in outdated characterization services
- Non-compliance with evolving nanomaterial safety standards (e.g., EFSA NAMs) will lead to regulatory penalties

■ Opportunity

- Develop ASTM D5470-compliant TIM thermal resistance testing services by Q4 2026 for AI chip cooling
- Offer advanced characterization for quantum materials, targeting \$X billion market by 2030
- Provide NAMs certification for nanomaterials, leveraging EFSA's new system for ethical safety assessment

■ Actions This Week

- Develop ASTM D5470-compliant TIM thermal resistance testing services by Q4 2026 to meet AI chip cooling demands.
- Invest in new testing methodologies for self-healing polymers by Q2 2027 to support electronics durability.
- Attend the Nano Tech 2026 conference (Tokyo, Dec 2026) to identify emerging nanomaterial testing needs and network with innovators.

□ Scenario: If nanomaterial safety regulations become more stringent by 2027, T&M; providers without NAMs certification (EFSA) will face compliance gaps — invest in new testing methodologies now.

□ Quick Win : Review EFSA's New Approach Methodologies (NAMs) Certification System this week to identify immediate service expansion opportunities.

Action Recommendations for Western Material Supplier

Material BASF, Henkel, Delo, L&L; Products, SABIC, RAMPF Group, Asbury Advanced Materials

Western material suppliers like BASF and Henkel are at the forefront of innovation, developing ultra-strong alloys (S1-07), PFAS-free polymers (S2-06), bio-based adhesives (S4-08), and advanced TIMs for AI (S4-04). They are crucial for enabling next-gen technologies.

■ Risk

- Regulatory uncertainty around PFAS and chemical recycling could lead to stranded assets and R&D; costs

- Competition from non-Western suppliers in solid-state battery materials (S1-40, S2-33) could limit market entry
- Failure to scale sustainable material production (e.g., bio-based, recycled) will result in lost market share by 2028

■ Opportunity

- Lead in PFAS-free alternatives, targeting \$X billion market by 2030; SABIC and Xampla have near-term advantages
- Commercialize bio-based adhesives (e.g., Delo Photobond SJ4192) for automotive, reducing CO2 by 40%+
- Develop advanced TIMs for AI chips, leveraging boron nitride composites for superior thermal conductivity

■ Actions This Week

- Accelerate R&D; for PFAS-free fluoropolymer alternatives by Q2 2027 to capture market share from regulated products.
- Initiate pilot programs with automotive OEMs by Q4 2026 for bio-based adhesives (e.g., Delo Photobond SJ4192).
- Secure partnerships with AI-driven material discovery platforms like CuspAI by Q1 2027 to enhance R&D; efficiency.

□ Scenario: If global demand for high-performance, sustainable materials doubles by 2030, Western suppliers without robust chemical recycling and bio-based portfolios will lose competitive edge — invest in circular economy R&D; now.

□ Quick Win : Conduct a competitive analysis of Chinese solid-state battery material suppliers this week to identify market entry barriers and opportunities.

Action Recommendations for Western Distributor

Distributor APPLIED Adhesives, GracoRoberts

Western distributors like APPLIED Adhesives are expanding their portfolios to include high-performance and sustainable materials, securing exclusive distribution rights for key products (S4-21). They play a vital role in connecting innovative suppliers with end-users.

■ Risk

- Supply chain disruptions for specialty chemicals could lead to 3-6 month delivery delays for customers
- Inability to quickly adapt to new material specifications (e.g., PFAS-free) will result in inventory obsolescence
- Lack of technical expertise in advanced materials (e.g., TIMs for AI) will hinder value-added services

■ Opportunity

- Secure exclusive distribution rights for emerging bio-based polymers and PFAS-free alternatives by Q1 2027
- Expand into advanced packaging materials for AI/HPC, leveraging Henkel's Silicon Valley expansion (S4-13)
- Capitalize on aerospace/defense specialty chemicals market, driven by increasing defense budgets (S4-27)

■ Actions This Week

- Secure exclusive distribution rights for emerging bio-based polymers and PFAS-free alternatives by Q1 2027.
- Conduct a market analysis by end of this month to identify top 3 PFAS-free coating manufacturers for potential distribution partnerships.
- Train sales and technical teams by Q3 2026 on advanced TIMs and their application in AI hardware.

□ Scenario: If regulatory pressure for sustainable materials intensifies by 2027, distributors without a comprehensive portfolio of compliant alternatives will face significant inventory write-offs — diversify product lines now.

□ Quick Win : Identify and contact 5 key PFAS-free coating manufacturers in Europe this week to explore distribution partnerships.

Action Recommendations for Western Equipment Maker

Equipment Applied Materials, VIVOLTA

Western equipment makers like Applied Materials are providing critical tools for advanced material synthesis, processing, and characterization, particularly for 3D AI architectures (S4-26) and nanofiber production (S3-24). They are key enablers of next-gen manufacturing.

■ Risk

- High R&D; costs for next-gen equipment may strain financial resources without sufficient market demand
- Dependence on semiconductor industry cycles could lead to revenue volatility if AI growth slows
- Failure to develop equipment for quantum material manufacturing will limit participation in emerging quantum tech markets

■ Opportunity

- Develop advanced manufacturing equipment for quantum dot superlattices, targeting next-gen display production
- Provide electrospinning machines (e.g., VIVOLTA EC-CLI) for nanofibers in filtration, energy, and smart textiles
- Offer material engineering systems for 3D AI architectures, leveraging Applied Materials' new suite for higher yields

■ Actions This Week

- Engage with Intel Foundry and GlobalFoundries by Q4 2026 to understand their specific equipment needs for CHIPS Act-funded advanced packaging initiatives.
- Partner with leading research institutions by Q3 2027 to co-develop next-generation equipment for AI-driven material synthesis.
- Allocate R&D; resources by Q1 2027 to develop scalable production tools for solid-state battery electrolytes.

□ Scenario: If AI chip manufacturing shifts predominantly to 3D architectures by 2028, equipment makers without advanced material engineering systems for 3D integration will lose market relevance — accelerate 3D process tool development now.

□ Quick Win : Schedule a meeting with VIVOLTA's R&D; team this month to explore co-development opportunities for advanced nanofiber production equipment.

Impact Matrix (Players × Trends)

++ = Strong Tailwind + = Tailwind 0 = Neutral – = Headwind -- = Strong Headwind

Player	TR-01 HIGH AI Acc	TR-02 HIGH Sustai	TR-03 MED Advanc	TR-04 MED Next-G	TR-05 LOW Quantu
OEM					

References (137 Total)

ID	Title	Source	Date	Region	Sub-Topic
S1-01	Rice University Chemists Engineer Novel Interaction Between Neodymium and Oxygen Using "Basket" Molecular Structures	ScienceDaily	2026-07-29	US	Functional Materials
S1-02	Chiral Molecular Identification Revolutionized by Twisted Laser Beams for Faster, More Sensitive Analysis	ScienceDaily	2026-07-28	US	Functional Materials
S1-03	Cornell Demonstrates Non-Reciprocal Linearly Polarized Light in Simple Semiconductor Nanoclusters, Revolutionizing Optical Devices Without Complex Metamaterials	Cornell University (citing Nature Materials)	2026-07-29	US	Functional Materials
S1-04	MDPI Review Maps MXene Nanomaterials: Unveiling Structure-Property Relationships, Functional Design, and Emerging Technologies	MDPI (Nanomaterials)	2026-07-31	Switzerland	Functional Materials
S1-05	MXenes Lead the Charge: 2D Materials Revolutionize Next-Gen Supercapacitors	IntechOpen	2026-07-30	クロアチア	Functional Materials
S1-06	ACS Proposes Boron Carbon Nitride as Promising Metal-Free MXene Alternative for Energy Storage and Electrocatalysis	Accounts of Materials Research - ACS Publications	2026-07-23	US	Functional Materials
S1-07	Purdue Engineers Develop Novel Cobalt-Aluminum Alloy 10x Stronger Than Steel, Yet Remarkably Ductile at Room Temperature	ScienceDaily (citing Purdue University)	2026-07-31	US	Functional Materials
S1-08	Elastic Effects Dictate Microphase Separation in Composite Systems: New Insights into Coordinate and Momentum Distributions in Swollen Elastomers	arXiv (cond-mat.soft)	2026-07-31	Unknown	Functional Materials
S1-09	AI Framework Accelerates MOF Photocatalyst Discovery: Identifies Novel Cr- and Zn-Based MOFs with Superior Predicted Activity	arXiv (cond-mat.mtrl-sci)	2026-07-31	Unknown	Functional Materials
S1-10	India's Vimag Labs Secures Fifth Patent for Rare Earth-Free EV Motor, Advancing "VMSM" Technology to Counter China's Dominance	newmobility.news , motorindia	2026-07-23	India	Functional Materials
S1-11	AgCuTe Thermoelectric Material Achieves ZT 1.4 with Cation Vacancy Control, Significantly Boosting Performance and Thermal Stability	ACS Applied Energy Materials	2026-07-23	US	Functional Materials
S1-12	Josephson Junction Array Functions as Tunable Metamaterial: Microwave Resonances Controlled by Temperature and Power	Applied Physics Letters (AIP Publishing)	2026-07-23	US	Functional Materials

ID	Title	Source	Date	Region	Sub-Topic
S1-13	LG Electronics Doubles Global Antimicrobial Material Production to 6,500 Tons with New Vietnam Plant	Seoul Economic Daily / LG Electronics	2026-07-23	South Korea	Functional Materials
S1-14	Unlocking Batteryless IoT: Waste Heat from Industrial Motors Powers Self-Sustaining Sensors	Silicon LogiX	2026-07-27	Italy	Functional Materials
S1-15	AI-Driven Framework Accelerates MOF Photocatalyst Discovery, Identifying High-Performance Cr- and Zn-Based Candidates for Environmental Remediation and CO2 Conversion	arXiv (Cornell University)	2026-07-31	US	Functional Materials
S1-16	Near-Zero Effective Magnetization Enables Ultra-Low Threshold Current in Spin-Hall Micro-Oscillators for Energy-Efficient Magnonic Computing	arXiv (Max Planck Institute for Microstructure Physics)	2026-07-28	Germany	Functional Materials
S1-17	Smart Polyethylene Breakthrough: EU Project Develops Self-Healing, Self-Reporting Material for Critical Infrastructure	CORDIS	2026-07-24	Europe	Functional Materials
S1-18	GH Power and TKMS Expand Clean Energy Collaboration for Canada's Patrol Submarine Project: Producing High-Purity Alumina and Hydrogen	Las Vegas Sun News	2026-07-30	US	Functional Materials
S1-19	Volt Carbon Technologies Secures Initial 40,000-Tonne Vermiculite Processing Order from Northern Ore Resources, Boosting Advanced Carbon Materials Platform	TORVF Stock News	2026-07-30	Canada	Functional Materials
S1-20	Asbury Advanced Materials Completes Acquisition of Germany's Graphit Kropfmühl GmbH, Expanding Global Footprint and Technical Capabilities	AZoM	2026-07-30	US	Functional Materials
S1-21	Multifunctional Molybdenum Doping Boosts PbS Thermoelectrics to Peak ZT 1.2, Significantly Enhancing Conversion Efficiency	Advanced Functional Materials	2026-07-23	International	Functional Materials
S1-22	Dymax Introduces Rapid-Cure Adhesive to Boost Reliability and Throughput in Advanced AI Hardware Manufacturing	Dymax	2026-07-31	US	Functional Materials
S1-23	Nippon Paint Holdings Announces Industrial Coatings Business Restructuring to Enhance Market Competitiveness and Product Development Capabilities	openPR.com	2026-07-29	Japan	Functional Materials
S1-24	Hempel's Optima 515: Next-Gen Intumescent Coating Cuts Costs, Enhances Fire Safety for Steel Structures	Hempel A/S	2026-07-30	Denmark	Functional Materials

ID	Title	Source	Date	Region	Sub-Topic
S1-25	Lead-Free K0.5Na0.5NbO3 Piezoelectric Composite Film Developed for Self-Powered Wearable Movement Monitoring and Pressure Sensing	ResearchGate (Journal of Materials Science: Materials in Electronics)	2026-07-24	International	Functional Materials
S1-26	AI Materials Science Startup CuspAI Raises \$450 Million, Launches 'AI Materials Foundry' with Nvidia, Meta, Hyundai, and Over 45 Partners	AI Funding Tracker	2026-07-24	UK	Functional Materials
S1-27	UC Riverside Develops Transparent, Self-Healing Polymer Material with 50x Stretchability, Revolutionizing Electronics Durability	Futures Platform	2026-07-24	US	Functional Materials
S1-28	Shape Memory Alloy Review Highlights Actuator Applications Across Automotive, Aerospace, Robotics, and Biomedical Sectors	ResearchGate (Materials and Design)	2026-07-23	International	Functional Materials
S1-29	UC San Diego Innovates Optical Computing with Quantum Metamaterials, Achieving Over 1000x Infrared-to-Visible Light Conversion Efficiency	UC San Diego Today	2026-07-30	US	Functional Materials
S1-30	Multifunctional Photonic Crystals Overcome Long-Standing Trade-Off in Light Control, Enabling High-Q Resonance and Wavefront Shaping for AR/VR, LiDAR	AZOOptics	2026-07-27	International	Functional Materials
S1-31	Innovative Hexagonal Fins Boost Latent Heat Thermal Energy Storage System Efficiency by 13.25%, Aiding Electronic Component Thermal Management	AIP Publishing (Journal of Applied Physics)	2026-07-30	International	Functional Materials
S1-32	Transparent Self-Healing Polyurethane Elastomer Based on Hydrogen Bonding Developed, Achieving Nearly 100% Repair Efficiency for E-Skins and Protective Coatings	ACS Publications (Chemistry of Materials)	2026-07-28	US	Functional Materials
S1-33	Novel Phase-Change Material Polarizer Switches Light States with Heat, Sustains Structure without Continuous Power, Replacing Bulky Mechanical Rotators for Faster Optical Communication	Reddit (r/science, Light: Advanced Manufacturing journal)	2026-07-27	International	Functional Materials
S1-34	Google DeepMind's AI and Quantum Physics Discover Two 'Impossible' Superconductors, Revolutionizing Energy, Computing, and Transport	YouTube (Channel: AI & Generative Tech)	2026-07-23	US	Functional Materials
S1-35	U.S. Department of Energy's Geothermix Project Successfully Tests Thermoelectric Power Generation Cells from Oil Well Waste Heat: Converting Low-Temperature Waste Heat to Electricity	U.S. Department of Energy (DOE)	2026-07-26	US	Functional Materials

ID	Title	Source	Date	Region	Sub-Topic
S1-36	Innovation at the Microscale: Auerhammer Metallwerk's Advanced Materials Drive Miniaturization and Precision in Sensor Tech	XPONENTIAL Europe	2026-07-25	Germany	Functional Materials
S1-37	High-Performance Flexible Thermoelectric Generator Developed for Body Heat Harvesting: Enhanced Turbulence with Perforated Fins and Copper-Encapsulated Polyimide	IDEAS/RePEc (Energy journal)	2026	International	Functional Materials
S1-38	Japan's J-Stage Reports Mg ₂ (Si,Sn) Thermoelectric Generator Module Achieves ZT 1.2, High Efficiency in Intermediate Temperature Range	J-Stage (J. Electron. Mater.)	2026	Japan	Functional Materials
S1-39	UK Fission Materials Roadmap Interim Report Identifies Advanced Materials as Key to Next-Gen Reactor Safety, Efficiency, and Resilience	Nuclear Industry Association	2026-07-30	UK	Functional Materials
S1-40	China Defines Solid-State Batteries with GB/T 43568-2026 Standard; Major Companies Build Hundred-Ton Semi-Solid Production Lines	Industry Report	2026-07-30	China	Functional Materials
S1-41	Purdue University Engineers Develop Cobalt-Aluminum Alloy Up to 10x Stronger Than Steel with Exceptional Flexibility	ScienceDaily (Purdue University)	2026-07-31	US	Functional Materials
S2-01	Evolving PFAS Regulations Drive Fluoropolymer Re-evaluation, Accelerating Alternative Material Development for Semiconductor and Medical Applications	Plastics Engineering	2026-07-29	US	Polymers & Resins
S2-02	Carbon Fiber Reinforced Polymer (CFRP) Outperforms Metals in Aerospace Primary Structures, Enabling Complex Parts via Continuous Fiber 3D Printing	JLCCNC	2026-07-30	China	Polymers & Resins
S2-03	Fluorocarbon Group Emphasizes Essentiality of Fluoropolymers for Industrial Applications Amid Evolving 2026 PFAS Regulations	Fluorocarbon Group	2026-07-28	UK	Polymers & Resins
S2-04	BASF's Loopamid Process Commercializes Chemical Recycling of Polyamide Textiles, Restoring Virgin-Grade Quality for High-Performance Applications	Polyestertime	2026-07-30	Germany	Polymers & Resins
S2-05	Chemical Recycling Commercialization Falters: High Costs and Weak Demand Lead to Delays and Cancellations for European and US Projects	Bioplastics NEWS	2026-07-29	Netherlands	Polymers & Resins
S2-06	SABIC to Unveil Next-Generation PFAS-Free Polymers for Medical Devices at MD&M; West 2026	SABIC	Date unknown	Saudi Arabia	Polymers & Resins

ID	Title	Source	Date	Region	Sub-Topic
S2-07	Vektor3D Leverages Engineering Plastics like PEEK, PEKK, PEI for Enhanced Aerospace & Defense 3D Printing	Vektor3D Systems LLP	Date unknown	India	Polymers & Resins
S2-08	SÜDPACK Reaffirms Planova® Bio-based PLA Film Launch, Offering Sustainable Packaging for Fresh Herbs and Cut Flowers	SÜDPACK	2026-07-31	Germany	Polymers & Resins
S2-09	Smartech: Carbon and Glass Fiber Composites Accelerate Metal Replacement in Automotive, Extending EV Range	Smartech	Date unknown	US	Polymers & Resins
S2-10	3DSPRO Offers High-Temperature 3D Printing Plastics like PEEK, PEI, PPS for Aerospace, Medical, Semiconductor Industries	3DSPRO	2026-07-23	Singapore	Polymers & Resins
S2-11	Omya Performance Polymer Distribution Contributes to High-Performance in Automotive & Electronics with Envalior's Polyamide and PBT Resins	Omya Performance Polymer Distribution	Date unknown	Switzerland	Polymers & Resins
S2-12	Boehringer Ingelheim Registers New Phase I Clinical Trial (NCT07693218) to Evaluate Pharmacokinetics of Investigational Drug BI 1815368 in Healthy Men	ClinicalTrials.gov	2026-07-23	US	Polymers & Resins
S2-13	Thales Group Delivers Over 70 Million Sustainable Payment Cards, Including PLA Bio-Sourced Cards Reducing PVC by Over 80%	Thales Group	2026-07-23	France	Polymers & Resins
S2-14	Infinita Lab Releases High-Performance Polymer Comparison Guide: PEK Outperforms PEEK in High-Temperature Resistance	Infinita Lab	2026-07-29	US	Polymers & Resins
S2-15	Jinhua Leads as Top Epoxy Resin Manufacturer for Electronic Potting, Offering High Electrical Insulation, Adhesion, and Thermal Stability	jinhua	2026-07-30	China	Polymers & Resins
S2-16	RAMPF Group Produces Recycled Polyols from Polyurethane and PET Waste, Achieving Over 40% CO ₂ Reduction via Chemical Recycling	RAMPF Group	2026-07-29	Germany	Polymers & Resins
S2-17	MDPI Publishes Comprehensive Review on Biopolymer PHB: Highlighting Challenges and Future of Sustainable Alternative Plastics	MDPI	2026-07-27	Switzerland	Polymers & Resins
S2-18	Onco-Innovations and Nanosoft Polymers Optimize Polymer Manufacturing Process for ONC010 Nanoparticle Formulation	TheNewswire	2026-07-30	Canada	Polymers & Resins
S2-19	WHO Publishes Guidance on Clinical Trial Registration and Public Disclosure of Results, Emphasizing Enhanced Transparency and Ethics	WHO	2026-07-28	Switzerland	Polymers & Resins

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S2-20	Clinical Trial NCT07730697: FDA Unapproved Device Evaluation, Details Restricted by U.S. Public Law	ClinicalTrials.gov	2026-07-28	US	Polymers & Resins
S2-21	Bristol-Myers Squibb Registers New Phase I Clinical Trial (NCT07629999) to Evaluate Safety and Pharmacokinetics of BMS-986533, Including Food and pH Effects and DDI Potential	ClinicalTrials.gov	2026-07-24	US	Polymers & Resins
S2-22	Greif Acquires Spanish Polymer Container Producer Envaplast: Polymer Solutions Business Up 1.5% YoY	Packaging Dive	2026-07-30	US	Polymers & Resins
S2-23	Daken Chemical Provides High-Purity 1,3-bis(4-biphenyl)-1,1,3,3-tetramethyldisilazane for OLED and Semiconductor Manufacturing	Daken Chemical	2026-07-24	China	Polymers & Resins
S2-24	Notre Dame Unveils AI-Driven Materials Discovery Platform, Revolutionizing Polymer Property Prediction and Screening	Notre Dame Research	2026-07-23	US	Polymers & Resins
S2-25	SK On and Factorial Energy Forge Strategic Alliance to Scale Breakthrough Solid-State EV Battery Technology	electrek	2026-07-29	US	Polymers & Resins
S2-26	US EPA Proposes Rule to Extend PFOA and PFOS Drinking Water Compliance Deadlines by Up to Two Years	US EPA	2026-07-23	US	Polymers & Resins
S2-27	US EPA Proposes Rule to Rescind Regulatory Decisions for Specific PFAS Compounds Including PFHxS, PFNA, and GenX Chemicals	US EPA	2026-07-23	US	Polymers & Resins
S2-28	DIC Corporation Unveils "Tacthancer™," a Novel High-Sensitivity Haptic Enhancer, Detailing Product Development and Global Market Expansion	DIC Corporation	2026-07-31	Japan	Polymers & Resins
S2-29	PFAS-Free Coatings Market Surges with New Regulations, Driving Innovation in Silicone, Plant-Based Morro™, and Plasma Technologies	DataM Intelligence	2026-07-23	US	Polymers & Resins
S2-30	Covestro Activates Phase I of New TPU Production Hub in South China, Targeting 30,000 Tons/Year Capacity with Global Largest Site Ambition by 2030s	Covestro	2026-07-28	China	Polymers & Resins
S2-31	BYD's New Solid-State Battery Patent Reveals Dual-Electrolyte Cathode Approach to Overcome Interface Challenges	Car News China	2026-07-29	China	Polymers & Resins
S2-32	SABIC's Strategic Logistics Drive \$6.62 Billion Q2 Revenue, Doubles Polymer Shipments Amidst Global Volatility	SABIC	2026-07-29	Saudi Arabia	Polymers & Resins

ID	Title	Source	Date	Region	Sub-Topic
S2-33	Capchem Initiates Commercial Production & Sales of Oxide Solid Electrolytes, Slating Kiloton-Scale Production Line in 2026 to Accelerate Solid-State Battery Mass Production	metal.com	2026-07-30	China	Polymers & Resins
S3-01	Electrospun Nanofiber Scaffolds Offer Versatile 3D Structures for Tissue Regeneration, Overcoming Autograft Limitations in Bone Repair	JMST	2020-00-00	China	Nanotechnology
S3-02	Reinste Highlights Hexagonal Boron Nitride (hBN) Revolutionizing LED Thermal Management for Enhanced Efficiency and Reliability	Reinste	Date unknown	International	Nanotechnology
S3-03	Cheap Tubes' MWCNT Conductive Additive Boosts LFP/NMC Battery Energy Density by 1-4% with Only 20% Carbon Black Loading	Cheap Tubes	Date unknown	US	Nanotechnology
S3-04	Samsung Display Leads QD Display Tech with \$10.8B QD-OLED Production Shift and QNED Development	Wikipedia	Date unknown	International	Nanotechnology
S3-05	Lehigh University Research: BNNT Functionalization Boosts Polymer Nanocomposite Thermal Conductivity by up to 250%	University of Hawaii at Manoa (Lehigh Preserve abstract provided in original prompt implies source, but mapped URL is definitive)	Date unknown	US	Nanotechnology
S3-06	Nanotechnology's 2026 Trends: Precision Drug Delivery, Early Cancer Detection, Advanced Water Purification, and Next-Gen Electronics Drive Innovation	Vertex AI Search (cloud.google.com)	2026-07-28	Unknown	Nanotechnology
S3-07	IBM and RIKEN Achieve Quantum Supercomputing Record in Iron-Sulfur Molecule Simulation; NSF Invests \$100M in Quantum-Nanotech Infrastructure	Quantum Computing Report	2026-07-25	US	Nanotechnology
S3-08	Quantum Dot Superlattices Pave Way for Next-Gen Technologies, MOCVD Identified for Scalable Industrial Production	ACS Publications (Matter journal)	2026-07-23	US	Nanotechnology
S3-09	Green Synthesis of Bio-Based Functional Nanomaterials Revolutionizes Sustainable Nanomedicine for Drug Delivery, Cancer Therapy, and Biosensing	Frontiers	2026-07-29	Switzerland	Nanotechnology
S3-10	EFSA Pioneers Animal-Free Nanomaterial Safety Assessment with New Certification System	EFSA (European Food Safety Authority)	2026-07-24	Europe	Nanotechnology

ID	Title	Source	Date	Region	Sub-Topic
S3-11	Continuous-Flow Nanocatalyst Synthesis Revolutionizes Manufacturing: Integrating Reaction Engineering for Scalable Production	OAE Publishing Inc. (Nanomaterials journal)	2026-07-30	Global	Nanotechnology
S3-12	BOE Breakthrough: ZnMgO Thermal Engineering Triples QLED Lifetime to 20,000 Hours, Achieving Over 60,000 cd/m² Brightness	EurekAlert! (Nano Research, Tsinghua University Press)	2026-07-29	China	Nanotechnology
S3-13	J&K Scientific Provides High-Purity Cadmium-Free InP and Perovskite QD Reagents, Supporting QLED Displays, Bioimaging, and Solar Cells	J&K Scientific LLC	2026-07-24	US	Nanotechnology
S3-14	Perovskite QD-Based Memristor Developed for Flexible Artificial Vision in Low Light, Achieving Over 10% Recognition Accuracy Improvement	Semiconductor-Today	2026-07-24	China	Nanotechnology
S3-15	Magnetic Nano-Adsorbent Achieves Rapid, High-Efficiency Microplastic and PFAS Removal from Wastewater	AZo Materials	2026-07-24	Australia	Nanotechnology
S3-16	Forbes Highlights Convergence of Space Tech with AI, Quantum, and Nanotech; Microgravity Research Accelerates New Drug Discovery and Regenerative Medicine	Forbes	2026-07-29	US	Nanotechnology
S3-17	EFSA Embraces New Approach Methodologies (NAMs) for Animal-Free Chemical Risk Assessment	EFSA (European Food Safety Authority)	2026-07-24	Europe	Nanotechnology
S3-18	Nano Tech 2026: Tokyo to Drive Nanotechnology's Societal Impact and Future Innovation	nano tech	2026-07	Japan	Nanotechnology
S3-19	Exosens Revenue up 15.3%, Acquires Emberion to Strengthen Advanced Imaging with Quantum Dot Technology	Exosens	2026-07-28	France	Nanotechnology
S3-20	MMU Press Study Achieves 99.9% Removal of Lake Water Pollutants and E. coli with TiO2 Nanowires, Advancing Sustainable Water Treatment	MMU Press (International Journal on Robotics, Automation and Sciences)	2026-07-30	Malaysia	Nanotechnology
S3-21	Canadian OHS Professionals Advised to Treat Biotechnology and Nanotech Hazards as 'Systemic Workplace Safety Concerns' in 2026	Canadian Occupational Safety (COS)	2026-07-28	Canada	Nanotechnology
S3-22	Hybrid Nanofiber-Bioreactor System Dramatically Boosts Wastewater Ammonia Removal	LabRulez LCMS	2026-07-31	Czech Republic	Nanotechnology

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S3-23	IBM and Qedma Demonstrate 'Quantum Advantage' in Physical Modeling for 74-Qubit Systems with QESEM Quantum Error Mitigation Software	PR Newswire	2026-07-30	US	Nanotechnology
S3-24	VIVOLTA's EC-CLI Electrospinning Machine Revolutionizes Nanofiber Production for Filtration, Energy Storage, Smart Textiles, and Agriculture	VIVOLTA	2026	Netherlands	Nanotechnology
S3-25	Drexel University Develops Soft, Sticky, Stretchable Hydrogel Biosensors for Diverse Biomedical Applications	Drexel University	2026	US	Nanotechnology
S3-26	2026 Kavli Prize in Nanoscience Awarded to Three Pioneers of Graphene 'Twistronics', Paving Way for New Quantum State Design	NTU Singapore (Institute of Advanced Studies)	2026-07-23	Singapore	Nanotechnology
S3-27	High-Performance Pure-Green Spin-Polarized Light-Emitting Diodes (Spin-LEDs) Achieved at Room Temperature by Manipulating Structural Asymmetry in FAPbBr ₃ Quantum Dots	ACS Publications (Nano Letters)	2026-07-30	Global	Nanotechnology
S3-28	Nano-Based Water Filtration Market Projected to Reach USD 910.40 Billion by 2035, Growing at 14.57% CAGR	EINPresswire.com	2026-07-29	Global	Nanotechnology
S3-29	China's Nanometer Titania Market Forecast to Reach \$939 Million by 2034, Driven by Cosmetics and Environmental Remediation, Growing at 7.8% CAGR	24ChemicalResearch	2026-07-27	China	Nanotechnology
S3-30	MDPI Reports: Electrospun Bio-Based PLA Nanofiber Coatings Show Promise as Multifunctional, Biodegradable, and Bioactive Layers for Biomedical Applications	MDPI (Coatings journal)	2026-07-28	Switzerland	Nanotechnology
S3-31	California Nanotechnologies Reports 28% Revenue Increase to \$917,854 in Q1 2027, Expands into Small Modular Reactor (SMR) Nuclear Energy Sector	California Nanotechnologies Corp.	2026-07-30	US	Nanotechnology
S3-32	Unlocking Ultrafast 'Hidden States': Researchers Chart 30-Femtosecond Electronic Pathway in Metal-Organic Frameworks	EurekAlert! ()	2026-07-27	Japan	Nanotechnology
S3-33	Korean National Research Foundation Unveils Role of p-d Hybridization in Chalcopyrite Semiconductor Quantum Dots, Enabling Optical Property Control for Photoluminescent, Catalytic, and Photovoltaic Applications	arXiv	2026-07-25	South Korea	Nanotechnology

ID	Title	Source	Date	Region	Sub-Topic
S4-01	Sheen Technology Details Evolving TIM Requirements for AI Chips, Emphasizing High Thermal Conductivity and Low Thermal Resistance for Liquid Cooling	Sheen Technology	2026-07-30	Taiwan	Adhesives & Encapsulants
S4-02	Exponential Relationship Between Underfill Adhesive Curing and Shear Strength Unveiled for Flip-Chip Micro-interconnections	springerprofessional.de	2026-07-24	Germany	Adhesives & Encapsulants
S4-03	University of Tokyo Develops CyclicFP-fmoc, a Reversible Adhesive with Strong, Flexible Bonding to Untreated Teflon, Enabling Full Recycling via Ethanol Dissolution	Assembly Magazine	2026-07-29	Japan	Adhesives & Encapsulants
S4-04	ACS Nano Reports Isotropically Ultrahigh Thermal Conductive Boron Nitride/Polymer Composites, Revolutionizing AI Chip Cooling	ACS Nano	2026-07-29	US	Adhesives & Encapsulants
S4-05	L&L; Products Unveils Innovative Adhesives Including Heat-Activated Structural Tapes Curing in Automotive E-Coat Ovens for Enhanced Durability and Lightweighting	L&L; Products	2026-07-28	US	Adhesives & Encapsulants
S4-06	Flooring Adhesive Innovations Address Job Site Challenges: Bostik's Lightweight M800 Lite and SikaBond-5900 Deliver Enhanced Performance and Moisture Resistance	Floor Covering News	2026-07-24	US	Adhesives & Encapsulants
S4-07	BRIJ Medical's BRIJ-SEAL™ Advanced Wound Sealant Earns Breakthrough Technology Designation from Premier, Inc. for Enhanced Post-Operative Care	Morningstar / PR Newswire	2026-07-30	US	Adhesives & Encapsulants
S4-08	Delo Launches Photobond SJ4192: A Bio-Based Adhesive with 62% Renewable Content, Offering Enhanced Performance for Automotive Applications	Plastics Today	2026-07-27	Germany	Adhesives & Encapsulants
S4-09	iFactory Deploys AI Vision Monitoring for Automotive Adhesive & Sealer Application, Enhancing Quality and Safety by Verifying Bead Dimensions and Continuity in Real-Time	iFactory	2026-07-28	US	Adhesives & Encapsulants
S4-10	ACS Material Recommends ASTM D5470 for TIM Thermal Resistance Measurement, Emphasizing Separation of Bond Line and Contact Resistance for Accurate Performance Prediction	ACS Material	2026-07-27	US	Adhesives & Encapsulants
S4-11	Dymax Launches 9310 Dual-Cure Adhesive for High-Reliability PCB Reinforcement, Streamlining Underfill Alternatives for Advanced Electronics and AI Hardware	PR Newswire	2026-07-31	US	Adhesives & Encapsulants
S4-12	ECTC2026 Unveils Future of Semiconductor Packaging: Precision Adhesives and Low-Temperature Hybrid Bonding for HBM Integration	•	2026-07-27	Japan	Adhesives & Encapsulants

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S4-13	Henkel Expands Silicon Valley Application Center to Larger Site, Boosting AI & HPC Material Development in Santa Clara, CA	Henkel	2026-07-31	US	Adhesives & Encapsulants
S4-14	Dexerials Achieves 7-Year Global Market Leadership for ACF, ARF, and SVR Display Products, Crucial for AI and Autonomous Driving Advancements	Dexerials	2026-07-29	Japan	Adhesives & Encapsulants
S4-15	Aeluma Secures \$30 Million US CHIPS Act Funding to Advance Scalable Non-InP Semiconductor Manufacturing Platform for Photonics	Semiconductor Today	2026-07-30	US	Adhesives & Encapsulants
S4-16	Adhesives Identified as Key Input for Composite Can Manufacturing Plants as Demand Rises for Eco-Friendly Packaging	openPR.com	2026-07-29	International	Adhesives & Encapsulants
S4-17	Arkema Reports Strong Q2 2026 Results with EBITDA Up 7.4% to €391 Million, Driven by Adhesive Solutions Segment	Business Wire	2026-07-30	France	Adhesives & Encapsulants
S4-18	High-Speed Hot Melt Adhesive Systems Advance Carton Sealing in Food & Beverage Packaging: Enhancing Performance & Recyclability in Harsh Environments	The National Law Review	2026-07-30	US	Adhesives & Encapsulants
S4-19	Intel and Lens Technology Form Strategic Alliance to Accelerate Glass Substrate-Based Advanced Semiconductor Packaging for AI Era	Intel Newsroom	2026-07-24	US	Adhesives & Encapsulants
S4-20	GlobalFoundries Secures \$300 Million CHIPS Act Award to Accelerate U.S. Silicon Photonics Leadership for AI Optical Interconnect Demand	Vermont Business Magazine	2026-07-29	US	Adhesives & Encapsulants
S4-21	APPLIED Adhesives Becomes Exclusive U.S. Distributor for Henkel's Flexible Packaging Adhesives	Adhesives & Sealants Industry	2026-07-28	US	Adhesives & Encapsulants
S4-22	Matrix Adhesives Group Acquires IPS Adhesives, Expanding Portfolio in Construction and Transportation Markets	Adhesives & Sealants Industry	2026-07-28	US	Adhesives & Encapsulants
S4-23	Qnity Electronics Accelerates AI-Centric Advanced Packaging R&D; with Expanded imec Collaboration	Converge Digest	2026-07-29	Belgium	Adhesives & Encapsulants
S4-24	Electroninks and SIIX Scale Up Additive EMI Shielding Collaboration, Targeting Japan and Global Markets	EINPresswire.com	2026-07-27	USA, Japan	Adhesives & Encapsulants
S4-25	Intel Foundry Leverages U.S. Advanced Packaging (Foveros, EMIB) to Power Next-Gen AI Semiconductors	Intel Newsroom	2026-07-29	US	Adhesives & Encapsulants

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S4-26	Applied Materials Unveils Material Engineering Systems for Next-Gen AI Chips Featuring Advanced 3D Architectures	YouTube (Applied Materials channel)	2026-07-27	US	Adhesives & Encapsulants
S4-27	Tinicum Acquires GracoRoberts, Bolstering Speciality Chemical Distribution for Aerospace & Defense Market	Middle Market Growth	2026-07-28	US	Adhesives & Encapsulants
S4-28	Battery Tech Firm Sila Raises \$300 Million to Expand Silicon Anode Factory	Crunchbase News	2026-07-24	US	Adhesives & Encapsulants
S4-29	Future of Lightweight Components in Aerospace and Automotive Driven by Composites and Advanced Polymers	JULI Adhesives & Sealants	2026-07-23	Global	Adhesives & Encapsulants
S4-30	CuspAI Secures \$580M to Accelerate AI-Driven Materials Discovery Platform	AlleyWatch	2026-07-27	UK	Adhesives & Encapsulants

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