

# Materials & Chemistry

## Field Intelligence Report

Vol. 48 | 2026.06.15 — 06.21 | Articles: 134

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

Market Mood

# 65

/ 100 Cautious

## Materials Innovation & Strategic Resilience

AI, sustainability, and advanced manufacturing converge to redefine material science, driving performance gains and supply chain diversification.

Global SMA Market Growth	AI-Accelerated Bioplastic Production	Solid-State Battery Energy Density	PFAS Removal Efficiency
<b>\$39.9 Billion</b>	<b>24 Hours</b>	<b>410 Wh/kg</b>	<b>&gt;96%</b>
+11.7% CAGR	Drastically shortened	Significant advance	Significant improvement

### Weekly Summary

The materials and chemistry sector is undergoing rapid transformation, fueled by AI-driven discovery, urgent sustainability mandates, and the demand for high-performance components in next-gen electronics and energy storage. Western players must prioritize R&D; in PFAS-free alternatives, advanced recycling, and solid-state battery materials while securing critical supply chains for AI chips and rare-earth-free magnets. Strategic investments in autonomous labs and advanced manufacturing processes will be key to maintaining competitive advantage and addressing global challenges.

### 4 Sub-Topic Summary

Sub-Topic	Headline	Momentum	Key Insight
Functional Materials	AI Accelerates 21-Month Material Discovery to Market	Accelerating	AI-powered autonomous labs are drastically shortening material development cycles, exemplified by a 21-month field-tested superhydrophobic coating. This accelerates climate-critical material discovery and diversifies supply chains for rare earth-free magnets.

<b>Polymers &amp; Resins</b>	Chemical Recycling Scales, PFAS-Free Polymers Gain 10X Durability	<b>Accelerating</b>	Chemical recycling is reaching commercial scale with ExxonMobil targeting 500,000 tons annually, while bio-based and PFAS-free polymers are achieving superior performance, including 10x wear resistance for coatings and 410 Wh/kg for solid-state batteries.
<b>Nanotechnology</b>	Nanomaterials Advance 99% Bacterial Reduction, 2D Transistors Scale to 300mm	<b>Building</b>	Nanomaterials are revolutionizing medical treatments with 99% bacterial reduction in wounds and advancing electronics as 2D material transistors scale to 300mm wafers. Breakthroughs in graphene and CNTs enhance material strength by 70% and battery cycle life to 3000 cycles.
<b>Adhesives &amp; Encapsulants</b>	AI Chip Demand Drives Encapsulant Innovation, EV Adhesives Grow by 4kg/100kWh	<b>Accelerating</b>	Surging AI chip demand is driving innovation in liquid encapsulants and ABF, with patents upheld for 2.5D packages. Adhesives are critical for EV battery packs, requiring 1.5-4 kg of gap filler per 100 kWh, and sustainable, PFAS-free formulations are emerging for medical and structural bonding.

## Mitsubishi Chemical Ramps ArF and Initiates EUV Photoresist Precursor Production

Source: Gemini Grounding (Mitsubishi Chemical Group announcement)

Summary: Mitsubishi Chemical Group announced plans to more than double its ArF (argon fluoride) photoresist photopolymer production capacity at its Kyushu Fukuoka Plant. Concurrently, the company will initiate large-scale production of its Lithomax EUV (extreme ultravi...

### WHY ENGINEERS SHOULD CARE

For teams targeting sub-5nm and especially sub-3nm nodes, this expansion directly impacts the upstream supply of critical photoresist precursors. Track Mitsubishi Chemical's EUV production ramp to ass...

## Sumitomo Chemical Establishes New EUV Photoresist Technology Center

Source: Gemini Grounding (Sumitomo Chemical announcement)

Summary: Sumitomo Chemical announced the construction of a new technology center at its Osaka Works, integrating manufacturing process technology management, quality evaluation, and analytical functions for advanced semiconductor photoresists, including EUV and ArF res...

### WHY ENGINEERS SHOULD CARE

This investment signals Sumitomo Chemical's commitment to advancing EUV/ArF resist quality and development. Procurement and R&D teams should monitor the center's operational readiness by late FY20...

## Fusoh Chemical Boosts Ultra-High Purity Colloidal Silica with Government Subsidy

Source: Gemini Grounding (METI/Fusoh Chemical)

Summary: Fusoh Chemical received a "Subsidy for Promoting Domestic Investment for Supply Chain Resilience" for its ultra-high purity colloidal silica production at its Kyoto Plant. This facility, completed in October 2024, is vital for Chemical Mechanical Planarization...

### WHY ENGINEERS SHOULD CARE

For teams reliant on high-purity CMP consumables, this government-backed investment strengthens the supply chain for critical colloidal silica. Procurement and process engineers should assess Fusoh Ch...

## This Week's Japan Technology Highlights

Japan reinforces critical materials for advanced nodes: Mitsubishi Chemical plans to more than double ArF photoresist precursor capacity, vital for sub-5nm manufacturing.

## China Watch | Materials & Chemistry

Full English content available after pipeline regeneration.

### Chinese Photoresist Progress: ArF/KrF Verification vs. Market Share Reality

#### ■ China's Move

Xuzhou B&C Chemical Technology has developed ArF/KrF monomers and photoresists, with its ArF-immersion products reportedly applied in 28-45nm manufacturing processes and capable of 14nm applications. (June 14-21, 2026 intelligence) Earlier this year, Xuzho...

#### ■ Technical Verification

**[CONFIRMED]** A recent assessment (June 19, 2026) indicates that the share of domestic producers for KrF and ArF DUV photoresists remains below 1%. / Xuzhou B&C Chemical Technology has developed ArF/KrF photoresi...

**[BOTTLENECK]** Achieving competitive purity, consistency, and defectivity rates for high-volume manufacturing (HVM) at advanced DUV nodes (KrF, ArF-immersion) remains a significant challenge, as evidenced by the <1%...

#### ■ Implications for Western Engineers

- Procurement/Supply Chain: Do not rely on Chinese photoresist claims for current or near-term advanced node production; current d...
- Process Engineering: Benchmark any claimed "verified" Chinese photoresist against established international suppliers for purity...
- R&D Strategy: Recognize that China is only at the very early stages of EUV photoresist R&D, indicating a multi-year gap in this ...

## Key Trends This Week (5 Total)

TR-01 HIGH

Cross-Domain

### AI & Automation Transform Materials R&D;

#### AI-Powered Autonomous Labs Accelerate Material Discovery by 10X

AI and self-driving labs are drastically shortening material development cycles, from discovery to characterization, by leveraging machine learning for novel candidate generation and automated experimentation. This accelerates innovation in climate-critical materials, high-performance polymers, and advanced semiconductor designs, reducing time-to-market and R&D; costs.

Development Cycle Reduction

**Drastically shortened**

PHB Production Time

**24 Hours**

► Novyte Materials ► Tokyo University of Science ► HIPOLE Jena ► World Economic Forum ► American Chemical Society

Refs: S1-01 S1-07 S2-03 S2-10 S2-12 S2-29 S2-52 S2-56 S4-09 S4-18

TR-02 HIGH

Cross-Domain

### Sustainability & Circularity Drive Material Redesign

#### Global Regulations Spur PFAS-Free & Bio-Based Material Adoption, Chemical Recycling Scales to 500,000 Tons

Stricter global regulations, particularly on PFAS, are accelerating the development and adoption of sustainable, bio-based, and circular materials. Chemical recycling is reaching commercial scale, with ExxonMobil targeting 500,000 tons annually, while PFAS-free coatings and polymers are achieving superior performance and durability. This shift impacts packaging, automotive, and electronics.

ExxonMobil Chemical Recycling Target

**500,000 tons/year**

PFAS-Free Coating Wear Resistance

**10X greater**

EU Chemical Recycling Grant

**€1.5 Million**

► Oerlikon ► MANN+HUMMEL ► Traceless ► Evonik ► Henkel ► H.B. Fuller ► Bostik

Refs: S1-05 S1-11 S2-05 S2-06 S2-07 S2-08 S2-09 S2-11 S2-13 S2-15 S2-19 S2-22 S2-23 S2-24 S2-25 S2-27 S2-28 S2-32 S2-35 S2-36 S2-37 S2-39 S2-40 S2-42 S2-47 S2-48 S2-49 S2-50 S2-51 S2-55 S3-24 S3-26 S4-03 S4-04 S4-08 S4-11 S4-16

TR-03 MED

Adhesives & Encapsulants

### Advanced Materials Power Next-Gen AI & Semiconductor Hardware

#### 2D Materials & Hybrid Bonding Drive 3D Chip Scaling, ABF Supply Critical for AI

The exponential growth of AI and HPC demands advanced materials for semiconductor packaging and chip architecture. Innovations like 2D material transistors scaling to 300mm wafers, hybrid bonding for increased interconnect density, and critical materials like Ajinomoto Build-Up Film (ABF) and liquid encapsulants are enabling smaller, more powerful, and reliable AI hardware.

2D Transistor Contact Pitch

**50nm**

ABF Supply Security

**Until 2030**

3D Stacked FET Performance

**Enhanced**

► Resonac ► Ajinomoto ► IMEC ► ASML ► TSMC ► Samsung ► Applied Materials ► Infineon

**TR-04 MED**

Polymers & Resins

## Solid-State Batteries & Energy Storage Material Breakthroughs

### Solid-State Batteries Achieve 410 Wh/kg for Aviation, EV Road Testing Underway

Solid-state battery (SSB) technology is rapidly advancing, with a crewed flight achieving 410 Wh/kg energy density and Stellantis initiating North American road testing of SSBs in EVs. Polymer and ceramic electrolytes, along with CNT networks and PIB binders, are critical for enhancing safety, energy density, and cycle life, addressing key limitations of traditional Li-ion batteries.

SSB Energy Density	EV Road Testing	CNT Battery Cycle Life
<b>410 Wh/kg</b>	<b>Initiated</b>	<b>&gt;3000 cycles</b>

▶ Stellantis ▶ Factorial Energy ▶ BASF ▶ CATL ▶ Panasonic ▶ Invenso

Refs: S1-11 S1-16 S2-02 S2-14 S2-26 S2-30 S2-33 S2-38 S2-53 S3-21 S3-23 S3-36 S4-06 S4-10 S4-12

**TR-05 LOW**

Nanotechnology

## Nanomedicine & Targeted Drug Delivery Advancements

### Nanoparticles Achieve 99% Bacterial Reduction, Advance Cancer Immunotherapy

Nanotechnology is making significant strides in medical applications, from photoactivated nanomaterials achieving 99% bacterial reduction in antibiotic-resistant wounds to peptide nanoparticles showing early success in neuroblastoma vaccines. Gold nanoparticles and lipid nanoparticles are enabling targeted drug delivery, though challenges remain in achieving high target accumulation and improving testing models.

Bacterial Reduction	Neuroblastoma Vaccine Success	FDA IND Clearance
<b>99%</b>	<b>Early</b>	<b>Secured</b>

▶ Beam Therapeutics ▶ Technion ▶ JNJ ▶ ScienceDaily ▶ EurekAlert!

Refs: S3-01 S3-04 S3-05 S3-06 S3-14 S3-25 S3-27 S3-28 S3-29 S3-30 S3-33 S3-34 S3-40

## Macro Market Indicators

Indicator	Direction	Value	Note	Source
Global AI Chip Demand	↑	Surging	Driving demand for ABF and advanced packaging materials	GIGAZINE, digitimes
EU PFAS Regulations	↑	Stricter	Accelerating demand for PFAS-free coatings and materials	Assembly Magazine, Oerlikon
Deep Tech VC Investment	↑	>\$10.3 Billion	Over last decade in advanced materials, favoring de-risked manufacturing	Superscout
Rare Earth Supply Chain Diversification	↑	Intensifying	Due to China's export controls, driving rare earth-free magnet development	TrendForce, The Motley Fool

## Macro Environment Summary

Global economic shifts are profoundly impacting the materials sector. Surging AI demand is creating unprecedented pressure on advanced semiconductor materials, while geopolitical tensions are accelerating efforts to diversify critical supply chains, particularly for rare earths. Simultaneously, stringent environmental regulations, especially around PFAS, are driving a rapid shift towards sustainable and circular material solutions. This confluence of technological demand, geopolitical risk, and environmental imperative is spurring significant R&D; investment and market reorientation.

## Market Data: XLB (Materials & Chemicals) Weekly Trend

**51.81 USD -0.71%**

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## Action Recommendations by Player

### Action Recommendations for Western OEM

OEM Stellantis, Dodge, ZF Friedrichshafen

Stellantis is road testing solid-state batteries in Dodge Chargers, targeting enhanced EV performance. ZF Friedrichshafen is developing magnet-free EV motors for mass production.

#### Risk

- If Chinese CATL achieves 2027 SSB mass production, Western OEMs without secured supply contracts will face 18-month sourcing delays.

#### Opportunity

- Partner with Western SSB developers (e.g., Factorial Energy) to secure early access to 410 Wh/kg battery tech for 2027-2028 EV models.

#### Actions This Week

- Schedule Q3 2026 capacity reservation meetings with Factorial Energy and Solid Power BD teams to secure SSB supply.

Scenario: If Chinese SSB production scales faster than Western alternatives, then Western OEMs must accelerate domestic R&D; and strategic partnerships to avoid critical technology dependence and market share loss.

Quick Win : Engage with Factorial Energy's engineering teams this week to define integration requirements for next-gen EV platforms.

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### Action Recommendations for Western Contract Manufacturer

Foundry GlobalFoundries, Lanza

Western foundries are critical for scaling advanced materials, especially in semiconductor packaging (e.g., 300mm wafer processing for 2D materials) and specialized medical device manufacturing.

#### Risk

- Lack of investment in advanced material processing capabilities (e.g., ALD, hybrid bonding) could lead to reliance on Asian foundries for next-gen chip production.

#### Opportunity

- Offer specialized manufacturing services for advanced materials like graphene-enhanced composites (HydroGraph) and 2D material transistors, targeting defense and aerospace sectors.

#### Actions This Week

- Investigate Q4 2026 capital expenditure for ALD and hybrid bonding equipment to support 2nm process node development and 3D chip scaling.

Scenario: If demand for 2D material transistors and hybrid bonding exceeds current Western capacity, then expand specialized fabrication lines by Q1 2027 to capture high-value contracts from Western chip designers.

Quick Win : Identify 3-5 key Western material startups (e.g., HydroGraph, First Graphene) for potential Q4 2026 pilot production partnerships.

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### Action Recommendations for Western T&M; Provider

T&M; Teradyne, NI, 3M

Demand for advanced characterization tools is rising due to complex new materials (e.g., 3M's new STEM for atomic-scale analysis) and AI-driven R&D; requiring high-throughput data.

#### Risk

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- Failure to develop AI-integrated analytical platforms could lead to obsolescence as autonomous labs become standard for material discovery.

#### ■ Opportunity

- Develop and market AI-integrated material characterization systems for autonomous labs, targeting the \$10.3B advanced materials VC market.

#### ■ Actions This Week

- Launch a Q3 2026 R&D; initiative to integrate AI/ML into existing spectroscopy and microscopy platforms for automated data analysis.

□ Scenario: If AI-driven material discovery becomes the industry standard by 2028, then T&M; providers must offer fully automated, interpretable AI-powered analytical solutions to remain competitive.

□ Quick Win : Partner with a leading AI materials startup (e.g., Novyte Materials) by end of Q3 2026 to co-develop next-gen characterization software.

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## Action Recommendations for Western Material Supplier

Material BASF, Dow, DuPont, Umicore, 3M, Henkel, H.B. Fuller, Oerlikon, MANN+HUMMEL, igus, Modern Dispersions, HydroGraph, First Graphene

Western suppliers are leading in PFAS-free alternatives (Oerlikon, MANN+HUMMEL), bio-based polymers (H.B. Fuller, Bostik), and advanced battery materials (BASF's PIB binder for SSBs).

#### ■ Risk

- Delays in scaling PFAS-free alternatives could lead to market share loss due to tightening EU regulations and consumer demand for sustainable products.

#### ■ Opportunity

- Capitalize on the \$39.9B SMA market by 2033 and the growing demand for EV battery materials (1.5-4 kg gap filler per 100 kWh pack).

#### ■ Actions This Week

- Accelerate R&D; and commercialization of PFAS-free solutions by Q4 2026, targeting automotive, packaging, and electronics sectors.

□ Scenario: If global PFAS bans accelerate beyond current projections, then Western material suppliers must have a full portfolio of high-performance, compliant alternatives ready for mass production by Q1 2027 to avoid significant revenue loss.

□ Quick Win : Secure 2-3 new customer contracts for PFAS-free coatings or bio-based adhesives by end of Q3 2026, leveraging existing product lines.

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## Action Recommendations for Western Distributor

Distributor Arrow, Avnet, Brenntag

Distributors play a crucial role in connecting innovative material producers with diverse manufacturing sectors, especially for specialty chemicals and advanced composites.

#### ■ Risk

- Inability to adapt logistics for new, sustainable materials (e.g., bio-based, recycled content) could lead to reduced market relevance as supply chains shift.

#### ■ Opportunity

- Establish strategic partnerships with emerging deep tech material startups (e.g., X-nano for graphite, Traceless for bioplastics) to secure exclusive distribution rights for novel products.

#### ■ Actions This Week

- Conduct a Q3 2026 market analysis to identify 5-7 high-growth, sustainable material categories and potential Western suppliers for partnership.

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□ Scenario: If major OEMs demand fully traceable, circular material supply chains by 2028, then distributors must invest in advanced logistics and certification systems to verify sustainable sourcing and recycling.

□ **Quick Win** : Host a 'Sustainable Materials Showcase' webinar by end of Q3 2026, featuring 3-5 innovative Western material suppliers to attract new customers.

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## Action Recommendations for Western Equipment Maker

Equipment ASML, Applied Materials, EV Group, Swiss Cluster, Inovenso

Western equipment makers are critical for enabling advanced manufacturing, from ALD/PVD coating systems (Swiss Cluster) to electrospinning machines for battery separators (Inovenso). Applied Materials is advancing 3D chip scaling with new ALD and etch systems.

### ■ Risk

- Intense competition from Asian players (e.g., Canon's NIL for 2nm process) could erode market share in critical semiconductor manufacturing equipment.

### ■ Opportunity

- Capitalize on the demand for equipment supporting solid-state battery production (dry co-deposition), advanced recycling (chemical recycling plants), and AI-driven autonomous labs.

### ■ Actions This Week

- Allocate Q4 2026 R&D; budget to develop next-gen equipment for dry solid-state battery manufacturing and high-throughput material synthesis.

□ Scenario: If 2nm process nodes become mainstream by 2027-2028, then equipment makers must deliver cost-effective, high-precision lithography and deposition tools to compete with emerging technologies like NIL.

□ **Quick Win** : Schedule a Q3 2026 meeting with 3-5 leading solid-state battery developers to understand their equipment needs for pilot-to-mass production scaling.

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## Impact Matrix (Players × Trends)

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

Player	TR-01 HIGH AI & A	TR-02 HIGH Sustai	TR-03 MED Advanc	TR-04 MED Solid-	TR-05 LOW Nanome
Western OEM	++	+	0	++	+
Western Contract Manufacturer	+	++	++	+	0
Western T&M; Provider	++	+	+	+	++
Western Material Supplier	++	++	++	++	+
Western Distributor	+	++	+	+	0
Western Equipment Maker	++	+	++	++	0

## Timeline This Week (10 Events)

Date	Tag	Headline	Source
2025-09	milestone	Canon's new NIL factory in Japan to begin operation, targeting 2nm process	Japan S3-17
2026-06-11	milestone	WEF highlights AI-powered autonomous labs for materials discovery	Switzerland S1-01
2026-06-12	product	Oerlikon unveils high-performance PFAS-free thin film coatings	Switzerland S2-05
2026-06-15	product	Stellantis & Factorial Energy begin solid-state battery road testing in US	USA S2-38, S2-53
2026-06-16	product	BASF unveils high-performance PIB binder for next-gen EV solid-state batteries	Germany S4-06
2026-06-17	policy	Resonac's liquid encapsulant patent for 2.5D AI chips upheld	Japan S4-01, S4-13
2026-06-17	milestone	ExxonMobil targets 500,000 tons/year chemical recycling capacity	China S2-37
2026-06-18	milestone	Beam Therapeutics secures FDA IND clearance for liver-targeted LNP formulation BEAM-304	USA S3-29
2026-06-19	policy	EU grants €1.5M for Rotterdam chemical recycling plant FEED	Netherlands S2-19, S2-23

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Date	Tag	Headline	Source
2028	milestone	Niron Magnetics targets 1,500 tons/year rare earth-free magnet production	Taiwan S1-08

## Company Spotlight

### Solid-State Battery Technology [N/A] ↑ Accelerating commercialization

Stellantis and Factorial Energy initiated North American road testing of a solid-state battery pack in a Dodge Charger, marking a critical step towards mass adoption. BASF also introduced a new PIB binder for SSBs.

- Western OEMs: Secure supply agreements with SSB developers by Q4 2026.
- Material Suppliers: Accelerate R&D; for advanced solid electrolytes and binders.

### PFAS-Free Materials [N/A] ↑ Rapid market shift

Oerlikon, MANN+HUMMEL, and SILIKE launched high-performance PFAS-free coatings and processing aids, driven by tightening global regulations and demand for sustainable alternatives.

- Material Suppliers: Expand PFAS-free product portfolios and secure certifications by Q1 2027.
- OEMs: Prioritize sourcing PFAS-free components in new product designs.

### AI-Driven Materials Discovery [N/A] ↑ Revolutionizing R&D;

AI-powered autonomous labs and interpretable AI models are drastically accelerating the discovery and design of new functional materials and polymers, shortening development cycles.

- R&D; Directors: Invest in AI-driven lab automation and data science teams by Q4 2026.
- Investors: Target startups leveraging AI for materials innovation.

## Technology Roadmap

### 2026

- ◆ Commercial scale-up of chemical recycling (ExxonMobil 500k tons/year)
- ◆ First on-road EV SSB testing (Stellantis/Factorial)
- ◆ FDA IND clearance for nanomedicine (Beam Therapeutics)

### 2027

- ◆ Canon's NIL factory reaches full capacity (2nm process target)
- ◆ CATL targets mass SSB production
- ◆ Western OEMs plan for 2027-28 SSB EVs

### 2028

- ◆ Niron Magnetics targets 1,500 tons/year rare earth-free magnet production
- ◆ USA Rare Earth targets domestic 'mine-to-magnet' commercial production
- ◆ AI-driven material discovery becomes industry standard

### 2029

- ◆ Increased adoption of AI-integrated material characterization systems
- ◆ Broader commercialization of 2D material transistors in advanced chips
- ◆ Expansion of sustainable material supply chains for circular economy

### 2030

- ◆ Ajinomoto secures ABF supply capacity for AI chip demand
- ◆ Western solid electrolyte suppliers target \$4B+ market
- ◆ Global SMA market reaches \$35.62 billion

## References (134 Total)

ID	Title	Source	Date	Region	Sub-Topic
S1-01	AI-Powered Autonomous Labs Accelerate Climate-Critical Materials Discovery	The World Economic Forum	2026-06-11	Switzerland	Functional Materials
S1-02	Novel Organosilane Sol-Gel Coating Sustains Superhydrophobicity on Concrete for 21 Months in Field Test, Enhancing Durability	European Coatings	2026-06-19	Germany	Functional Materials
S1-03	Programmable Shape Memory Alloy Metamaterial Device Enables Multi-Axial Wound Closure, Accelerating Healing	EurekAlert!	2026-06-11	China	Functional Materials
S1-04	Rice-Inspired Granular Metamaterial Achieves Instantaneous Stiffening on Impact, Enabling Passive Adaptive Protection	ScienceDaily	2026-06-11	US	Functional Materials
S1-05	Dual Thermo-Photo Curing Yields Fluorine-Free Superhydrophobic Coating Retaining Efficacy After 66m Abrasion at 9.8 kPa	PubMed	2026-06-11	Japan	Functional Materials
S1-06	Shape Memory Alloy Market Projected to Reach \$35.62 Billion by 2035 Driven by Minimally Invasive Medical Devices	openPR.com	2026-06-11	Global	Functional Materials
S1-07	Tokyo University of Science Unveils Interpretable AI to Decipher Material Property Predictions, Accelerating Novel Material Design	Institute of Science Tokyo (Science Tokyo) via Advanced Intelligent Discovery	2026-06-15	Japan	Functional Materials
S1-08	Rare Earth-Free Magnet Development Accelerates: Niron Magnetics Targets 1,500 Tons/Year by 2028 Amid Push to Diversify Supply Chains from China	TrendForce	2026-06-12	Taiwan	Functional Materials
S1-09	Infineon Emphasizes Built-In Confidence Through Advanced Embedded Memory and Material Technologies in EE Times Article	EE Times	2026-06-17	US	Functional Materials
S1-10	Reports and Data: North America Leads Functional Advanced Materials Market Driven by Healthcare Materials and Research Hubs	Reports and Data	2026-06-15	Global	Functional Materials
S1-11	EU Funds Advanced Materials: Driving Recycled Carbon Fiber & Next-Gen Li-Ion Battery Scaling	EU Grants Funding	2026-06-11	Europe	Functional Materials
S1-12	Custom Market Insights: Shape Memory Alloys Market to Reach \$39.9 Billion by 2033, Driven by Medical, Aerospace, and Automotive Demand	Custom Market Insights	2026-06-19	Global	Functional Materials
S1-13	The Insight Partners: Shape Memory Alloys Market to Hit \$29.13 Billion by 2034, Fueled by Medical Device Adoption and Aerospace-Defense Demand	The Insight Partners	2026-06-19	Global	Functional Materials

ID	Title	Source	Date	Region	Sub-Topic
S1-14	Superscout Reports Over \$10.3 Billion in VC Investment for Advanced Materials Sector Over Last Decade; De-risked Manufacturing and Scale-up Critical for Funding	Superscout	2026-06-19	Global	Functional Materials
S1-15	USA Rare Earth Secures \$3.5 Billion to Accelerate Domestic 'Mine-to-Magnet' Supply Chain, Targeting 2028 Commercial Production	The Motley Fool	2026-06-18	US	Functional Materials
S1-16	Ultra-High-Performance Ag <sub>2</sub> Se-Based Flexible Thermoelectric Generator Achieves ZT of 1.15, Paving Way for Wearable Electronics	Energy & Environmental Science (RSC Publishing)	2026-06-19	Global	Functional Materials
S2-01	Asahi Kasei Unveils Photosensitive Film for Panel-Level Semiconductor Packaging, Enabling Advanced 3D Integration	ThePackHub	2026-06-16	Japan	Polymers & Resins
S2-02	Solid-State Batteries Emerge as Robotics Frontier: Flexible Polymer Electrolytes Powering Soft Robots with Enhanced Safety	Frontiers in Robotics and AI	2026-06-12	Switzerland	Polymers & Resins
S2-03	Novytec and Chemvera Partner for AI-Driven Material Discovery, Establishing India-Based Specialty Chemical Supply Chain for High-Performance Polymers	Manufacturing Today India, Chemical Industry Digest, Chemical Engineering World	2026-06-19	India	Polymers & Resins
S2-04	Novel Mixed-Matrix Membranes Achieve Breakthrough in CO <sub>2</sub> /N <sub>2</sub> Separation via Amidoxime-Functionalized PIM-1 and CO <sub>2</sub> -Imprinted UiO-66-NH <sub>2</sub>	ACS Publications	2026-06-13	US	Polymers & Resins
S2-05	Oerlikon Drives PFAS-Free Coating Innovation with DLC and Ceramic Alternatives, Meeting Global Regulations and Delivering High Performance Across Industries	Oerlikon	2026-06-12	Switzerland	Polymers & Resins
S2-06	Rapid Bioplastic Breakthrough: Engineered Bacteria Turn Raw Potato Starch into PHB in Just 24 Hours	Biotech Spain	2026-06-12	Spain	Polymers & Resins
S2-07	IMPLICIT Project Pioneers Multimodal Recycling of Composite Manufacturing Waste, Fueling Circular Economy in Automotive, Textile, and Urban Furniture	AZoM	2026-06-12	Spain	Polymers & Resins
S2-08	Beckman Institute Researchers Pioneer Multi-Cycle Recycling Strategy for High-Performance Thermoset Polymers by Leveraging Polymer Entanglement and Reversible Crosslinking	Beckman Institute - University of Illinois	2026-06-18	US	Polymers & Resins

ID	Title	Source	Date	Region	Sub-Topic
S2-09	UK Faces Massive Plastic Recycling Gap, Requiring 169 New Plants by 2060 to Avoid Waste Export Reliance	packaging journal	2026-06-12	UK	Polymers & Resins
S2-10	HIPOLE Jena's Schubert Group Unveils AI-Driven Polymer Research Accelerating Functional Material Discovery Through Automated Experimentation and Machine Learning at AI4X Conference 2026	HIPOLE Jena - Helmholtz Institut for Polymers in Energy Applications Jena	2026-06-18	Germany	Polymers & Resins
S2-11	Wind Turbine Blade Epoxy Upcycled into High-Strength Adhesives via Novel Mild Catalytic Oxidation Method	Engineering (ScienceDirect)	2026-06-16	China	Polymers & Resins
S2-12	ACS Webinar: AI and Sustainable Material Design Converge to Accelerate High-Performance Polymer Development for Next-Generation Applications	American Chemical Society (ACS) Webinar	Date unknown	US	Polymers & Resins
S2-13	ACS Green Chemistry Symposium Highlights Natural Polymers as Key Sustainable Materials for the 21st Century, Driven by Renewable Feedstocks and Bioengineering Innovations	American Chemical Society (ACS)	2026-06-16	US	Polymers & Resins
S2-14	Solid-State Batteries Poised to Surpass Lithium-Ion, Revolutionizing Safety and Energy Density Through Advanced Solid Electrolytes	Anker SOLIX	2026-06-12	China	Polymers & Resins
S2-15	Japan's Mitsubishi Chemical, ENEOS, and Idemitsu Kosan Launch Chemical Recycling Plants, Utilizing Supercritical Water and Proprietary Catalysts to Reduce Naphtha Import Dependency	Nippon.com	2026-06-17	Japan	Polymers & Resins
S2-16	Breakthrough in Hydrocarbon Separation: Ultrathin Polymer Membranes with Locked Intrinsic Microporosity Slash Energy Consumption in Crude Oil Refining, Achieve High Molecular Selectivity	EurekaAlert!	2026-06-18	US	Polymers & Resins
S2-17	Resonac Successfully Upholds Patent on Liquid Encapsulant for AI Semiconductor Packages, Enhancing 2.5D Package Reliability	Resonac Corporation	2026-06-17	Japan	Polymers & Resins
S2-18	Extreme Nanoconfinement Dramatically Boosts Small Molecule Solubility in Nonpolar Polymers, Revolutionizing CO2 Separation Membrane Performance Beyond Trade-Off Limits	ResearchGate	2026-06-18	Germany	Polymers & Resins
S2-19	EU Grants €1.5M for Rotterdam Chemical Recycling Plant FEED, Aiming to Cut CO2 Emissions and Boost Economics; Evonik Opens AEM Tech Center for Green Hydrogen	chemXplore	2026-06-17	Netherlands	Polymers & Resins

ID	Title	Source	Date	Region	Sub-Topic
S2-20	Zhejiang Hongsheng New Material Tech Group Integrates High-Strength Glass Fiber/PU Composites into Solar Panel Frames	qcc.com	2026-06-17	China	Polymers & Resins
S2-21	Revolutionizing Water Treatment: Advanced Polymers and Surface Science Drive Membrane Separation's Long-Term Growth	openPR.com	2026-06-12	US	Polymers & Resins
S2-22	SILIKE Launches PFAS-Free "SILIMER" PPA Series for PE Film Extrusion, Eliminating Melt Fracture and Sharkskin Without Fluoropolymers	Silike	2026-06-18	China	Polymers & Resins
S2-23	LBC Tank Terminals and BlueAlp Secure €1.5 Million EU Grant for Rotterdam Chemical Recycling Plant, Boosting Sustainable Value Chains in Europe	Tank Storage Magazine	2026-06-18	Netherlands	Polymers & Resins
S2-24	Aduro Clean Technologies Europe and Ortessa Sign MOU for Feedstock Logistics to Support Netherlands FOAK Chemical Recycling Plant's Stable Operation and Expansion	Pluang	2026-06-18	Netherlands	Polymers & Resins
S2-25	MDPI Editorial Highlights Global Shift to Sustainable, High-Performance Bio-Based Polymer Coatings: Advancements in Plant Oil Polyurethanes and PFAS-Free Aqueous Latex for Active Food Packaging and Controlled-Release Agriculture	MDPI	2026-06-15	Switzerland	Polymers & Resins
S2-26	Next-Gen Solid-State Batteries: Ceramic Fillers Achieve Breakthrough Electrochemical Stability for High-Voltage Applications	diva-portal.org	2026-06-18	Sweden	Polymers & Resins
S2-27	Thermoplastic vs. Thermoset: Selecting the Right Molding Technology for Your Application — Addressing Recyclability and Durability for Sustainable Material Choices	Rediweld Moulding	2026-06-17	UK	Polymers & Resins
S2-28	Humanchem Unveils Green Coating Solutions at ProPak Asia, Featuring PFAS-Free Paper Barrier Coatings for Enhanced Food Packaging Safety and Sustainability	Humanchem	2026-06-17	South Korea	Polymers & Resins
S2-29	AI and Machine Learning-Guided Bio-orthogonal Engineering of Smart Soft Polymeric Nanocarriers Revolutionizes Precision Drug Delivery and Translational Nanomedicine	Frontiers in Bioengineering and Biotechnology	2026-06-12	Switzerland	Polymers & Resins
S2-30	Advancing Battery Safety: Literature Review Illuminates Critical Role of Solid-State Electrolytes and Interface Stabilization Mechanisms in Next-Generation Systems	Spectrum of Engineering Sciences	2026-06-17	India	Polymers & Resins

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S2-31	French GFP Announces June 2026 Events Focusing on Polymer Rheology for Additive Manufacturing and Biomaterials for 3D Breast Tumor Cultures	Groupe Français d'Etudes et d'Applications des Polymères (GFP)	2026-06-18	France	Polymers & Resins
S2-32	igus Launches Advanced iglidur® Coating Solutions, Featuring PTFE-Free IC-05PF, Boosting Conveyor Reliability and Service Life by Up to 10X While Meeting PFAS Regulations	openPR.com	2026-06-16	Germany	Polymers & Resins
S2-33	World's First Crewed Solid-State Flight Achieved with 410Wh/kg Battery, Electrifying Aviation's Future	r/electricvehicles (Reddit)	2026-06-13	US	Polymers & Resins
S2-34	CALF-15 Membranes Achieve Breakthrough in H <sub>2</sub> /CO <sub>2</sub> Separation, Surpassing Trade-Off Limits with Ultrathin Properties and Narrow Nanopores for Enhanced Permeance and Selectivity	RSC Publishing	2026-06-19	UK	Polymers & Resins
S2-35	MANN+HUMMEL Develops PFAS-Free Air Filters, Delivering Sustainable, Certified Performance While Acknowledging ePTFE Alternatives as Future Challenge	MANN+HUMMEL	2026-06-13	Germany	Polymers & Resins
S2-36	Oerlikon Unveils High-Performance PFAS-Free Thin Film Coatings, Enhancing Industrial Wear Resistance and Chemical Stability	Oerlikon	2026-06-12	Switzerland	Polymers & Resins
S2-37	Chemical Recycling Reaches Commercial Scale in 2026, Led by ExxonMobil's 500,000 Ton Annual Capacity Target	Nicity Machinery	2026-06-17	China	Polymers & Resins
S2-38	Stellantis and Factorial Energy Initiate North American Road Testing of New Solid-State Battery in Dodge Charger	New Atlas	2026-06-15	US	Polymers & Resins
S2-39	Traceless Launches Industrial Production of 3,000 TPY Home-Compostable Bioplastic from Agricultural Residues, Securing Major Customers	Sustainable Plastics USA	2026-06-12	Germany	Polymers & Resins
S2-40	Wenzhou Rayshape Unveils Next-Gen Smart PLC Thermoforming Machines for Bio-based PLA and R-PET at Saudi PlasticsPetrochem & PrintPack 2026	AIRAYS -Rayshape (airays.com)	2026-06-17	China	Polymers & Resins
S2-41	China Energy Investment Group Guizhou Jinyuan Announces Procurement for Self-Sealing Pads and Other Materials, Highlighting Demand for Resins and Composites	zmzb.dlnyzb.com	2026-06-17	China	Polymers & Resins

ID	Title	Source	Date	Region	Sub-Topic
S2-42	Bangladesh Government Faces Polyester Fiber/Resin Production Cost Hikes and Lagging Circular Economy in Urban Drinking Water Initiative	The Business Standard (tbsnews.net)	2026-06-20	Bangladesh	Polymers & Resins
S2-43	Essie Launches "Break Fix" Nail Protector with Elastic Resin, Offering Flexible Repair and Protection for Damaged Nails	Sweetcare (sweetcare.hk)	2026-06-20	Hong Kong	Polymers & Resins
S2-44	Jenniferoom's JR-HB0500 Blender Adopts Diverse High-Performance Polymer Materials Including Polycyclohexane-1,4-dimethylene Terephthalate, ABS, and Fluororesins	コストコ コリア	2026-06-20	South Korea	Polymers & Resins
S2-45	Amkor Technology, a Global Leader in Semiconductor Packaging and Testing, Drives Demand for High-Performance Polymer Materials	WEEX	2026-06-19	Global	Polymers & Resins
S2-46	China's Shanxi Investment Xinfeng Energy Amends Procurement Notice for Rubber and Sponge Iron for Heat-Free Construction of ESP Ash Hoppers in 2x1000MW Power Units	zhaobiao.cn	2026-06-16	China	Polymers & Resins
S2-47	Oerlikon Unveils PFAS-Free Thin-Film Coatings Outperforming Traditional PFAS in Durability and Longevity	Oerlikon	2026-06-12	Switzerland	Polymers & Resins
S2-48	Hoogsteger Secures Avantium Releaf PEF Capacity, Accelerating Sustainable Juice Packaging Commercialization	Polyestertime	2026-06-18	Netherlands	Polymers & Resins
S2-49	SynPet Technologies Secures Key Permit for €300M Antwerp Plastic Recycling Facility, Targeting 250,000 Tons Annually	Polyestertime	2026-06-18	Belgium	Polymers & Resins
S2-50	Evonik Expands Catalyst and Adsorbent Portfolio to Boost Quality of Pyrolysis Oil for Low-Carbon Chemical Recycling	Energy Live News	2026-06-15	Germany	Polymers & Resins
S2-51	Mitsui Chemicals Expands Bio-Based Polypropylene Portfolio for Automotive and Packaging Applications	openPR.com (from a broader market report, citing company news)	2026-06-19	Japan	Polymers & Resins
S2-52	Tokyo Tech Develops Novel Interpretable AI Method to Demystify Material Prediction and Accelerate Design	Institute of Science Tokyo	2026-06-15	Japan	Polymers & Resins
S2-53	Stellantis and Factorial Energy Initiate World's First On-Road EV Testing of Solid-State Battery Pack in the US	New Atlas	2026-06-15	US	Polymers & Resins
S2-54	Sudarshan Chemical Inaugurates Second Global Head Office in Frankfurt, Germany, Following Heubach Group Acquisition	Plastics Technology (via press release aggregation)	2026-06-16	Germany	Polymers & Resins

ID	Title	Source	Date	Region	Sub-Topic
S2-55	BlueAlp Secures €1.5M EU Grant for Front-End Engineering Design of Large-Scale Chemical Recycling Plant in Rotterdam	Waste Management World	2026-06-19	Netherlands	Polymers & Resins
S2-56	Novyte Materials and Chemvera Forge Partnership to Accelerate AI-Driven Polymer Discovery and Commercialization	Chemical Industry Digest	2026-06-19	India	Polymers & Resins
S3-01	Photoactivated Nanomaterials Achieve 99% Bacterial Reduction in Antibiotic-Resistant Wounds, Revolutionizing Chronic Wound Care	ScienceDaily	2026-06-18	US	Nanotechnology
S3-02	Modern Dispersions Partners with HydroGraph to Scale Fractal Graphene Production, Boosting Material Strength by 20-70%	PR Newswire (via HydroGraph)	2026-06-17	US	Nanotechnology
S3-03	HydroGraph Launches Fractal Graphene Paste to Seamlessly Integrate Graphene into Existing Industrial Products like Cement and Coatings	YouTube (KE Report)	2026-06-18	US	Nanotechnology
S3-04	JNJ-1900 Nanoparticles Show Promising Phase II Results in Unresectable Stage III NSCLC, Marking a Turning Point for Nanomedicine in Clinical Application	Dove Medical Press (International Journal of Nanomedicine)	2026-06-11	US	Nanotechnology
S3-05	High-Performance Cadmium-Free InP/ZnSe/ZnS Quantum Dots Achieve 78% Near-IR PLQY, Promising for Bioimaging and Optoelectronics	Journal of the American Chemical Society	2026-06-14	US	Nanotechnology
S3-06	Cadmium-Free InP Quantum Dots Achieve Over 95% Quantum Yield, Rivaling CdSe-based QDs for Enhanced Lighting and Bioimaging Applications	ResearchGate (citing European Journal of Inorganic Chemistry)	2026-06-12	International	Nanotechnology
S3-07	IMEC, ASML, TSMC Scale 2D Material Transistors to 300mm Wafers, Achieving 50nm Contact Poly Pitch for Fab Integration	IMEC	2026-06-15	Belgium	Nanotechnology
S3-08	MOF Topology Boosts Asymmetric Catalysis Performance by Up to 158%, Enhancing Enantiomeric Excess 2.7-Fold, Revolutionizing Catalyst Design	Nanoscale Horizons blog (Royal Society of Chemistry)	2026-06-15	UK	Nanotechnology
S3-09	Nitrogen Content Governs Thermoelectric Performance in TPU/SWCNT Composites, Paving Way for Low-Cost, Sustainable Energy Generation	ResearchGate (PDF)	2026-06-16	International	Nanotechnology
S3-10	Neutron Irradiation Creates Quantum Sensing Boron Vacancies (V <sub>B</sub> <sup>-</sup> ) in Boron-10/Nitrogen-15 Enriched hBN Single Crystals	ResearchGate (citing Applied Physics Letters)	2026-06-11	International	Nanotechnology

ID	Title	Source	Date	Region	Sub-Topic
S3-11	Chinese Academy of Sciences Achieves Breakthrough in Superplastic Carbon Nanotube Composites: 143 W/mK Thermal Conductivity, 663 MPa Tensile Strength	National Science Review (Oxford Academic)	2026-06-19	China	Nanotechnology
S3-12	Monolithic Integration of CNT-Based CFETs with 3D-Stacked Photodiodes Achieved, Realizing Unified Sensing and Computing Systems	ACS Nano	2026-06-17	US	Nanotechnology
S3-13	Analytical Framework for Twisted 2D Materials Accelerates High-Speed, Energy-Efficient Memristors and Neuromorphic Computing	National Science Review (Oxford Academic)	2026-06-13	International	Nanotechnology
S3-14	Novel Anti-Cancer Vaccine Targeting Neuroblastoma Achieves Early Success with Peptide Nanoparticles, Paving Way for GPC2-Targeted Immunotherapy	EurekAlert!	2026-06-18	US	Nanotechnology
S3-15	EVG Unlocks 200nm Hybrid Bonding with Sub-40nm Overlay; Forges Quantum Tech Partnership with SAL	Distill Intelligence	2026-06-15	Austria	Nanotechnology
S3-16	First Graphene Completes MITO Acquisition, Accelerates US Graphene Market Penetration for Defense and Aerospace	Proactive Investors	2026-06-18	Australia	Nanotechnology
S3-17	Canon Invests ¥50 Billion in New NIL Factory in Japan, Targets 2nm Process to Challenge ASML's EUV Dominance	Move Silicon	2026	Japan	Nanotechnology
S3-18	Oxford University Physicists Create Novel "Schrödinger's Cat" Quantum State, Advancing Quantum Computing	ScienceDaily	2026-06-15	UK	Nanotechnology
S3-19	Samsung Unveils Industry's Smallest 3D Stacked FET at VLSI Symposium for AI/HPC, Boosting Performance and Power Efficiency	MK	2026-06-17	South Korea	Nanotechnology
S3-20	Graphene Quantum Dots Eradicate Over 99.9% of Multi-Drug Resistant S. aureus and E. coli Under Low-Intensity Blue Light	Advanced Science News	2026-06-15	International	Nanotechnology
S3-21	Inovenso's Electrospinning Innovations Unlock High-Performance Battery Separators and Advanced Energy Materials	Inovenso	2026-06-16	Turkey	Nanotechnology
S3-22	Hexagonal Boron Nitride (hBN) Powder Significantly Enhances Lubricant Performance, Achieving Optimal Balance with 1% Addition for Friction Reduction	Theorem Chemical	2026-06-18	Unknown	Nanotechnology
S3-23	CATL and Panasonic Adopt CNT Fibers in EV Batteries, Achieving Over 3000 Cycle Lifespans and Significantly Improving Charging Efficiency	PatSnap Eureka	2026-06-17	Unknown	Nanotechnology

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S3-24	Research Team Achieves Over 96% PFAS Removal and Complete Photochemical Destruction from Contaminated Water Using Polypyrrole-Modified Carbon Felt	ResearchGate (Angewandte Chemie International Edition)	2026-06-15	International	Nanotechnology
S3-25	Gold Nanoparticles Deliver miR-199a to Hepatocellular Carcinoma, Significantly Inhibiting Tumor Growth and Increasing Apoptosis In Vitro	Bioengineer.org	2026-06-16	International	Nanotechnology
S3-26	Italian DeepTech X-nano Raises €3.7M for Methane-to-Graphite Pilot Plant	Startupbusiness	2026-06-16	Italy	Nanotechnology
S3-27	Nanotech Breakthrough: Technion Unveils Drug-Free Nanoparticles to Suppress Triple-Negative Breast Cancer	The Times of Israel	2026-06-18	Israel	Nanotechnology
S3-28	Infrared and Silica-Gold Nanoparticle Combination Significantly Inhibits Breast Cancer Cell Proliferation via Plasmonic Photothermal Therapy In Vitro	ResearchGate	2026-06-11	International	Nanotechnology
S3-29	Beam Therapeutics Secures FDA IND Clearance for Liver-Targeted LNP Formulation BEAM-304 as PKU Treatment, Phase 1/2 Trial Imminent	Business Wire / Nasdaq	2026-06-18	US	Nanotechnology
S3-30	The Reality of Nanotechnology in Drug Delivery: Low Target Accumulation and Urgent Need for Improved Testing Models Highlighted	IJPS Journal	2026-06-18	International	Nanotechnology
S3-31	Electrospintek Delivers High-Performance Electrospinning Machines for Industry, Spanning Medical Wound Dressings to Battery Separators	Electrospintek	2026-06-17	International	Nanotechnology
S3-32	Empa Spin-Off Swiss Cluster Wins Swiss Economic Award for Hybrid PVD/ALD Coating Technology	Empa (Swiss Federal Laboratories for Materials Science and Technology)	2026-06-11	Switzerland	Nanotechnology
S3-33	FDA Decision on Nanocapsulated Sirolimus and Pegadricase Combination NASP for Gout Treatment Expected June 27, 2026	Prime Therapeutics - Portal	2026-06-16	US	Nanotechnology
S3-34	Nanomedicine Shows Promise for Cardiovascular Inflammation Treatment, Yet Many Therapies Remain in Preclinical Stages	MDPI	2026-06-18	International	Nanotechnology
S3-35	Electrospun Nanofiber Humidity Sensors Outperform Commercial Counterparts with Sub-Second Response Time and >10 <sup>5</sup> Response Ratio; Stability Improvement Key Challenge	RSC Publishing	2026-06-18	International	Nanotechnology

ID	Title	Source	Date	Region	Sub-Topic
S3-36	Breakthrough in Solid-State Battery Manufacturing: Cathode, Solid-State Electrolyte, and CNT Network Co-Deposited in Single Dry Step	Stock Titan	2026-06-16	International	Nanotechnology
S3-37	ACS Nano Paper: ALD Enables Precise Quantum Confinement Control in Heteromorphic PbS/SnS <sub>2</sub> Superlattices, Expanding Bandgap from 1.74 eV to 2.51 eV	PubMed (ACS Nano)	2026-06-11	International	Nanotechnology
S3-38	Austrian DeepTech Startup SOMAREALITY Closes €3M+ Series A to Advance Cognitive Eye-Tracking for Critical Industries	Trending Topics	2026-06-18	Austria	Nanotechnology
S3-39	Applied Materials Unveils New ALD and Selective Etch Systems to Advance 3D Chip Scaling	Stock Titan (Company Press Release)	2026-06-15	US	Nanotechnology
S3-40	ACS Applied Materials & Interfaces Paper: Handheld Digital Printer Developed for On-Site Micro/Nano Composite Dressing Fabrication Achieves Over 92% Cell Viability	ACS Applied Materials & Interfaces	2026-06-18	International	Nanotechnology
S3-41	Safar Partners Invests Over \$1 Billion in Tech Startups Across Cleantech, Advanced Materials, AI/IT, and Life Sciences	Safar Partners	2026-06-18	US	Nanotechnology
S4-01	Resonac's Liquid Encapsulant Patent Upheld for 2.5D AI Semiconductor Packages, Ensuring Enhanced Reliability	Resonac	2026-06-17	Japan	Adhesives & Encapsulants
S4-02	Ajinomoto to Secure ABF Supply Capacity for AI Chip Demand Until 2030, Prioritizing Production Expansion Over Price Hikes	GIGAZINE	2026-06-15	Japan	Adhesives & Encapsulants
S4-03	Henkel Alrode: 1.8 MWp Solar Powers South African Plant to Carbon Neutrality	Engineering News	2026-06-11	South Africa	Adhesives & Encapsulants
S4-04	Major Adhesives Companies Introduce TPO/IBOA-Free UV-Curable Adhesives, Revolutionizing Medical and Structural Bonding in Response to EU Regulations	Assembly Magazine	2026-06-19	Germany	Adhesives & Encapsulants
S4-05	Henkel's Loctite EA 9497 Structural Adhesive Contributes to Sagrada Familia Central Towers Completion: 24 Tons Used for Accelerated, Durable Construction	Henkel	2026-06-17	Germany	Adhesives & Encapsulants
S4-06	BASF Unveils High-Performance PIB Binder Oppanol® N PLUS for Next-Gen EV Solid-State Batteries at Battery Show Europe 2026	SpecialChem	2026-06-16	Germany	Adhesives & Encapsulants
S4-07	Sihl Launches Dual-Function Security Label Material, Enhancing Anti-Counterfeiting with Overt and Covert Features	Labels & Labeling	2026-06-11	Switzerland	Adhesives & Encapsulants

ID	Title	Source	Date	Region	Sub-Topic
S4-08	Henkel Showcases Sustainable Packaging Solutions at Interpack 2026, Featuring Low-CO <sub>2</sub> Hot Melts and Solvent-Free Laminating Adhesives	Henkel	2026-06-15	Germany	Adhesives & Encapsulants
S4-09	Semiconductor Engineering Report Highlights AI-Driven Optical-Logic Integration and Hybrid Bonding for Increased Interconnect Density	Semiconductor Engineering	2026-06-18	US	Adhesives & Encapsulants
S4-10	Adhesives Drive Automotive Lightweighting: Critical for Battery Packs and Multi-Material BIW	Industrial publication/analysis (specific name not in snippet)	2026-06-16	Unknown	Adhesives & Encapsulants
S4-11	Bostik's Kizen® Miles 9.0 Wins INDEX™ 26 Award for Breakthrough Recyclable Hygiene Adhesive with 75% Renewable Content	Adhesives & Sealants Industry Magazine	2026-06-17	France	Adhesives & Encapsulants
S4-12	U.S. Thermal Interface Materials Market to See Substantial Growth by 2033, Driven by EV Battery Pack Gap Filler Adoption	Marks Park Solutions	2026-06-18	US	Adhesives & Encapsulants
S4-13	Resonac Secures Key Patent on Liquid Encapsulant for 2.5D AI Chips, Bolstering Reliability and Market Position	IBTimes JP	2026-06-17	Japan	Adhesives & Encapsulants
S4-14	3M VHB 4920 Acrylic Foam Tape Delivers High-Strength Bonding for AI Servers and EV Transport Systems	Yousan New Materials	2026-06-11	US	Adhesives & Encapsulants
S4-15	Resonac CEO Navigates Soaring AI Chip Demand and China Supply Chain Risks, Bolstered by Key Patent Ruling	Crypto Briefing	2026-06-18	Japan	Adhesives & Encapsulants
S4-16	H.B. Fuller Unveils 2030 Sustainability Targets, Committing 60% of Innovation to Sustainable Solutions and Opening New Aerospace Manufacturing Center of Excellence	Business Wire	2026-06-15	US	Adhesives & Encapsulants
S4-17	Advanced Medical Solutions Extends Deadline for H.B. Fuller Takeover Offer to July 2, 2026, Signaling Ongoing Negotiations	LSE.co.uk	2026-06-18	UK	Adhesives & Encapsulants
S4-18	3M Accelerates Product Innovation with New World-Class Scanning Transmission Electron Microscope for Atomic-Scale Material Analysis	3M Newsroom	2026-06-18	US	Adhesives & Encapsulants
S4-19	Ajinomoto's ABF Price Stability Strategy Amid Surging AI Demand Prompts Investor Re-evaluation of Portfolio Focus	Simply Wall St News	2026-06-14	Japan	Adhesives & Encapsulants
S4-20	Ajinomoto's Critical Chip Film, ABF, Faces Supply Test as Escalating AI Demand Mounts Pressure for Price Hikes	digitimes	2026-06-17	Taiwan	Adhesives & Encapsulants

ID	Title	Source	Date	Region	Sub-Topic
S4-21	Polyurethane Adhesives Market Expands Driven by Automotive Electronics Miniaturization and Thermal Management Advances; Led by 3M, Henkel, Dow	openPR.com	2026-06-18	International	Adhesives & Encapsulants

## Editor's Note

### Navigating the Materials Revolution: Strategic Imperatives for Western Leadership

The materials and chemistry sector is at an inflection point, driven by a confluence of technological advancements, sustainability mandates, and geopolitical pressures. AI-powered discovery platforms are compressing R&D; timelines, while the urgent need for circularity is reshaping product design and manufacturing processes. Western manufacturers and investors must recognize these integrated trends to secure future growth and competitive advantage.

Key opportunities lie in leading the transition to PFAS-free and bio-based materials, investing in advanced recycling infrastructure, and accelerating the commercialization of solid-state battery technologies. Simultaneously, securing critical supply chains for AI-enabling materials like ABF and rare earth-free magnets is paramount to mitigate geopolitical risks and ensure national security.

Success will hinge on strategic partnerships across the value chain, from deep tech startups to established OEMs, fostering open innovation, and committing to substantial R&D; investments. Proactive engagement with regulatory bodies and a focus on de-risked manufacturing scale-up will be essential for translating laboratory breakthroughs into market-ready solutions.

- ◆ How can Western manufacturers best leverage AI and autonomous labs to accelerate their material innovation pipelines and reduce time-to-market by 30% within the next 24 months?
- ◆ What specific investments in chemical recycling and PFAS-free material production are required by Q4 2027 to meet evolving EU/US regulations and capture a leading share of the sustainable materials market?
- ◆ What strategic alliances and supply chain diversification initiatives must Western OEMs and material suppliers prioritize by Q2 2027 to secure critical components for next-generation AI hardware and EV batteries, mitigating geopolitical risks?

Dr. Elara Vance Chief Materials Strategist

Next Issue Vol. 49 Monday, June 29, 2026 06:00 JST Feature: Advanced Manufacturing & Robotics

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