Adhesives_Sealants

Weekly Intelligence Report

2026-09-13 ¦ 32 articles ¦ 10 countries

troy-technical.jp

This Week's Keyword

Sustainable Adhesives

Circular economy & high-performance needs

32	10	381	16
articles	countries	Wh/kg	%
Total Articles Analyzed	Source Countries	Solid-State Battery Density	Thermal Resistance Cut

All 32 Articles This Week — 5-Axis Evaluation Matrix

How to read columns — Tech Novelty: degree of breakthrough Market Proximity: closeness to commercialization Market Impact: industry-wide effect Data Reliability: quantitative data & peer review US/EU Relevance: direct impact on US/European companies & supply chains

#	Article Title	Type	Tech Novelty	Market Proximity	Market Impact	Data Reliability	US/EU Relevance	Summary
#01	ORNL Reusable Adhesive	Research	4	2	4	3	4	ORNL develops reusable, waste-polymer adhesive with superior wet/dry bonding for circular economy.
#02	Sika Acquires Akkim	Corporate Strategy	1	4	3	4	4	Sika acquires Turkish Akkim (CHF 220M revenue), boosting East Europe/ME market presence.
#03	Q.E.P. Acquires Spray-Lock	Corporate Strategy	2	4	2	4	4	Q.E.P. acquires Spray-Lock, expanding low-VOC spray adhesive platform for flooring.
#04	JBC Acquires NADCO	Corporate Strategy	1	4	2	4	4	JBC Technologies acquires NADCO, expanding adhesive components for medical/wearable devices.
#05	Caly TIM Selection Guide	Product Guide	2	4	3	3	4	Caly Technologies' TIM guide optimizes thermal management for SiC/GaN, highlighting silver sintered/graphene.
#06	Cambium ApexFrame 5000	New Product	4	4	4	4	4	Cambium launches ApexFrame 5000, a high-temp (315 ° C) film adhesive for aerospace/defense.
#07	CHT-Silicones Silso	New Product	3	4	3	4	4	CHT-Silicones unveils Silso protect 21190 A/B, a low-flammability silicone for electronic potting.
#08	SHT Graphene TIM Funding	Corporate Strategy	4	3	4	3	4	Smart High Tech secures $10.5M from Henkel to scale graphene-enhanced TIM for next-gen electronics.
#09	Auto Structural Adhesives	Market Overview	2	4	4	2	4	Automotive industry boosts efficiency with structural adhesives for aluminum/composites in 2026.
#10	CTX TIM Portfolio	New Product	2	4	3	3	4	CTX Thermal Solutions expands TIM portfolio with pads, gap fillers, graphite foils for 5G, EV, medical.
#11	Indium AI TIMs	New Product	4	4	4	4	4	Indium Corp. showcases advanced TIMs, sintering pastes for AI chips at SEMICON Taiwan.
#12	HakTak EV Thermal Putty	Product Guide	2	4	3	2	4	HakTak explains thermal putty use for optimizing EV battery/inverter thermal management.
#13	Samsung 2nm Thermal Cut	Industry News	4	4	4	3	4	Samsung cuts 2nm chip thermal resistance by 16% with new EMCs/TIMs for iPhone 18, challenging TSMC.
#14	Polyimides in Semicon Pkg	Market Overview	1	4	4	2	4	AZoM details polyimides' indispensable role in semiconductor packaging, critical for HBM/chiplet RDLs.

#	Article Title	Type	Tech Novelty	Market Proximity	Market Impact	Data Reliability	US/EU Relevance	Summary
#15	H.B. Fuller Q3 Earnings	Corporate Strategy	●○○○	●●●●	●○○○	●●●●	●●●●	H.B. Fuller schedules Q3 2026 earnings release for September 23, 2026.
#16	ProLogium Solid-State EV	New Product	●●●●	●●●●	●●●●	●●●●	●●●●	ProLogium starts mass production of 381 Wh/kg solid-state batteries for EVs in Taiwan.
#17	LGES LMR Battery Stability	Research	●●●●	●●●○	●●●●	●●●○	●●●●	LGES/SNU achieve LMR battery large-cell stability, reducing cobalt for cost-competitive EVs.
#18	Wausau Wash-Away Adh	New Product	●●●○	●●●●	●●●○	●●●●	●●●●	Wausau Coated unveils WA-669 wash-away label adhesive for reusable glass bottles, aiding recycling.
#19	Dymax Medical Adhesion	New Product	●●●○	●●●●	●●●○	●●●●	●●●●	Dymax showcases high-efficiency adhesion/curing solutions for medical device manufacturing at Ireland show.
#20	Taiyo/imec 700nm RDL	Research	●●●●	●●○○	●●●●	●●●●	●●●●	Taiyo Holdings & imec achieve 700nm RDL formation for advanced packaging, boosting AI/HPC chips.
#21	Sika Completes Akkim	Corporate Strategy	●○○○	●●●●	●●●○	●●●●	●●●●	Sika completes Akkim acquisition, strengthening global adhesives and sealants business.
#22	Virginia Tech Recyclable	Research	●●●●	●●○○	●●●●	●●●●	●●●●	Virginia Tech develops monomaterial, chemically recyclable adhesive tape outperforming duct tape.
#23	EU BATRAW EV Recycling	Research	●●●●	●●●○	●●●●	●●●●	●●●●	EU BATRAW project develops semi-automated EV battery recycling, cutting disassembly time by 50-60%.
#24	Itaconate Bio-PSAs	Research	●●●●	●●○○	●●●●	●●●●	●●●●	Itaconate chemistry & nanocellulose optimize adhesion-cohesion in high bio-content waterborne PSAs.
#25	Henkel Mentor Upgrade	Corporate Strategy	●●○○	●●●●	●●○○	●●●●	●●●●	Henkel's Mentor site upgrade boosts SMP adhesive recovery, driving sustainable production.
#26	Cobalt Switchable PSAs	Research	●●●●	●○○○	●●●●	●●●●	●●●●	Cobalt-catalyzed polymerization enables switchable PSAs with clean, temperature-triggered debonding.
#27	Sun/Cyngient Partner	Corporate Strategy	●●○○	●●●●	●●○○	●●●●	●●●●	Sun Chemical & Cyngient partner for specialty coatings/adhesives in narrow web printing.
#28	Dymax BlueWave FX	New Product	●●●○	●●●●	●●●○	●●●●	●●●●	Dymax launches BlueWave ® FX line emitters for high-speed UV/visible curing (up to 4.2 W/cm ²).
#29	DoD Adhesives EV Market	Market Overview	●●○○	●●●●	●●●●	●●●○	●●●●	Epoxy-based debonding-on-demand adhesives to dominate EV battery module market in 2026.
#30	B8X Auto Adhesives	New Product	●●●○	●●●○	●●●●	●●○○	●●●●	B8X innovates automotive structural adhesives for 2026: lightweighting, eco-friendly, self-healing.
#31	2026 Adhesive Trends	Market Overview	●○○○	●●●●	●●●●	●●○○	●●●●	2026 adhesive trends: wash-off, bio-based hot melts, debond-on-demand driven by Right to Repair.
#32	Henkel Rail Solutions	New Product	●●●○	●●●●	●●●○	●●●●	●●●●	Henkel unveils flame-retardant sealant and debonding solutions for rail vehicle lifecycle.

●●●●○ High ●●●○○ Med-High ●●○○○ Med ●○○○○ Low ¦ Yellow highlight = featured article

Three Questions That Demand Your Decision This Week

❶ Is your product portfolio ready for the 'Right to Repair'?

New regulations and consumer demand are driving the need for debond-on-demand, reusable, and recyclable adhesives. Are your current product designs and material choices compatible with easy disassembly and material recovery, especially for high-value electronics and EV batteries?

❷ How will next-gen battery tech impact your adhesive strategy?

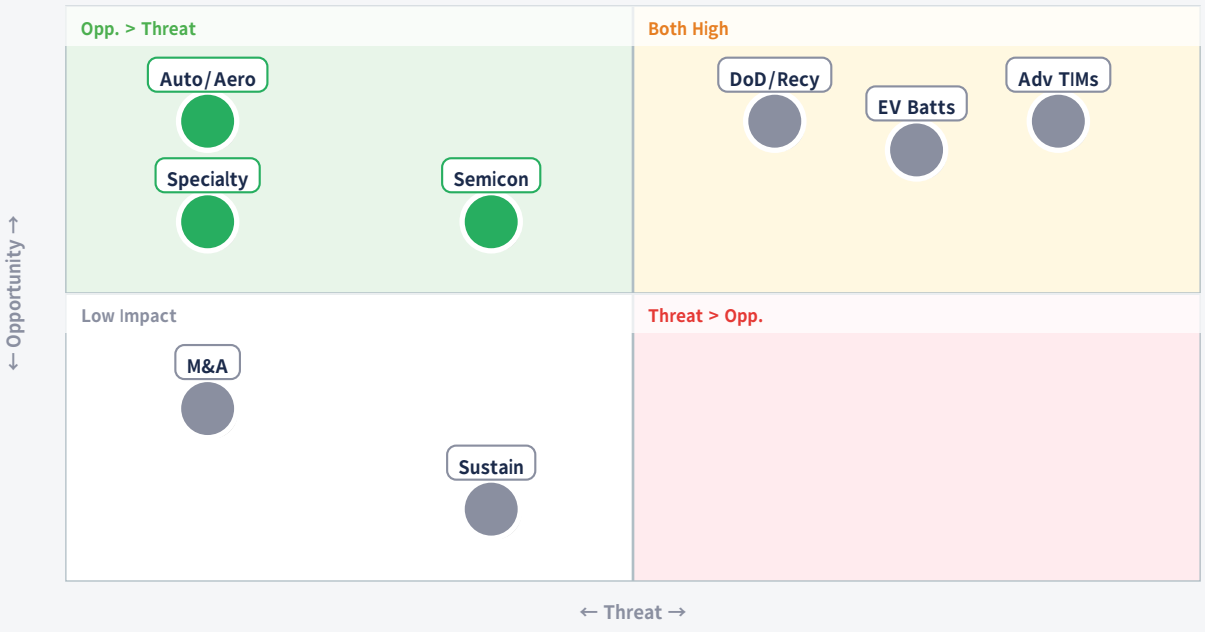
ProLogium's solid-state batteries (381 Wh/kg) and LGES's stable LMR cells are nearing commercialization. These require new thermal management and structural bonding solutions. Are your R&D; and Business Development teams actively engaging with these shifts?

❸ Are your thermal management solutions keeping pace with AI/HPC?

Samsung's 16% thermal resistance reduction for 2nm chips and Indium Corp's advanced TIMs highlight the urgency. Is your company investing in graphene-enhanced or metallic TIMs to meet the extreme demands of next-gen AI and HPC devices?

Opportunities vs. Threats for US/European Companies

Opportunity vs. Threat Matrix for US/European Companies



Item	Quadrant	↑ Opportunity	↓ Threat
DoD/Recy	Critical	New product lines	Obsolete products
Adv TIMs	Critical	High-perf materials	Lagging innovation
EV Batts	Critical	New battery tech	Incumbent disruption
Auto/Aero	Opp.	High-perf struct	Material mismatch
Semicon	Opp.	Specialty materials	Process limits
M&A;	Ref.	Market expansion	Regional competition
Sustain	Ref.	Process efficiency	Waste costs

● Specialty	Opp.	Niche markets	Limited scope

Deep Dive ① — ProLogium's Solid-State Battery Mass Production

#16 ¦ 2026/09/09 ¦ Electric Cars Report ¦ Tech Novelty●●●●● Proximity●●●●○ Market Impact●●●●● Data Reliability●●●●○ US/EU Relevance●●●●○

ProLogium Technology has commenced mass production of its Gen 3.5 lithium ceramic batteries (LCB) in Taiwan, achieving a groundbreaking energy density of 381 Wh/kg. This solid-state battery technology promises significant advancements in EV range, charging speed, and safety by utilizing a ceramic solid electrolyte.

This milestone overcomes a persistent challenge in scaling solid-state battery manufacturing, positioning ProLogium to supply EV manufacturers and redefine performance benchmarks for next-generation electric vehicles. It also addresses thermal runaway risks inherent in liquid electrolytes.

▶ Strategic Analyst's Perspective

Strategic Analyst's Perspective: The mass production of 381 Wh/kg solid-state batteries by ProLogium is a pivotal moment, validating the technology's readiness for commercial EV integration. While the 381 Wh/kg is impressive, real-world performance in diverse EV platforms and long-term cycling stability under various conditions will be key. [Opportunity] for US/EU OEMs to secure supply agreements and integrate this high-performance, safer battery tech, potentially leapfrogging competitors. [Threat] to existing US/EU Li-ion battery manufacturers and their supply chains if they cannot rapidly match or exceed this performance and scalability. Next Actions: [Procurement] Immediately evaluate ProLogium's production capacity, supply chain stability, and technical specifications for integration into future EV platforms. [R&D;] Benchmark current battery development against this new standard and assess potential gaps in solid-state electrolyte R&D.; [Strategy] Formulate a response plan for the competitive landscape shift by Q1 2027.

Deep Dive ② — Virginia Tech's Recyclable Monomaterial Tape

#22 ¦ 2026/09/08 ¦ Packaging Insights ¦ Tech Novelty●●●●● Proximity●●○○○ Market Impact●●●●○ Data Reliability●●●●● US/EU Relevance●●●●●

Virginia Tech researchers developed a monomaterial pressure-sensitive adhesive tape where both substrate and adhesive are chemically recyclable. This innovative tape, made from lipoic acid polymers, demonstrates superior adhesive strength, comparable to or exceeding conventional duct tape.

The tape can be efficiently decomposed into its raw materials for reuse, promoting a circular economy. This breakthrough addresses a major recycling barrier posed by traditional multi-material adhesive products, with potential applications across packaging, electronics, automotive, and construction.

▶ Strategic Analyst's Perspective

Strategic Analyst's Perspective: This monomaterial, chemically recyclable adhesive tape is a significant academic breakthrough with high data reliability. The claim of outperforming duct tape is compelling, but scalability and cost-effectiveness for large-scale production remain key technical barriers. [Opportunity] for US/EU materials & component suppliers to license this technology and develop sustainable adhesive lines, meeting growing demand for eco-friendly packaging and products. [Threat] to traditional adhesive manufacturers whose products complicate recycling and contribute to waste, especially with increasing environmental regulations. Next Actions: [R&D;] Initiate exploratory research into lipoic acid-based polymers and chemical recycling methods. [Business Dev] Contact Virginia Tech for potential licensing or collaborative development opportunities by end of Q4 2026. [Strategy] Assess the long-term impact on packaging and manufacturing sustainability roadmaps.

Deep Dive ③ — Indium Corp's Advanced TIMs for AI Semiconductors

#11 ¦ 2026/09/10 ¦ Indium Corporation ¦ Tech Novelty●●●●○ Proximity●●●●○ Market Impact●●●●○ Data Reliability●●●●○ US/EU Relevance●●●●●

Indium Corporation will showcase advanced materials for AI technology at SEMICON Taiwan, including high-thermal-conductivity sintering pastes and innovative Thermal Interface Materials (TIMs). Key products include solder TIMs, InFORCE ® MF Ag sintering paste for SiC, and the compressible metallic Heat-Spring ® HSx TIM.

The Heat-Spring ® HSx is notable for accommodating large dies with over 200 microns of warpage, crucial for high-performance AI processors. These materials aim to overcome thermal management bottlenecks in heterogeneous integration and advanced packaging, ensuring reliability and performance for next-gen AI chips.

▶ Strategic Analyst's Perspective

Strategic Analyst's Perspective: Indium Corporation's showcase highlights critical advancements in TIMs and sintering pastes, directly addressing the escalating thermal challenges in AI and HPC semiconductors. The ability of Heat-Spring ® HSx to manage significant die warpage (200+ microns) is a realistic and crucial feature for large, complex AI chips. [Opportunity] for US/EU OEMs and device manufacturers to integrate these advanced TIMs and sintering pastes to enhance the performance, reliability, and lifespan of their AI accelerators and power electronics. [Threat] to existing TIM suppliers who lack high-performance, warpage-tolerant, or high-thermal-conductivity solutions, risking market share loss in the rapidly growing AI segment. Next Actions: [Procurement] Engage with Indium Corporation to evaluate samples and integrate their advanced TIMs into next-generation AI/HPC product designs by Q1 2027. [R&D;] Benchmark current thermal management solutions against these new offerings and explore partnerships for co-development of application-specific materials.

Other Notable Articles

Cambium Unveils ApexFrame 5000 (PR Newswire (via Cambium))
Tech Novelty●●●●○ Proximity●●●●○ Market Impact●●●●○

New phthalonitrile-based film adhesive withstands over 315 ° C, critical for aerospace/defense applications.

Smart High Tech Secures $10.5M from Henkel Ventures (Graphene-Info)
Tech Novelty●●●●○ Proximity●●●○○ Market Impact●●●●○

Henkel's investment in graphene-enhanced TIMs signals strong market confidence for next-gen electronics thermal management.

Apple Unveils 2nm iPhone 18; Samsung Cuts Thermal Resistance by 16% (BigGo Finance)
Tech Novelty●●●●○ Proximity●●●●○ Market Impact●●●●●

Samsung's 16% thermal resistance reduction for 2nm chips highlights critical role of EMCs/TIMs in advanced packaging.

EU's BATRAW Project Develops Semi-Automated EV Battery Recycling Technology (CORDIS)
Tech Novelty●●●●○ Proximity●●●○○ Market Impact●●●●○

EU project cuts EV battery disassembly time by 50-60% with robotics/AI, boosting critical raw material recovery.

Itaconate Chemistry and Nanocellulose Reinforcement Optimize Adhesion-Cohesion Balance (ACS Publications)
Tech Novelty●●●●● Proximity●●○○○ Market Impact●●●●○

Breakthrough in high bio-content waterborne PSAs, balancing adhesion/cohesion for sustainable solutions.

Recommended Actions This Week

Action recommendations based on article evaluation matrix and opportunity/threat analysis.

Immediate (this week)

- [Executive] Review the 'Three Questions' to assess strategic exposure and competitive readiness in sustainable adhesives, advanced TIMs, and next-gen batteries.
- [Procurement] Identify current suppliers for thermal interface materials and debondable adhesives; request roadmaps for next-gen solutions for AI/EV applications.
- [R&D;] Initiate rapid literature review on monomaterial recyclable adhesives and cobalt-catalyzed switchable PSAs to gauge technical feasibility and potential for internal development.

Short-term (1 month)

- [Strategy] Conduct a competitive analysis of US/EU vs. Asian players in solid-state battery materials and advanced semiconductor packaging adhesives/TIMs.
- [Business Dev] Schedule meetings with Indium Corporation, Cambium, and Dymax to understand their latest offerings for AI, aerospace, and medical devices.
- [Legal/IP] Begin preliminary patent landscape analysis for debond-on-demand and monomaterial recyclable adhesive technologies to identify key IP holders and white spaces.

Medium-long term (quarter+)

- [R&D;] Establish internal R&D; projects or external partnerships focused on developing high-performance, sustainable adhesives (bio-based, recyclable, debondable) for future product lines.
- [Procurement] Develop a diversified supply chain strategy for critical thermal management materials (graphene, silver sintered) to mitigate geopolitical risks and ensure access to cutting-edge tech.
- [Executive] Allocate budget for strategic investments or M&A; in companies developing advanced adhesive and thermal management solutions, particularly those aligned with circular economy principles and AI/EV growth.

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Adhesives_Sealants — Selected Articles

Date: 2026-09-13

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#01 Oak Ridge National Lab Develops Reusable Adhesive from Waste Polymers, Effective in Both Wet and Dry Conditions

Published September 10, 2026 Adhesives & Sealants Industry USA

OVERVIEW

Researchers at Oak Ridge National Laboratory have developed an innovative, reusable adhesive derived from waste polymers that exhibits superior bonding strength in both aqueous and dry environments, surpassing commercial counterparts. Inspired by mussel adhesion, this material incorporates reversible chemical crosslinkers, allowing for bond release upon heating and subsequent reusability. This breakthrough significantly advances sustainable material solutions and addresses critical challenges in dissimilar material joining for sectors like automotive and aerospace.

IN DEPTH

Key Findings

Researchers at Oak Ridge National Laboratory (ORNL) have successfully developed a novel, reusable adhesive from waste polymers that demonstrates robust bonding capabilities in both submerged and dry conditions. This innovative material significantly outperforms commercially available adhesives in strength and adheres effectively to a wide range of substrates, including wood, glass, metals, paper, and various polymers. A pivotal feature of this adhesive is its ability to reversibly release bonds upon heating, facilitating component separation and enabling multiple reuse cycles, thereby promoting a more circular economy in adhesive applications.

Technical / Clinical Details

The development draws inspiration from the tenacious underwater adhesion mechanisms of mussels. The adhesive's molecular structure integrates reversible chemical crosslinkers within a polymer matrix, allowing for a controlled de-bonding process when exposed to specific thermal conditions. This controlled reversibility means that adhered parts can be separated without damage, and the adhesive itself can be reactivated and reused. Such a characteristic is particularly valuable for applications requiring the joining of disparate materials, as well as those demanding easy disassembly for repair, refurbishment, or recycling at end-of-life.

Background & Context

Traditional adhesives often create permanent bonds that complicate product disassembly and material recycling, posing significant challenges for waste management and resource recovery. Industries such as automotive and aerospace, in particular, are increasingly adopting lightweight materials like aluminum and composites, necessitating advanced bonding solutions that can also accommodate future recycling needs. The ORNL research directly addresses this critical gap, offering a high-performance, sustainable alternative to conventional bonding agents and expanding the possibilities for material selection and product design.

Strategic Significance & Outlook

This reusable adhesive represents a significant step towards enhancing resource efficiency and reducing environmental impact across various manufacturing sectors. It is poised to become a key enabling technology for improving the repairability, reconfigurability, and recyclability of products in automotive, aerospace, electronics, and other industries. As further optimization and scalable manufacturing processes are developed, the widespread adoption of this breakthrough adhesive is anticipated, driving innovation in sustainable design and material management.

Source: https://www.adhesivesmag.com/articles/102655-researchers-develop-a-reusable-adhesive-from-waste-polymers

Collected: September 11, 2026 | Automated Research System (Gemini API)

#02 Sika AG Completes Acquisition of Turkish Adhesives & Sealants Leader Akkim, Bolstering East European and Middle Eastern Market Presence by CHF 220 Million Annual Revenue

Published September 03, 2026 Plasticker Germany

OVERVIEW

Sika AG has finalized its acquisition of Akkim, a prominent Turkish adhesives and sealants manufacturer, significantly strengthening its market position in fast-growing regions including Eastern Europe, Central Asia, the Middle East, and North Africa. Akkim reported net sales of approximately CHF 220 million in 2025, and this strategic move substantially expands Sika's product portfolio, distribution channels, and production capacity. The acquisition reinforces Sika's presence in construction chemicals and accelerates its regional strategic objectives.

IN DEPTH

Key Findings

Sika AG has successfully completed the acquisition of Akkim, a leading Turkish manufacturer of adhesives and sealants. This strategic move significantly strengthens Sika's operational footprint and market access in key growth regions, including Eastern Europe, Central Asia, the Middle East, and North Africa, while substantially expanding its product portfolio, particularly in construction chemicals.

Technical / Clinical Details

Akkim manufactures a diverse range of adhesives, sealants, polyurethane foams, and building chemicals, recording net sales of approximately CHF 220 million in 2025. Through this acquisition, Sika gains access to Akkim’s innovative product technologies and extensive distribution network. This integration enables Sika to enhance its value proposition to customers and optimize supply capabilities not only within the high-growth Turkish market but also across surrounding regions.

Background & Context

Turkey represents an attractive growth market for adhesives and sealants, driven by a vibrant construction sector and industrial diversification. Akkim's strong regional presence and technological expertise fill a critical gap in Sika's global strategy. This acquisition aligns with Sika’s ongoing sustainable growth strategy, aimed at establishing leading positions in specific geographical markets and reinforcing its capability to deliver tailored solutions that meet local customer needs.

Strategic Significance & Outlook

Sika plans to maximize synergies from the integration of Akkim, accelerating the delivery of high-value products. The fusion of both companies' technologies and market knowledge is expected to generate new business opportunities, particularly as demand for environmentally friendly building solutions and energy-efficient sealants increases. This acquisition marks a significant milestone in Sika's journey to further consolidate its position as a global leader in the specialty chemicals sector.

Source:
https://plasticker.de/Plastics_News_49225_Sika_Acquisition_of_Turkish_Adhesives_and_Sealants_Manufactu

#03 Q.E.P. CO., INC. Acquires Spray-Lock, Expanding Low-VOC Spray Adhesive Manufacturing Platform

Published September 08, 2026 Q.E.P. CO., INC. USA

OVERVIEW

Q.E.P. CO., INC. has acquired substantially all assets of Spray-Lock, Inc., a developer and manufacturer of premium aerosol spray adhesives for flooring and wall applications. This acquisition integrates Spray-Lock's proprietary patented technology and formulations into QEP's existing flooring installation solutions, enhancing its product offerings for luxury vinyl tile and carpet tile. Spray-Lock's low-VOC water-based formulations enable more efficient and environmentally friendly installations with reduced adhesive usage compared to traditional methods.

IN DEPTH

Key Findings

Q.E.P. CO., INC. has announced the acquisition of substantially all assets of Spray-Lock, Inc., a company specializing in the development, manufacturing, and distribution of premium aerosol spray adhesives for flooring and wall applications. This strategic acquisition significantly enhances QEP's competitive edge by integrating Spray-Lock's unique patented technology and innovative formulation expertise into its existing suite of flooring installation solutions.

Technical / Clinical Details

Spray-Lock's product line is distinguished by its low Volatile Organic Compound (VOC) water-based formulations, which deliver high bonding performance while requiring less adhesive material compared to conventional application methods. The aerosol spray format ensures rapid and easy application, contributing to improved labor efficiency and reduced waste on job sites. This technology is adaptable for a wide range of flooring and wall materials, including luxury vinyl tile (LVT) and carpet tile, promising broad applicability across various construction projects.

Background & Context

The construction industry is experiencing growing demand for low-VOC products, driven by stricter environmental regulations and increasing sustainability awareness. Concurrently, the need for faster and more efficient installation processes to reduce project costs and enhance productivity has brought innovative application methods, such as spray adhesives, to the forefront. QEP's acquisition aligns with these market trends, bolstering its product portfolio with offerings that excel in both environmental performance and application efficiency.

Strategic Significance & Outlook

The integration of Spray-Lock's technology and brand into QEP's extensive distribution network and customer base is expected to accelerate market penetration and drive sales growth. Through this acquisition, QEP is poised to solidify its position as a leader in environmentally friendly and efficient adhesive solutions, shaping the future of flooring installation in both commercial and residential sectors. Furthermore, the proprietary patented technology represents a crucial asset for future product development and innovation.

Source: https://www.qep.com/blogs/news/qep-acquires-spray-lock%C2%AE-expanding-its-adhesives-manufacturing-platform

#04 JBC Technologies Acquires NADCO Tapes & Labels, Expanding Adhesive Component Business for Medical and Wearable Devices

Published September 10, 2026 Packaging Gateway USA

OVERVIEW

Ohio-based JBC Technologies has acquired Florida manufacturer NADCO Tapes & Labels, significantly expanding its custom tape, label, adhesive component, and specialty converting operations. This acquisition particularly enhances JBC's capabilities for high-precision applications, including printed components for medical and wearable devices. NADCO's Sarasota facility will continue operating as a key manufacturing hub in the Southeastern US, strengthening JBC's geographical reach and production capacity.

IN DEPTH

Key Findings

JBC Technologies, headquartered in Ohio, has completed the acquisition of NADCO Tapes & Labels, a manufacturing company based in Florida. This strategic integration substantially broadens JBC's offerings in custom tapes, labels, adhesive components, and specialty converting, with a particular focus on enhancing capabilities for high-precision applications in medical devices and wearable technologies.

Technical / Clinical Details

NADCO Tapes & Labels specializes in manufacturing high-performance printed components, custom tapes, and labels used in medical and wearable devices, possessing deep expertise in precision die-cutting and adhesive selection. By acquiring NADCO's technology and production capacity, JBC Technologies gains the ability to conduct manufacturing in cleanroom environments, process biocompatible materials, and supply products that meet stringent quality standards. This expansion will enable customers to access more complex and specialized adhesive solutions from a single, integrated source.

Background & Context

The medical device and wearable technology markets are experiencing rapid growth, driven by advancements in diagnostics, treatment, and health monitoring. These products demand high reliability, durability, and often biocompatibility. Adhesives and tapes are crucial for miniaturization, lightweighting, and functional integration within these devices, requiring customized precision fabrication. JBC Technologies' acquisition addresses the increasing demand in these high-growth sectors, aiming to foster product innovation and streamline supply chain efficiency.

Strategic Significance & Outlook

NADCO’s Sarasota facility will continue to operate as a critical manufacturing hub for JBC Technologies in the Southeastern United States, improving geographical customer service and supply capabilities. This integration allows JBC to offer more comprehensive solutions to clients in the medical, healthcare, and wearable technology fields, aiming to expand market share and strengthen leadership in these high-growth markets. The combined technical expertise and operational synergies are also expected to drive future product development and market expansion.

Source: https://www.packaging-gateway.com/news/jbc-technologies-nadco-tapes-labels/

Collected: September 11, 2026 | Automated Research System (Gemini API)

#05 Caly Technologies Releases TIM Selection Guide for Power Electronics, Optimizing Thermal Management for SiC and GaN Devices

Published September 03, 2026 Alibaba Electronics China

OVERVIEW

Caly Technologies has published a Thermal Interface Material (TIM) selection guide for power electronics, aiding in optimizing thermal management for high-performance devices like SiC half-bridge modules and GaN FETs. The guide details various TIMs, including thermal greases, pads, phase-change materials, and silver sintered/graphene spreaders. It highlights that silver sintered/graphene spreaders offer peak performance for demanding applications requiring AEC-Q200 compliance, over 15 years of lifespan, and 10,000+ thermal cycles. Proper TIM selection is crucial for enhancing device reliability and ensuring long-term performance.

IN DEPTH

Key Findings

Caly Technologies has released a comprehensive guide for selecting Thermal Interface Materials (TIMs) in power electronics applications. This guide provides crucial insights to maximize the cooling efficiency and reliability of next-generation power devices, such as Silicon Carbide (SiC) half-bridge modules and Gallium Nitride (GaN) FETs.

Technical / Clinical Details

The guide meticulously analyzes major TIM types available on the market, including thermal conductive greases, thermal pads, Phase Change Materials (PCMs), and cutting-edge silver sintered and graphene spreaders. Each material possesses distinct thermal conductivity, stability, and processing requirements. Notably, for stringent applications demanding AEC-Q200 automotive compliance, a lifespan exceeding 15 years, and endurance through over 10,000 thermal cycles, silver sintered materials and graphene spreaders are highlighted as offering the best thermal management performance. These materials minimize thermal resistance, maintaining device junction temperatures within safe operating limits, thereby ensuring long-term operational reliability.

Background & Context

Power electronics are indispensable across various sectors, including electric vehicles, renewable energy systems, and industrial motor control. The adoption of wide-bandgap semiconductors like SiC and GaN has led to increased efficiency and power density. However, this also results in higher heat generation, making thermal management one of the most critical challenges impacting device performance and reliability. Inadequate thermal management accelerates device failure rates and shortens operational lifespans. Caly Technologies' guide offers practical solutions to this complex issue.

Strategic Significance & Outlook

This TIM selection guide serves as an invaluable resource for power electronics designers and engineers, assisting them in choosing optimal thermal management solutions based on specific application requirements. Particularly in high-reliability applications such as automotive and industrial sectors, the correct TIM selection will be key to enhancing product competitiveness. As the adoption of SiC and GaN devices continues to expand, the demand for higher-performance and more durable TIMs is expected to grow significantly.

Source: https://electronics.alibaba.com/buyingguides/power-electronics-thermal-management-guide

Collected: September 11, 2026 | Automated Research System (Gemini API)

#06 Cambium Unveils ApexFrame 5000, a High-Temperature Laminating Film Adhesive for Aerospace and Defense, Withstanding Over 315°C

Published September 03, 2026 PR Newswire (via Cambium) USA

OVERVIEW

Advanced materials developer Cambium has launched ApexFrame™ 5000, a phthalonitrile-based film adhesive specifically designed for demanding high-temperature bonding applications. This new product meets stringent requirements in aerospace, space, and defense sectors, offering continuous operating performance up to 315°C (600°F) and short-term performance up to 427°C (800°F). Ideal for high-temperature non-structural bonding of polymer films to metal foils, it enhances the reliability of devices and components in extreme environments.

IN DEPTH

Key Findings

Cambium, a developer of advanced materials, has announced the launch of ApexFrame™ 5000, an innovative phthalonitrile-based film adhesive engineered for extremely high-temperature bonding applications. This new product is designed to meet the rigorous demands of the aerospace, space, and defense sectors, providing continuous operating performance up to 315°C (600°F) and intermittent performance up to 427°C (800°F).

Technical / Clinical Details

ApexFrame™ 5000 is built upon advanced phthalonitrile polymer chemistry, which grants it exceptional thermal stability and mechanical integrity. It is specifically optimized for high-temperature, non-structural bonding between dissimilar materials such as polymer films and metal foils, where long-term adhesive reliability at elevated temperatures is crucial. This film adhesive consistently delivers stable performance in environments where conventional high-temperature adhesives typically degrade, thereby extending the lifespan and enhancing the reliability of critical components.

Background & Context

In the aerospace, space, and defense industries, numerous components, including jet engines, missile systems, and satellite structures, are exposed to extremely high operating temperatures. Consequently, the adhesives used to join these components must exhibit similarly extreme heat resistance and durability. Historically, conventional adhesives have struggled to maintain performance under such harsh conditions, often leading to premature failure. Cambium's ApexFrame™ 5000 addresses this critical gap, enabling the development of next-generation high-temperature-resistant components.

Strategic Significance & Outlook

The introduction of ApexFrame™ 5000 opens new possibilities for the design of electronic devices, sensors, and structural components operating in high-temperature environments. This adhesive will contribute to the development of smaller, lighter, and higher-performing systems, accelerating further advancements in aerospace, space, and defense technologies. Cambium aims to strengthen its leadership in high-growth markets and establish new standards for material solutions in extreme environments with this product.

Source: https://www.prnewswire.com/news-releases/cambium-launches-apexframe-5000-a-high-temperature-laminating-film-adhesive-for-demanding-bonding-applications-302868220.html

Collected: September 11, 2026 | Automated Research System (Gemini API)

#07 CHT-Silicones Unveils Silso protect 21190 A/B: A 2-Component Low-Flammability Silicone Elastomer for Electronic Potting and Encapsulation

Published September 06, 2026 CHT-Silicones Germany

OVERVIEW

CHT-Silicones has launched Silso protect 21190 A/B, a two-component silicone elastomer system engineered for electronic potting and encapsulation applications. This product offers robust protection against chemicals, environmental contaminants, mechanical shock, and vibration, while also being suitable for applications requiring low flammability. Ideal for potting battery/power modules, solar junction boxes, and LED power supplies, it enhances the long-term reliability of electronic devices in harsh environments.

IN DEPTH

Key Findings

CHT-Silicones has introduced 'Silso protect 21190 A/B,' a two-component silicone elastomer system specifically developed for electronic potting and encapsulation applications. This new material effectively shields electronic components from chemical exposure, environmental contaminants, mechanical shock, and vibration, and is particularly suited for applications where low flammability is a critical requirement.

Technical / Clinical Details

Silso protect 21190 A/B is a highly flowable liquid silicone rubber that cures at room temperature upon mixing. The system boasts excellent electrical insulation properties and thermal stability, maintaining consistent performance across a broad temperature range from -50°C to +180°C. Its notable low flammability characteristic significantly enhances the safety of electronic devices. Furthermore, its low viscosity facilitates easy filling of complex geometries, reducing the risk of void formation during potting. These attributes make it highly beneficial for improving the reliability and durability of diverse electronic devices, including battery/power modules, junction boxes for photovoltaic modules, and LED lighting power supplies.

Background & Context

Modern electronic devices are becoming increasingly miniaturized, integrated, and functional, frequently requiring operation under harsh environmental conditions. This trend elevates the importance of high-quality encapsulants that can protect sensitive electronic components from moisture, dust, chemicals, heat, and mechanical stress. Especially in battery systems, power electronics, and LED lighting, there is a significant demand for low-flammability materials to mitigate fire risks associated with heat generation. Silso protect 21190 A/B has been developed to directly address these evolving market needs.

Strategic Significance & Outlook

The introduction of Silso protect 21190 A/B provides new options for the design and manufacturing of high-reliability electronic equipment. Its adoption is particularly anticipated in sectors where safety and durability are paramount, such as electric vehicles, renewable energy systems, and industrial control systems. Through this innovative product, CHT-Silicones aims to contribute to the long-term performance and safety of electronic devices, thereby strengthening its leadership in the market.

Source: https://cht-silicones.com/product-tds/SILSO-PROTECT-21190-AB

#08 Smart High Tech Secures $10.5M from Henkel Ventures to Scale Graphene-Enhanced Thermal Material for Next-Gen Electronics

Published Published Published September 08, 2026 Graphene-Info イスラエル

OVERVIEW

Smart High Tech (SHT) has secured $10.5 million from lead strategic investor Henkel Ventures, earmarked to significantly scale the production of its patented graphene-enhanced Thermal Interface Material (TIM), GT-TIM. This substantial capital injection will expand manufacturing capacity and enhance operational efficiency at SHT's facilities in Sweden and China. The funding is poised to accelerate the market deployment of GT-TIM, a critical enabling material for advanced thermal management in next-generation electronics.

IN DEPTH

Background

The accelerating advancements in fields such as Artificial Intelligence (AI), High-Performance Computing (HPC), and 5G communication have led to ever-increasing integration densities and operational frequencies in electronic devices. This trend inevitably leads to higher thermal loads within electronic devices, rendering effective thermal management a critical bottleneck for sustained performance and a primary driver of reliability degradation. Consequently, high-performance Thermal Interface Materials (TIMs) are indispensable for mitigating these thermal challenges and unlocking the full potential of next-generation electronic systems. Smart High Tech's (SHT) graphene-based GT-TIM emerges as a groundbreaking solution within this critical technological domain.

Key Findings

Smart High Tech (SHT) has successfully secured $10.5 million in funding from Henkel Ventures, the venture capital arm of the global chemical and adhesive technologies giant, Henkel. This substantial investment is explicitly earmarked for a significant expansion of SHT's patented graphene-enhanced Thermal Interface Material (TIM), GT-TIM.

Technical Details

GT-TIM is an innovative Thermal Interface Material engineered to harness the exceptional intrinsic thermal conductivity of graphene. This enables highly efficient heat transfer from critical electronic components to heat sinks, consequently enhancing device performance, reliability, and operational lifespan. Compared to conventional TIMs, GT-TIM delivers substantially enhanced thermal conductivity, facilitating more effective cooling even with a thinner application layer. The newly secured funding will empower SHT to significantly expand the production capacity of its existing manufacturing facilities in Sweden and China, concurrently improving process efficiency and establishing a robust supply chain engineered to meet anticipated surging demand. This investment further solidifies a strategic partnership initially announced between Henkel and SHT in July 2025, deepening their collaboration in both technological innovation and market development.

Strategic Significance and Outlook

This major investment from Henkel Ventures is pivotal for SHT, poised to accelerate the commercialization of GT-TIM and substantially strengthen its competitive position in the global market. The expanded production capacity will facilitate the supply of GT-TIM to a diverse array of industries demanding high-performance thermal solutions, including electric vehicles (EVs), high-density data centers, and advanced mobile computing devices. This strategic partnership is anticipated to serve as a powerful catalyst for the broader adoption of graphene technology, enabling it to establish new benchmarks in electronic thermal management and foster continuous technological innovation across numerous critical sectors.

Source: https://www.graphene-info.com/smart-high-tech-secures-105-million-henkel-ventures-scale-graphene-cooling

#09 Automotive Industry Innovates Assembly Efficiency and Durability in 2026 with Structural Adhesives for Aluminum and Composites

Published September 08, 2026 B8X Germany

OVERVIEW

In 2026, the automotive industry is dramatically enhancing assembly efficiency and durability through high-performance structural adhesives optimized for aluminum and composite materials, driven by increasing adoption of lightweighting. These advanced adhesives offer superior bond strength and flexibility, along with added benefits like corrosion resistance and reduced cure times. For new energy systems such as EV battery packs, solar panels, and wind turbine blades, durable adhesives capable of withstanding mechanical and environmental stresses are crucial for reliability and efficiency, establishing new standards in automotive manufacturing.

IN DEPTH

Key Findings

In the automotive industry of 2026, the growing adoption of lightweight materials has amplified the importance of high-performance adhesives specifically engineered for these diverse materials. Structural adhesives tailored for aluminum and composite components are revolutionizing automotive assembly processes, leading to significant improvements in overall vehicle efficiency and durability.

Technical / Clinical Details

These advanced structural adhesives simultaneously offer superior bond strength and flexibility compared to traditional welding or mechanical fasteners. This results in more uniform stress distribution and reduced material fatigue, enhancing the long-term structural integrity of vehicles. Adhesives also provide additional benefits such as mitigating galvanic corrosion risks between dissimilar metals and accelerating production line efficiency through shorter cure times. In new energy systems, such as EV battery pack encapsulation, solar panel mounting, and wind turbine blade bonding, adhesives capable of withstanding mechanical and environmental stresses play an indispensable role in boosting system reliability and efficiency.

Background & Context

The automotive industry is aggressively pursuing vehicle lightweighting to improve fuel efficiency, reduce emissions, and facilitate the transition to electric vehicles (EVs). This has accelerated the shift from high-strength steel to aluminum alloys and carbon fiber composites, materials that traditionally presented joining challenges. High-performance adhesives resolve these dissimilar material joining issues and contribute to reducing part counts and increasing design freedom. Furthermore, adhesive technologies in EV batteries and renewable energy generation devices are becoming key factors for safety and performance.

Strategic Significance & Outlook

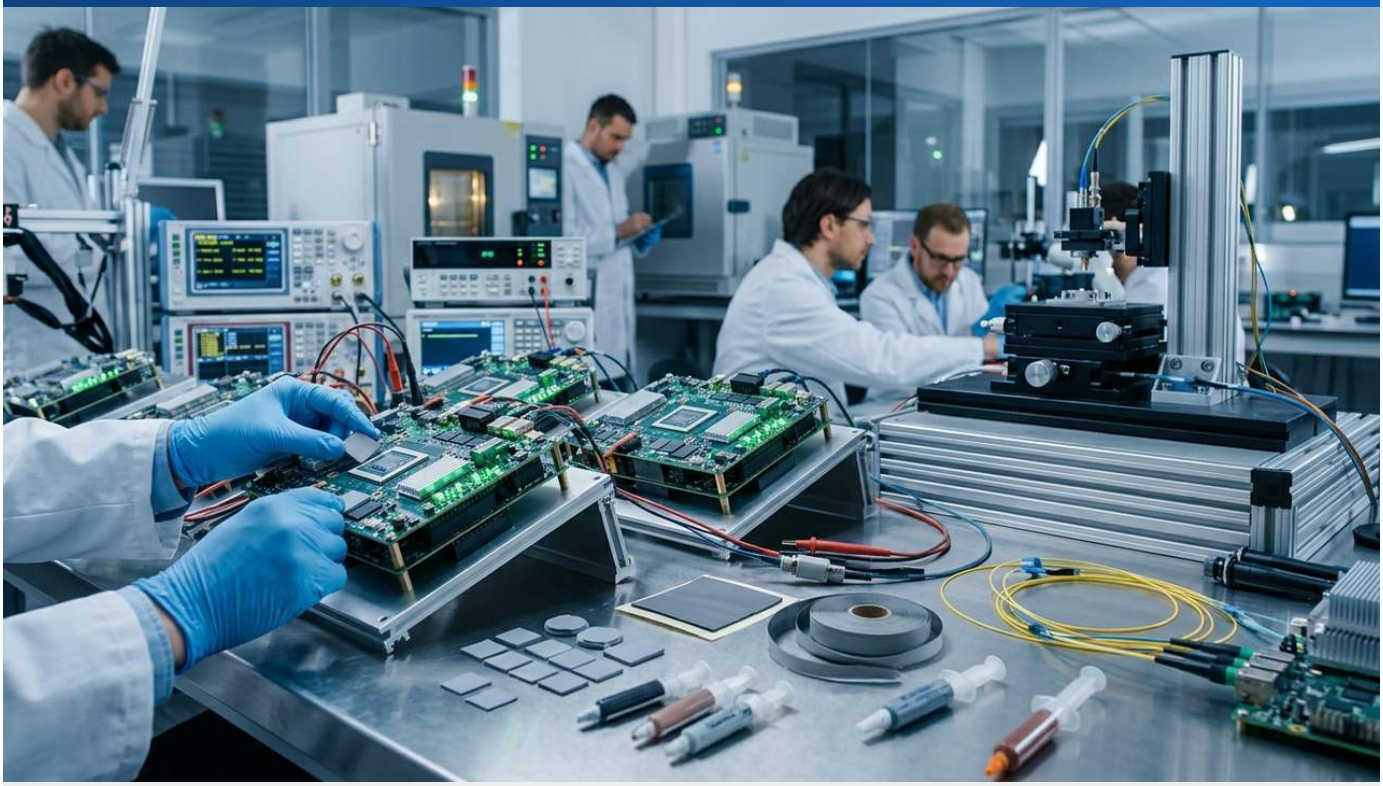
Automotive adhesive technology has evolved from a mere fastening method into a strategic element that determines vehicle structure, safety, and performance. Moving forward, the advancement of autonomous driving technologies and the continued demand for lightweighting will necessitate even more sophisticated adhesive solutions. The trend towards multifunctionality, including the development of crash-resistant, thermally conductive, and sensing adhesives, is expected to accelerate, ensuring that adhesive technology remains indispensable in shaping the future of automotive manufacturing.

Source: https://www.b8xbond.com/news/read/1083.html

Collected: September 11, 2026 | Automated Research System (Gemini API)

#10 CTX Thermal Solutions Expands TIM Portfolio with Thermal Pads, Graphite Foils for 5G, EV, and Medical Applications

Published September 10, 2026 SJN (Semiconductor Journal Network) USA



OVERVIEW

CTX Thermal Solutions has expanded its Thermal Interface Material (TIM) portfolio to enhance heat dissipation efficiency in electronic components, addressing thermal management challenges across diverse high-heat applications like 5G communication infrastructure, EV LED modules, renewable energy inverters, and high-performance medical processors. New products include advanced thermal pads, gap fillers, and graphite foils, which are critical for minimizing thermal contact resistance between heat sinks and electronic components, reducing power loss, and ensuring trouble-free operation.

IN DEPTH

Key Findings

CTX Thermal Solutions has significantly expanded its product portfolio of Thermal Interface Materials (TIMs) to optimize thermal management for electronic components. This expansion strengthens the company's capability to address the diverse thermal management needs of high-heat generating applications, including 5G communication equipment, LED modules for electric vehicles (EVs), inverters for renewable energy systems, and high-performance processors in the medical technology sector.

Technical / Clinical Details

The expanded TIM portfolio includes products with various physical properties and thermal conductivities. These encompass highly flexible thermal pads with excellent thermal conduction, gap fillers designed to bridge irregular gaps, and graphite foils offering both high thermal conductivity and electrical insulation. These TIMs effectively fill minute air gaps and imperfect contact surfaces between heat-generating electronic components and heat sinks, minimizing thermal contact resistance and maximizing heat transfer efficiency. Consequently, power loss is reduced, and the junction temperature of electronic devices is controlled, ensuring long-term reliability and trouble-free operation.

Background & Context

Modern electronic devices are undergoing accelerated miniaturization and integration, leading to increased heat generation per unit area. In particular, for applications such as 5G base stations, EV power electronics, high-performance AI processors, and medical imaging equipment, efficient thermal management is a critical factor determining device performance, reliability, and lifespan. Inadequate thermal management can lead to performance degradation, malfunctions, and even premature device failure, driving a growing demand for high-performance TIMs across the market.

Strategic Significance & Outlook

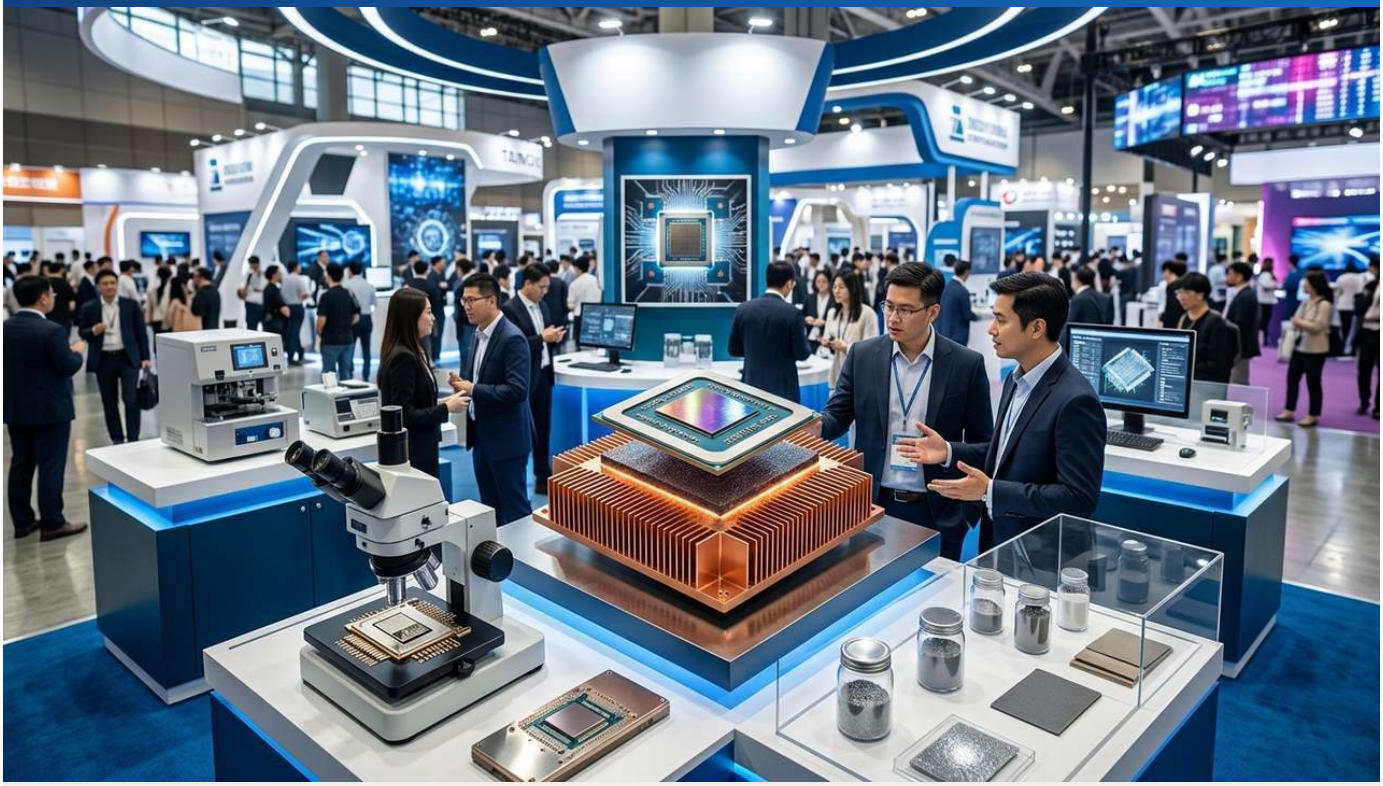
CTX Thermal Solutions' expansion of its TIM portfolio responds to the surging demand for advanced thermal management solutions and will enhance the company's competitiveness in the market. These innovative TIMs are poised to solve the thermal challenges faced by next-generation electronic devices, enabling the development of more powerful and reliable products. Moving forward, as application areas in emerging technologies expand, the requirements for TIM performance and versatility are expected to continue to increase, and CTX Thermal Solutions will continue to provide innovative solutions to meet these demands.

Source: https://www.sjn.com/pr/index.php/action::detail/id::1789029287/theme::default

Collected: September 11, 2026 | Automated Research System (Gemini API)

#11 Indium Corporation to Showcase Advanced Materials for AI at SEMICON Taiwan, Including High-Thermal-Conductivity Sintering Pastes and TIMs

Published September 10, 2026 Indium Corporation USA



OVERVIEW

Indium Corporation will exhibit innovative materials enabling AI technology at SEMICON Taiwan 2026, including Heterogeneous Integration and Assembly (HIA) products and groundbreaking Thermal Interface Materials (TIMs). Featured products include solder TIMs for superior heat dissipation, InFORCE®MF pressure Ag sintering paste for SiC die attach with high metal/low organic content, and high-thermal-conductivity InBAKE™29 Cu sintering paste. The compressible, non-reflow metallic TIM, Heat-Spring® HSx, capable of accommodating large dies with over 200 microns of warpage, will also be showcased, contributing to enhanced AI semiconductor performance and reliability.

IN DEPTH

Key Findings

Indium Corporation will showcase a wide array of innovative material solutions at SEMICON Taiwan 2026, designed to support advancements in Artificial Intelligence (AI) technology. The exhibition will highlight products specifically for Heterogeneous Integration and Assembly (HIA) and advanced Thermal Interface Materials (TIMs), presenting essential technologies for enhancing the performance and reliability of AI semiconductors.

Technical / Clinical Details

Key products to be featured include:

- **Solder TIMs:** These offer superior heat dissipation capabilities and high thermal conductivity (specific figures undisclosed, but targeting industry-leading performance), enabling efficient cooling for high-power AI processors.
- **InFORCE®MF Pressure Ag Sintering Paste:** Developed for SiC (Silicon Carbide) power device die attach, this paste achieves high reliability and thermal conductivity through its high metal and low organic content. Pressure sintering helps reduce voids and forms robust bonds.
- **InBAKE™29 Cu Sintering Paste:** A copper sintering paste boasting high thermal conductivity, contributing to improved performance in applications requiring high-temperature operation.
- **Heat-Spring® HSx:** A compressible, non-reflow metallic TIM capable of handling large dies with warpage exceeding 200 microns. It leverages physical pressure to achieve excellent thermal contact and minimize contact resistance, thereby supporting the stable operation of large-scale AI chips.

These materials are engineered to address the challenges of increased integration and heat generation in AI semiconductors, aiming to eliminate thermal management bottlenecks in complex systems.

Background & Context

The evolution of AI and High-Performance Computing (HPC) has dramatically increased the computational power and power consumption of semiconductor chips. This, in turn, has made chip-level thermal management one of the most critical challenges, as conventional materials struggle to keep pace. Heterogeneous integration (HIA) technology enhances performance by combining multiple dies with different functionalities into a single package, but it presents challenges related to thermal expansion coefficient mismatches and ensuring adequate thermal conductivity between materials. Indium Corporation's solutions directly tackle these issues, enabling the realization of next-generation AI chips.

Strategic Significance & Outlook

Indium Corporation's innovative materials have the potential to establish new standards for thermal management and packaging in the AI semiconductor market. The advancements in sintering pastes, in particular, will also contribute to improving the reliability of power electronics and high-frequency devices, with broad adoption expected across various industrial sectors. The exhibition at SEMICON Taiwan underscores the significant impact these technologies will have on the entire AI ecosystem and marks a crucial step in defining future technological innovation.

Source: https://www.indium.com/blog/indium-corporation-to-showcase-innovative-materials-enabling-ai-technology-at-semicon-taiwan/

Collected: September 11, 2026 | Automated Research System (Gemini API)

#12 HakTak、EVバッテリー・インバーター熱管理を最適化するサーマルパテの活用法を解説

Published Published September 09, 2026 HakTak USA

OVERVIEW

HakTak underscores the indispensable role of thermal putty in optimizing thermal management for electric vehicle (EV) battery and inverter systems. As an ideal thermal interface material (TIM), thermal putty efficiently fills uneven gaps, replacing insulative air layers with highly conductive paths to prevent overheating and bolster device reliability. Selecting the optimal product requires careful consideration of gap geometry, applied pressure, thermal path, curing mechanisms, application methods, and final mechanical properties.

IN DEPTH

Background

With the rapid growth of the EV market, effective thermal management of battery packs and power electronics has emerged as one of the most crucial challenges impacting vehicle range, safety, and long-term durability. Efficient heat dissipation is vital to mitigate the risk of battery thermal runaway and maintain high-efficiency operation of critical components like inverters. In this demanding landscape, high-performance Thermal Interface Materials (TIMs), such as thermal putty, are gaining prominence as cost-effective and flexible solutions designed to meet stringent thermal management requirements.

Key Findings

HakTak has highlighted the critical role of thermal putty as an effective Thermal Interface Material (TIM) for optimizing thermal management in Electric Vehicle (EV) battery and inverter systems. Thermal putty excels at conforming to uneven gaps between components, establishing an efficient heat conduction path from the heat source to the cooling surface, thereby significantly improving system performance and reliability.

This functionality stems from thermal putty's ability to replace the less thermally conductive air gaps between heat sources (e.g., EV battery cells, inverter components) and cooling surfaces (e.g., heat sinks, cooling plates) with a highly conductive material. Air acts as a significant barrier to effective heat transfer, but thermal putty, with its excellent conformability, can fill irregular surface topographies, minimizing thermal resistance across the interface.

To ensure optimal performance and prevent EV battery overheating, HakTak emphasizes that several critical factors must be carefully considered when selecting a thermal putty product:

- **Gap Size and Geometry:** The precise dimensions and complexity of the gaps the putty needs to fill.
- **Applied Pressure:** The pressure exerted during component assembly, which affects putty spread and bond line thickness.
- **Thermal Path Requirements:** The desired thermal conductivity and overall thermal resistance of the interface.

- **Curing Mechanism and Application Method:** Suitability for manufacturing processes (e.g., thermal cure, UV cure) and the chosen application methods, such as single-shot dispensing or screen printing.
- **Material Thickness:** The recommended thickness of the putty layer for optimal thermal performance.
- **Final Mechanical Properties:** The material's durability and resilience against operational stresses like vibration and thermal cycling.

Proper evaluation of these characteristics is essential to prevent EV battery overheating and ensure the stable, long-term operation of critical EV power electronics.

HakTak's insights provide practical guidance for EV designers and manufacturers on effectively utilizing thermal putty. As EV technology continues its rapid advancement, leading to higher power output and increased energy density in batteries, the role of high-performance TIMs, including thermal putty, is expected to become even more critical. Appropriate material selection and application will directly contribute to enhancing the safety, performance, and reliability of next-generation EVs, which will be a key differentiator in maintaining market competitiveness.

Source: https://haktak.com/thermal-putty-ev-battery-inverter-systems/

Collected: September 11, 2026 | Automated Research System (Gemini API)

#13 Apple Unveils 2nm iPhone 18; Samsung Cuts Thermal Resistance by 16% with Encapsulant and TIM Innovations, Intensifying Competition with TSMC

Published September 10, 2026 BigGo Finance South Korea

OVERVIEW

Following Apple's announcement of the 2nm iPhone 18, Samsung Electronics and TSMC are intensifying their competition in next-generation semiconductor packaging and thermal management. Samsung has achieved a significant 16% reduction in internal thermal resistance by adopting high-performance epoxy molding compounds (EMCs) and new Thermal Interface Materials (TIMs) that enhance bonding reliability. This innovation heavily relies on contributions from Japanese semiconductor encapsulant manufacturers, such as Sumitomo Bakelite's 'Sumikon EME,' whose high thermal conductivity and low warpage properties are crucial for the stable operation and high yield of 2nm chips.

IN DEPTH

Key Findings

Apple's announcement of the iPhone 18 featuring 2nm process technology has ushered in a new era of competition in the semiconductor industry. Amidst this, Samsung Electronics has achieved a significant breakthrough, reducing internal thermal resistance by up to 16% through the implementation of high-performance epoxy molding compounds (EMCs) and novel Thermal Interface Materials (TIMs) with improved bonding reliability. This advancement intensifies its rivalry with TSMC in advanced packaging.

Technical / Clinical Details

The high-performance EMCs adopted by Samsung Electronics play a crucial role in protecting the chip from the external environment and mitigating mechanical stress. The TIMs, which achieved a 16% reduction in internal thermal resistance, substantially enhance heat transfer efficiency between the chip and cooling mechanisms, directly addressing the heat generation challenges of chips manufactured with the incredibly fine 2nm process. This technological innovation is underpinned by contributions from Japanese semiconductor encapsulant manufacturers, such as Sumitomo Bakelite's 'Sumikon EME,' which provide properties like high thermal conductivity, low warpage, and a low coefficient of thermal expansion (CTE). These materials are indispensable for ensuring the stable operation and improving the manufacturing yield of next-generation semiconductors with complex package structures.

Background & Context

With the explosive growth in demand for AI and High-Performance Computing (HPC), semiconductor chips are facing relentless pressure for further miniaturization, higher integration, and enhanced functionality. Consequently, the heat generated by these chips is escalating, making thermal management one of the most critical factors influencing chip performance and reliability. Especially in cutting-edge process technologies like 2nm, even minor thermal stress can lead to performance degradation or failure, rendering packaging materials and TIMs crucially important. The competition between Samsung and TSMC is thus shifting beyond mere process technology to a comprehensive rivalry in overall solution capabilities, including packaging and thermal management.

Strategic Significance & Outlook

Samsung's recent announcement clearly demonstrates that advanced packaging materials are now key determinants of performance for next-generation semiconductors, particularly AI chips. The 16% reduction in thermal resistance is a substantial contribution to enhancing the performance and ensuring the mass production stability of 2nm chips, and other semiconductor manufacturers are expected to accelerate similar material technology innovations. Japanese material manufacturers are anticipated to continue playing a vital role in this sector, increasing their presence within the global semiconductor industry ecosystem.

Source: https://finance.biggo.com/news/46eeaae1-4f03-4a4c-85b4-9605ef3782c7

Collected: September 11, 2026 | Automated Research System (Gemini API)

#14 AZoM Explains Polyimides' Indispensable Role in Semiconductor Packaging, Critical for HBM and Chiplet RDLs

Published September 08, 2026 AZoM UK

OVERVIEW

AZoM has detailed the indispensable, multifunctional role of polyimides in semiconductor packaging, simultaneously providing insulation, adhesion, pattern definition, and stress control at the thin-film interface between devices and packages. Particularly in Redistribution Layer (RDL) structures, polyimide films act as the foundational electrical insulation, enabling fine-pitch placement of chip I/O connections. Their high-temperature resistance, chemical processing resilience, and ability to maintain adhesion after curing, encapsulation, and thermal cycling are crucial for ensuring the reliability of advanced packaging such as HBM and chiplets.

IN DEPTH

Key Findings

AZoM has provided an in-depth explanation of the multifunctional and indispensable role of polyimide materials in semiconductor packaging. Polyimides are unparalleled materials that simultaneously achieve electrical insulation, robust adhesion, precise pattern definition, and effective stress control at the thin-film interface between devices and packages.

Technical / Clinical Details

Due to their exceptional thermal resistance and chemical stability, polyimides can withstand various harsh conditions inherent in semiconductor manufacturing processes. These include high-temperature curing, chemical etching, encapsulation processes, and subsequent thermal cycling. Specifically, within Redistribution Layer (RDL) structures, polyimide films serve as the foundational electrical insulation, enabling the efficient and fine-pitch reallocation of chip input/output connections. This technology is critical for ensuring signal integrity and power delivery reliability in high-density wiring applications such as High Bandwidth Memory (HBM) and chiplet packaging. Furthermore, the inherent flexibility of polyimides helps mitigate package warpage and thermomechanical stress, contributing significantly to the long-term reliability of devices.

Background & Context

As modern semiconductor devices approach the limits of Moore's Law, advanced packaging technologies are becoming increasingly crucial for performance improvement and cost reduction. Technologies like HBM and chiplets enhance system performance and efficiency by integrating multiple dies with different functionalities in close proximity, which places higher demands on packaging materials. Polyimides, with their high-performance characteristics, play a central role in these new packaging architectures, particularly in enabling both high-density interconnects and thermomechanical stability.

Strategic Significance & Outlook

The continuous evolution of polyimides is key to accelerating the realization of next-generation semiconductor packaging technologies, especially 2.5D/3D integration and heterogeneous integration. Material developers and semiconductor manufacturers will continue to seek polyimides with even superior electrical properties, thermomechanical stability, and processability. This material will remain an essential component in supporting the performance and reliability of future electronic devices, including AI processors, high-performance mobile devices, and data center chips.

Source: https://www.azom.com/article.aspx?ArticleID=25503

Collected: September 11, 2026 | Automated Research System (Gemini API)

#15 H.B. Fuller Schedules Q3 2026 Earnings Release for September 23

Published September 09, 2026 Business Wire / H.B. Fuller USA

OVERVIEW

H.B. Fuller Company has announced its third-quarter financial results for the period ending August 29, 2026, will be released on September 23, 2026. An investor conference call to discuss the results is scheduled for September 24. This upcoming announcement provides a critical opportunity for investors to assess the company's financial health and strategic direction in the adhesives and sealants market.

IN DEPTH

Key Findings

H.B. Fuller Company has announced that it will report its third-quarter financial results for the period ended August 29, 2026, on September 23, 2026. Following the release, the company will host an investor conference call on September 24 at 9:55 a.m. CT to discuss the results in detail.

Technical Details and Business Context

As a global leader in adhesives, sealants, and specialty chemicals, H.B. Fuller enhances the quality, safety, and performance of products used daily through its innovative functional coatings. The company's products play an integral role across diverse industrial sectors, including food packaging, medical devices, construction, automotive, and electronics. H.B. Fuller is particularly focused on developing sustainable, high-performance adhesive solutions to meet stringent customer requirements, driving ongoing research and development efforts.

Background and Industry Landscape

The adhesives and sealants market is driven by global economic growth and the evolving needs of manufacturing industries, particularly those seeking lightweighting, enhanced durability, and compliance with environmental regulations. H.B. Fuller, with its extensive experience and broad product portfolio, has expanded its operations through strategic acquisitions and partnerships within this market. The upcoming third-quarter earnings report will serve as a crucial indicator of how the company is responding to market shifts and executing its growth strategies.

Strategic Significance and Outlook

This earnings release and subsequent investor call offer a significant opportunity for analysts and investors to evaluate H.B. Fuller’s business strategies, financial health, and future growth prospects. Insights from management are highly anticipated, especially regarding the impact of supply chain volatility, raw material costs, and the global economic climate on performance. The company remains committed to strengthening its position in high-growth markets through continuous innovation in functional adhesives.

Source: https://www.businesswire.com/news/home/20260909066927/en/H.B.-Fuller-to-Report-Third-Quarter-2026-Results-on-September-23-2026

Collected: September 11, 2026 | Automated Research System (Gemini API)

#16 ProLogium Initiates Mass Production of Gen 3.5 Solid-State Batteries with 381 Wh/kg Energy Density for EVs

Published September 09, 2026 Electric Cars Report Taiwan

OVERVIEW

ProLogium Technology has commenced mass production of its Gen 3.5 lithium ceramic batteries (LCB) at its Taiwan gigafactory. These solid-state batteries achieve a groundbreaking energy density of 381 Wh/kg, promising significant advancements in electric vehicle range, charging speed, and overall battery efficiency. This mass production milestone marks a pivotal moment for the EV industry, accelerating the transition towards next-generation mobility solutions.

IN DEPTH

Key Findings

ProLogium Technology has officially commenced mass production of its Gen 3.5 lithium ceramic batteries (LCB) at its gigafactory in Taiwan. This solid-state battery boasts an impressive gravimetric energy density of 381 Wh/kg, a performance metric expected to significantly enhance electric vehicle (EV) range, reduce charging times, and improve overall battery efficiency.

Technical and Clinical Details

ProLogium's Gen 3.5 LCB utilizes a ceramic solid electrolyte instead of traditional liquid electrolytes, achieving both high energy density and superior safety. The 381 Wh/kg energy density surpasses that of most conventional lithium-ion batteries, enabling longer driving ranges for EVs. Furthermore, solid electrolytes inherently mitigate the risk of thermal runaway, thereby enhancing battery safety. The mass-produced batteries are slated for supply to electric vehicle manufacturers, potentially redefining performance benchmarks for next-generation EVs.

Background and Industry Context

Solid-state batteries have long been anticipated as a 'game-changer' for the EV industry, but scaling manufacturing has been a persistent challenge. ProLogium's initiation of mass production signifies a major breakthrough in overcoming this hurdle, representing the culmination of their unique technological advancements and manufacturing processes. This development ushers in a new era of battery competition within the EV market, addressing the growing demand for higher-performance and safer battery solutions. Lithium ceramic batteries also offer potential advantages in terms of stable material sourcing and cost, which could positively impact the entire EV supply chain.

Strategic Significance and Outlook

The mass production of ProLogium's Gen 3.5 LCB is a crucial step toward accelerating EV adoption and delivering more compelling products to consumers. Future developments are expected to include expanded partnerships with other EV manufacturers and continued R&D efforts to further increase energy density. This technology holds promise beyond electric vehicles, with potential applications in drones, industrial robots, and other sectors requiring high energy density and enhanced safety. The commercialization of solid-state batteries is an indispensable factor shaping the future of energy storage technology.

Source: https://electriccarsreport.com/2026/09/prologium-starts-solid-state-battery-mass-production-with-381-wh-kg-energy-density/

Collected: September 11, 2026 | Automated Research System (Gemini API)

#17 LG Energy Solution and Seoul National University Achieve LMR Battery Large-Cell Stability Breakthrough for Reduced Cobalt and Enhanced Cost Competitiveness

Published September 07, 2026 Korea IT Times South Korea

OVERVIEW

A joint research team from LG Energy Solution and Seoul National University has developed groundbreaking operational and manufacturing conditions to enhance the stability of large-cell Lithium Manganese-Rich (LMR) batteries. This research elucidated the mechanisms behind gas generation and capacity degradation, crucial challenges for LMR batteries, paving the way for high energy density and cost-competitive commercialization with reduced cobalt content. This advancement significantly accelerates the market introduction of next-generation EV batteries, boosting their performance and sustainability.

IN DEPTH

Key Findings

A joint research team from LG Energy Solution and Seoul National University has developed innovative operational and manufacturing conditions that dramatically enhance the stability of large-format Lithium Manganese-Rich (LMR) battery cells. This breakthrough is rooted in a detailed elucidation of the mechanisms behind gas generation and capacity degradation—key challenges that have historically hampered the commercialization of LMR batteries. As a result, significant progress has been made toward commercializing LMR batteries that offer both high energy density and superior cost competitiveness, while substantially reducing cobalt usage.

Technical Details

LMR batteries are a next-generation EV battery technology attracting significant attention for their ability to achieve high energy density while reducing battery costs by decreasing cobalt content and increasing the use of more affordable and abundant manganese. However, scaling up to larger capacities presented challenges such as cell swelling and capacity degradation due to gas generation at the electrolyte-active material interface during cycling. The research team identified the root causes of this gas generation and capacity degradation. They subsequently developed specific solutions to ensure the long-term stability of large-format LMR cells through subtle adjustments in electrolyte composition, charging profiles, and cell manufacturing processes. The technology also contributes to improved thermal stability and maintains performance in low-temperature environments.

Background and Industry Context

With the expansion of the electric vehicle (EV) market, battery performance, cost, safety, and sustainability are pressing concerns for the entire industry. Cobalt, in particular, is a strategic priority for battery manufacturers due to its high cost, supply chain risks, and ethical concerns. LMR batteries are a leading candidate to reduce this cobalt dependency, and this improvement in stability removes one of the most significant barriers to their practical application. This advancement will contribute substantially to cost efficiency and environmental footprint reduction in battery manufacturing, further accelerating EV adoption.

Strategic Significance and Outlook

Based on this technological breakthrough, LG Energy Solution is expected to proceed with the final stages of validation for the commercial production of LMR batteries. This enhanced stability is a critical factor for electric vehicle manufacturers to offer more affordable, longer-range, and safer EVs. In the future, LMR batteries could become a viable alternative to current NCM (nickel-cobalt-manganese) based batteries, potentially reshaping the competitive landscape of the EV market. This technology strongly propels the transition toward more sustainable energy storage solutions.

Source: https://www.koreaittimes.com/news/articleView.html?idxno=156856

Collected: September 11, 2026 | Automated Research System (Gemini API)

#18 Wausau Coated Products Unveils WA-669 Wash-Away Label Adhesive for Easy Debonding on Reusable Glass Bottles

Published September 09, 2026 Packaging Gateway USA

OVERVIEW

Wausau Coated Products has launched WA-669, a new wash-away label adhesive designed for reusable glass bottles. This innovative product ensures robust adherence during use and transit, yet detaches cleanly and easily during the washing process, leaving no residue. The development significantly enhances the recyclability and reusability of glass containers, supporting circular economy initiatives in packaging.

IN DEPTH

Key Findings

Wausau Coated Products has announced the launch of WA-669, a groundbreaking new wash-away label adhesive specifically engineered for the reusable glass bottle market. This adhesive maintains strong bonding integrity during transport and retail display, ensuring labels remain securely attached. Crucially, when used bottles enter the washing process, WA-669 readily dissolves and debonds in water, leaving absolutely no adhesive residue on the glass surface. This characteristic significantly improves the efficiency of glass container recycling and reusability, contributing to circular economy principles.

Technical Details

The WA-669 adhesive is formulated based on specialized water-soluble polymers designed to completely dissolve in water under specific temperature and time conditions. Conventional label adhesives often leave adhesive residue or paper fragments upon removal, posing a significant barrier to reuse processes. WA-669 overcomes these challenges, enabling efficient debonding during standard washing cycles in industrial washing machines. This leads to improved cleaning quality for glass bottles and contributes to reducing the lifecycle costs of reusable containers. Its adoption is anticipated across sectors heavily utilizing glass packaging, such as the food and beverage and cosmetics industries.

Background and Industry Context

In recent years, escalating consumer environmental awareness and strengthening environmental regulations globally have made packaging sustainability a paramount concern for businesses. Glass bottles, due to their high reusability, are gaining attention as an eco-friendly packaging material, but label removal has been a major bottleneck in the bottle washing process. Wash-away adhesives like WA-669 are critical technologies that resolve this bottleneck, streamlining closed-loop recycling and reuse systems for glass containers. This enables companies to enhance brand image and contribute to achieving their environmental targets.

Strategic Significance and Outlook

The introduction of WA-669 marks a step forward for Wausau Coated Products in strengthening its leadership in sustainable packaging solutions. The company may pursue further research and development into wash-away technologies, potentially exploring applications for plastic containers and other reusable packaging materials. This technology is expected to significantly contribute to reducing the environmental impact of the entire packaging industry and offer consumers more eco-friendly choices. As the shift towards reusable packaging accelerates, WA-669 is poised to play a vital role in the market.

Source: https://www.packaging-gateway.com/news/wausau-wash-away-label-adhesive/

Collected: September 11, 2026 | Automated Research System (Gemini API)

#19 Dymax to Showcase High-Efficiency, Reliable Adhesion and Curing Solutions for Medical Device Manufacturing at Medical Technology Ireland 2026

Published September 10, 2026 Dymax USA

OVERVIEW

Dymax announced it will showcase efficient and reliable adhesive and curing solutions specifically tailored for medical device manufacturing, including catheter assembly, at Medical Technology Ireland 2026. The company's innovative portfolio offers precise adhesion control, comprehensive curing validation, and effective curing technologies for hard-to-reach micro-areas. These advancements significantly improve manufacturing efficiency and quality control, ensuring compliance with stringent safety and performance standards for medical devices.

IN DEPTH

Key Findings

Dymax announced its participation in Medical Technology Ireland 2026, held in Ireland from September 10-11, 2026, where it will exhibit high-efficiency and reliable adhesive and curing solutions designed to innovate the manufacturing processes of catheters and other complex medical devices. Dymax's solutions are poised to dramatically enhance quality control and throughput in medical device manufacturing by enabling precise adhesion, validation of the curing process, and uniform curing even in narrow or hard-to-reach areas.

Technical Details

Dymax's solutions for medical devices primarily consist of UV/visible light-curable adhesives and corresponding curing equipment. These adhesives are engineered for biocompatibility, low extractables, high strength, and rapid curing characteristics, making them ideal for catheter lumen bonding, balloon attachment, hub assembly, and other critical assembly tasks. Specifically, the company's UV curing systems deliver light energy with precise wavelengths and intensities, ensuring complete adhesive cure. This minimizes process variability in medical device manufacturing, contributing to improved yields and reduced rework rates. Furthermore, their curing validation systems support compliance with quality control standards (e.g., ISO 13485), ensuring the safety of medical devices.

Background and Industry Context

The medical device industry is subject to extremely high-quality standards and stringent regulatory requirements to ensure patient safety and therapeutic efficacy. Particularly in the assembly of increasingly miniaturized and high-functional medical devices, the precision and reliability of micro-component bonding are paramount. While conventional adhesive methods often presented challenges with curing time and inconsistent adhesive performance, Dymax's UV/visible light curing technology is gaining attention as a solution that overcomes these hurdles. This enables medical device manufacturers to accelerate market entry for more complex designs and produce high-quality products more cost-effectively.

Strategic Significance and Outlook

Dymax's exhibition underscores the critical importance of adhesive technology in the future of medical device manufacturing. Moving forward, the company is expected to advance technological developments in areas such as higher automation, IoT integration, and AI-driven curing process control. These advancements will enhance capabilities for personalized medical device production and adaptability to new materials, contributing to innovation in medical technology. Dymax's solutions are anticipated to continue strongly supporting industry trends toward miniaturization, precision, and enhanced patient safety in medical devices.

Source: https://dymax.com/resources/news-and-media/press-releases/trade-show/dymax-showcases-efficient-and-reliable-medical-device-manufacturing-solutions-at-medical-technology-ireland-2026

Collected: September 11, 2026 | Automated Research System (Gemini API)

#20 Taiyo Holdings and imec Achieve 700nm RDL Formation for Advanced Packaging, Accelerating AI and HPC Chip Performance

Published September 11, 2026 ChemAnalyst Japan

OVERVIEW

Taiyo Holdings, in collaboration with imec, announced the successful formation of 700nm Redistribution Layers (RDL) for advanced packaging using their next-generation FPIM series materials. This breakthrough is a critical step towards enabling finer pitch and higher performance for AI and High-Performance Computing (HPC) semiconductors. The achievement significantly enhances the integration density and electrical characteristics of semiconductor packages, driving the evolution of next-generation electronics.

IN DEPTH

Key Findings

Taiyo Holdings, in a joint research effort with imec, a world-leading research and innovation hub in nanoelectronics and digital technologies, has successfully achieved 700nm Redistribution Layer (RDL) formation for advanced packaging using its next-generation FPIM series semiconductor packaging materials. This achievement represents a critical technological breakthrough for the semiconductor industry, enabling the miniaturization and enhanced performance of AI chips and High-Performance Computing (HPC) processors. It significantly boosts both the electrical performance and integration density of semiconductor packages.

Technical Details

RDLs are multi-layered wiring structures that connect internal chip circuitry to external package interfaces, and their miniaturization directly correlates with overall semiconductor package performance and size reduction. The successful 700nm RDL formation realizes both fine-pitch wiring pattern fabrication—a challenge with conventional process technologies—and excellent electrical characteristics. Taiyo Holdings' FPIM series are photosensitive polymer materials suitable for photolithography processes, featuring high resolution, low dielectric constant, and superior heat resistance. When combined with imec's advanced process technologies, this enables the precise formation of extremely fine RDL patterns, achieving higher signal transmission speeds and lower signal loss.

Background and Industry Context

In today's digital society, fields such as AI, 5G, and data centers demand ever-increasing processing capabilities for faster and larger volumes of data, making the pursuit of higher semiconductor chip performance relentless. Advanced packaging technology, in particular, is drawing attention as a new frontier for chip performance improvement amid discussions about the limits of Moore's Law. RDL miniaturization is essential for advanced technologies like 2.5D/3D packaging and fan-out packaging to reduce interconnect distances between chips and enhance power efficiency and signal integrity. The collaboration between Taiyo Holdings and imec addresses these urgent industry needs.

Strategic Significance and Outlook

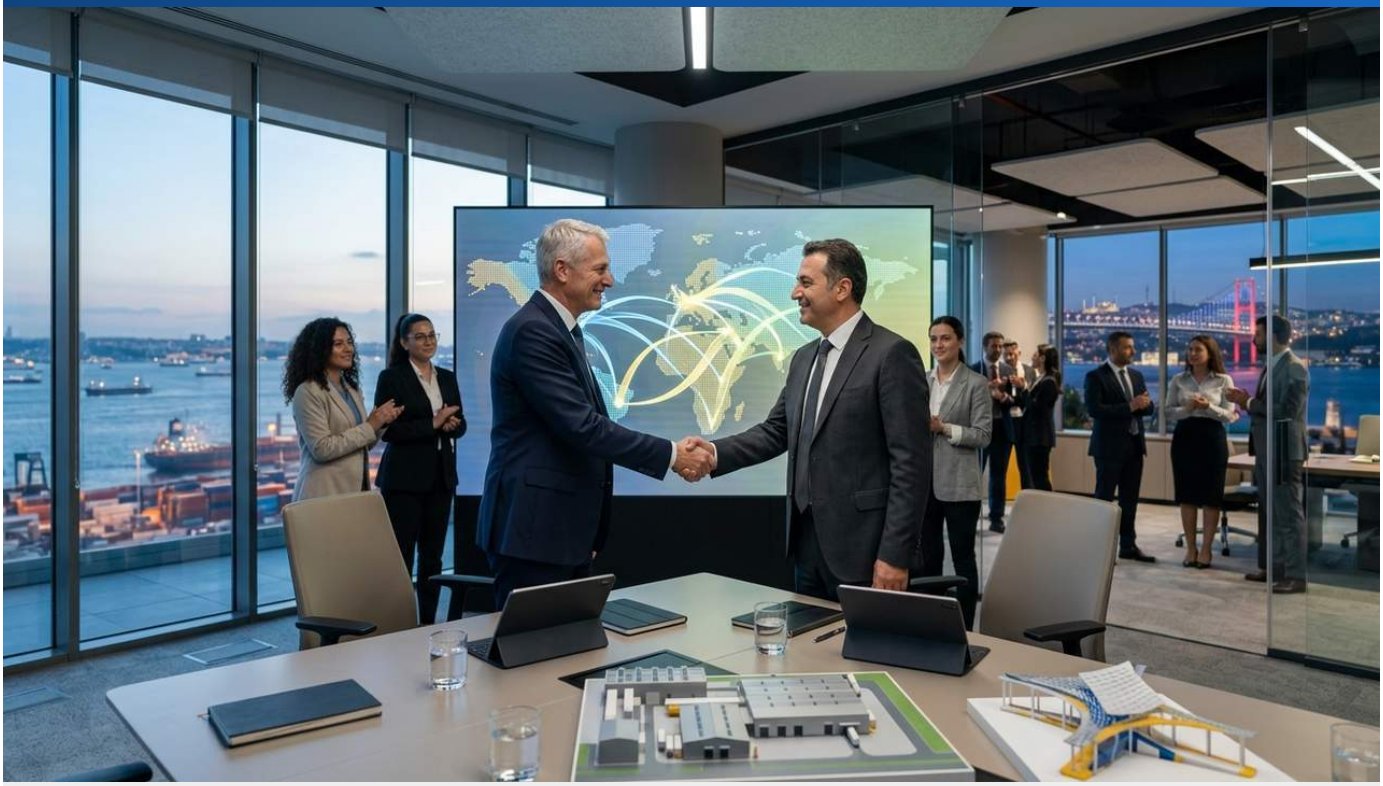
This 700nm RDL formation technology is expected to directly contribute to the development of next-generation AI accelerators, HPC processors, and high-performance chips for autonomous vehicles and IoT devices. Taiyo Holdings aims to leverage this achievement to further enhance the performance and market deployment of its FPIM series, strengthening its position as a key material supplier in the global semiconductor industry. This technology is poised to enable the creation of smaller, more powerful electronic products and is expected to expand its applications as a fundamental technology accelerating the evolution of the information society.

Source: https://www.chemanalyst.com/NewsAndDeals/NewsDetails/taiyo-holdings-achieves-700-nm-rdl-formation-44432

Collected: September 11, 2026 | Automated Research System (Gemini API)

#21 Sika Completes Akkim Acquisition, Significantly Strengthening Global Adhesives and Sealants Business

Published September 03, 2026 GlobeNewswire / Sika AG Switzerland



OVERVIEW

Sika has announced the completion of its acquisition of Akkim, a prominent Turkish adhesives and sealants manufacturer. This strategic move significantly enhances Sika's global standing in the adhesives and sealants industry. By integrating Akkim's extensive product portfolio and established distribution network, Sika aims to expand its geographical reach, reinforce manufacturing capabilities, and capture substantial growth opportunities, particularly in Turkey and surrounding emerging markets.

IN DEPTH

Key Findings

Sika, the Switzerland-based specialty chemicals company, has successfully completed the acquisition of Akkim, a leading Turkish manufacturer of adhesives and sealants. This acquisition significantly strengthens Sika's global presence and competitive edge in the adhesives and sealants market, marking a crucial milestone in its growth strategy.

Technical Details

Akkim has earned a strong reputation for developing and manufacturing high-performance adhesives, sealants, and polyurethane-based products used across various industrial sectors. Its product range spans construction, automotive, industrial, and consumer applications. The integration of Sika's existing technological platforms with Akkim's expertise will enhance both companies' R&D capabilities, enabling the delivery of more innovative products and solutions to the market. Specifically, Akkim's strengths in polyurethane foams, silicone sealants, and hot-melt adhesives will complement Sika's product portfolio, allowing for more comprehensive solutions for customers.

Background and Industry Context

The adhesives and sealants market continues to experience stable growth, driven by robust construction activities, increased automotive production, and growing demands for sustainability. Turkey, with its strategic geographical location and rapid economic growth, boasts particularly active construction and manufacturing sectors, making it a significant potential market for adhesive and sealant products. The acquisition of Akkim not only establishes manufacturing bases and distribution channels for Sika within Turkey but also provides a strong foothold for expanding access to surrounding emerging markets in the Middle East, Africa, and Eastern Europe. This will enable Sika to increase its market share in these regions and diversify its revenue base.

Strategic Significance and Outlook

Sika's acquisition of Akkim is expected to further solidify its leadership in the global market. The integration of both companies will allow customers to benefit from a broader range of high-quality products and advanced technical support. Sika aims to maximize synergies by leveraging Akkim's excellent manufacturing capabilities and market knowledge, targeting improved profitability and long-term growth. This strategic move also signals an active M&A landscape in the adhesives and sealants industry, which could impact the overall competitive environment. Through the integration of Akkim, Sika plans to enhance its provision of sustainable building and industrial solutions and further boost its innovation capabilities.

Source: https://www.globenewswire.com/news-release/2026/09/03/3355639/0/en/sika-closes-acquisition-of-akkim-accelerating-global-expansion-in-adhesives-and-sealants.html

Collected: September 11, 2026 | Automated Research System (Gemini API)

#22 Virginia Tech Develops Monomaterial Adhesive Tape Outperforming Duct Tape with Chemical Recyclability

Published September 08, 2026 Packaging Insights USA

OVERVIEW

Researchers at Virginia Tech have successfully developed a monomaterial pressure-sensitive adhesive tape where both the substrate and adhesive layers are entirely chemically recyclable. This groundbreaking tape demonstrates superior adhesive strength and durability, comparable to or exceeding conventional duct tape. Crucially, it allows for efficient post-use chemical decomposition and reuse as raw material for new tape production, offering a significant advance in sustainable packaging and mitigating environmental impact from hard-to-recycle adhesive products.

IN DEPTH

Key Findings

Researchers at Virginia Tech have successfully developed a monomaterial pressure-sensitive adhesive tape where both the substrate and the adhesive are composed of the same chemical family, enabling complete chemical recyclability. This innovative tape not only demonstrates superior adhesive strength and durability, on par with or even surpassing conventional duct tape, but also possesses the revolutionary property of being efficiently decomposed after use and repurposed as raw material for new tape production. This technology represents a significant advancement towards sustainable packaging solutions, mitigating the environmental burden posed by difficult-to-recycle adhesive products.

Technical Details

The developed monomaterial adhesive tape primarily uses polymers derived from lipoic acid, a naturally occurring fatty acid. Leveraging its structural characteristics, the researchers successfully designed a polymer that combines both strong adhesion and chemical recyclability. This polymer can be effectively broken down into its monomer or oligomer starting materials through specific chemical treatments. The regenerated raw material can then be reused in the manufacturing of new, high-quality adhesive tapes, thereby promoting material circularity and contributing to waste reduction and decreased reliance on virgin resources. In terms of adhesive performance, the tape exhibits comparable or superior results to existing high-performance duct tapes across standard pressure-sensitive adhesive (PSA) evaluation criteria, including initial tack, holding power, and peel strength, on various surfaces.

Background and Industry Context

While adhesive-backed products are ubiquitous in modern society, the presence of adhesives often poses a significant barrier in recycling processes. Efficient separation and recycling have been particularly challenging for composite materials or products where the adhesive and substrate have different chemical compositions. The packaging industry faces an urgent need to reduce environmental impact and transition to a circular economy, making the development of recyclable adhesives a long-standing challenge. Virginia Tech's research offers a promising solution to this problem, with anticipated applications in high-volume packaging uses such as carton sealing tapes and various adhesive labels. This is expected to streamline recycling systems and enhance the overall sustainability of packaging materials.

Strategic Significance and Outlook

This monomaterial adhesive tape technology paves a new path for sustainable product design. Future research will likely focus on optimizing manufacturing costs, ensuring broad material applicability, and validating scalability for large-scale production. If commercialized, this technology has the potential to enable more environmentally friendly product design and resource circulation not only in the packaging industry but also across diverse sectors where difficult-to-recycle adhesive products are used, including electronics, automotive, and construction. This breakthrough from Virginia Tech is expected to bring about significant transformations in future adhesive technologies and recycling processes.

Source: https://www.packaginginsights.com/news/virginia-tech-recyclable-adhesive-tape.html

Collected: September 11, 2026 | Automated Research System (Gemini API)

#23 EU's BATRAW Project Develops Semi-Automated EV Battery Recycling Technology, Reducing Disassembly Time by 50-60%

Published September 03, 2026 CORDIS EU

OVERVIEW

The EU-funded BATRAW project has developed innovative new technologies for efficiently disassembling, recycling, and recovering critical raw materials from end-of-life electric vehicle (EV) batteries. The project introduced a semi-automated battery disassembly line integrating robotics, AI-based vision systems, and laser cutting technology. This advanced system successfully reduced disassembly time by 50-60% compared to manual processes, while significantly enhancing worker safety.

IN DEPTH

Key Findings

The EU-funded BATRAW research project has developed innovative technologies for the efficient disassembly, recycling, recovery, and reuse of critical raw materials such as cobalt, nickel, and lithium from end-of-life electric vehicle (EV) batteries. The project's most significant achievement is the realization of an advanced semi-automated battery disassembly line that integrates robotics, AI-based vision systems, and laser cutting technology. This system successfully reduced processing time by 50% to 60% compared to manual disassembly, while simultaneously greatly enhancing worker safety.

Technical Details

The semi-automated disassembly line developed by the BATRAW project first uses an AI vision system to recognize the structure of battery packs, accurately identifying hazardous high-voltage points and cell arrangements. Robotic arms then utilize laser cutting technology to precisely and rapidly separate bonded modules and inter-cell connections. This process reduces the risk of physical damage compared to traditional mechanical disassembly methods, enabling the recovery of materials at higher purity. The system also integrates mechanisms to manage potentially harmful gases and heat generated during the disassembly process, contributing to a safer working environment and reduced environmental impact. The technology is designed to accommodate various battery designs and chemical compositions, offering scalability for future battery technology advancements.

Background and Industry Context

With the accelerating adoption of electric vehicles, the proper processing of end-of-life EV batteries and the recycling of their raw materials are critical challenges from both environmental protection and resource security perspectives. Rare metals like cobalt and lithium, in particular, are subject to geopolitical risks and supply constraints, making their recovery rates essential for the sustainable development of the EV industry. However, EV batteries have complex structures, high-voltage risks, and robust adhesive bonding, making their disassembly and recycling difficult and costly. The achievements of the BATRAW project resolve this bottleneck, establishing a more economical and safer battery recycling process that significantly contributes to a circular economy.

Strategic Significance and Outlook

The technology developed by the BATRAW project holds the potential to bring about significant transformation in the EV battery recycling industry. In the future, commercial scale-up of this semi-automated disassembly line and its deployment across recycling facilities worldwide are anticipated. Furthermore, the recovered high-quality raw materials will be reused in new battery manufacturing, enhancing the sustainability of the entire supply chain. This technology is expected to be applied to the recycling of other electronic devices and industrial batteries, potentially serving as a model case for promoting a circular economy. Through this project, the EU aims to foster efficient resource utilization across the entire battery value chain and strengthen its strategic autonomy.

Source: https://cordis.europa.eu/article/id/466760-new-life-for-a-dead-battery

Collected: September 11, 2026 | Automated Research System (Gemini API)

#24 Itaconate Chemistry and Nanocellulose Reinforcement Optimize Adhesion-Cohesion Balance in High Bio-Content Waterborne PSAs

Published September 09, 2026 ACS Publications USA

OVERVIEW

New research demonstrates an effective method to restore the adhesion-cohesion balance in high bio-content waterborne pressure-sensitive adhesives (PSAs) through a combination of itaconate chemistry and nanocellulose reinforcement. This approach addresses the critical challenge of enhancing adhesive performance while maintaining a high bio-based content, crucial for high-performance bio-adhesives. The breakthrough significantly accelerates the practical application of sustainable adhesive solutions with reduced environmental impact.

IN DEPTH

Key Findings

Recent research reports a groundbreaking method to optimize the adhesion-cohesion balance in high bio-content waterborne pressure-sensitive adhesives (PSAs) by combining two innovative approaches: itaconate chemistry and nanocellulose reinforcement. This resolves the long-standing challenge of enhancing the performance of environmentally friendly bio-based adhesives to rival or even surpass conventional petroleum-derived adhesives. This achievement significantly accelerates the practical implementation of sustainable adhesive solutions.

Technical Details

Waterborne PSAs have garnered attention for their lower environmental impact, but a key challenge has been that increasing bio-based content often leads to an imbalance between adhesive strength (tack) and cohesive strength (internal strength), resulting in compromised performance. The research team first introduced itaconate derivatives into the main chain of the adhesive polymer, precisely controlling the polymer's molecular design to tune its adhesive properties. Itaconates, synthesizable from bio-derived raw materials, contribute to improving the adhesion-cohesion balance through their chemical characteristics while maintaining the adhesive's bio-content. Furthermore, by incorporating nanocellulose (cellulose nanocrystals or cellulose nanofibrils) into the adhesive matrix, a nanoscale reinforcement effect was achieved. Nanocellulose, with its high aspect ratio and excellent mechanical strength, plays a crucial role in enhancing the cohesive strength of the adhesive and improving overall adhesive performance. The synergistic effect of these two approaches successfully led to the development of a waterborne PSA that combines excellent tack and cohesive strength while maintaining a high bio-content.

Background and Industry Context

The adhesive industry faces an urgent imperative to shift towards sustainability. Reducing the environmental impact of adhesives, which are widely used in packaging, medical, automotive, and construction sectors, is crucial from the perspective of resource efficiency and waste reduction. While waterborne adhesives offer advantages such as lower volatile organic compound (VOC) emissions, they sometimes underperform compared to solvent-based adhesives. This research contributes to achieving the industry's sustainability goals by focusing on developing waterborne adhesives that increase the use of bio-derived raw materials without sacrificing performance. This advancement aligns with trends in bioplastics and biodegradable materials, supporting broader green chemistry initiatives.

Strategic Significance and Outlook

These research findings will serve as foundational technology to accelerate the commercialization of environmentally friendly, high-performance bio-based waterborne PSAs. Future efforts are expected to focus on further evaluating the durability of the developed adhesives, including long-term stability, moisture resistance, and heat resistance, as well as assessing their applicability to various substrates and scalability for large-scale production. This technology holds significant market potential as a substitute for conventional petroleum-derived adhesives, particularly in disposable products and applications requiring recyclability. It is expected to be adopted in a wide range of products, including packaging materials, labels, medical tapes, and construction materials, contributing to the realization of a more sustainable society.

Source: https://pubs.acs.org/ascecg/article/doi/10.1021/acssuschemeng.6c04800/5427183/Restoring-Adhesion-Cohesion-Balance-in-High-Bio

Collected: September 11, 2026 | Automated Research System (Gemini API)

#25 Henkel's Mentor Site Upgrade Boosts SMP Moisture-Curing Adhesive Recovery, Drives Sustainable Production by Reducing Manufacturing Waste

Published September 03, 2026 openPR.com Germany

OVERVIEW

Henkel has announced a significant upgrade at its Mentor plant in Ohio, installing an additional buffer press to enhance the recovery capacity of moisture-curing SMP adhesive materials. This investment aims to reduce manufacturing waste and improve the overall economics of its supply chain. With the moisture-curing adhesive market valued at $2.9 billion in 2026 and growing demand in construction and industrial applications, this initiative represents a crucial step towards strengthening sustainable production.

IN DEPTH

Key Findings

Henkel has announced a strategic upgrade at its Mentor manufacturing facility in Ohio, USA, with the installation of a new buffer press designed to enhance the recovery capacity of moisture-curing SMP (Silylated Modified Polymer) adhesive materials. This significant investment aims to reduce waste generation within the manufacturing process and substantially improve the operational efficiency and economic viability of the entire supply chain. This initiative reinforces Henkel's commitment to sustainable production practices and promotes the effective utilization of resources.

Technical Details

Moisture-curing SMP adhesives are high-performance bonding agents that cure upon reaction with atmospheric moisture. They are highly valued across various industrial sectors, including construction, automotive, and electronics, for their superior bonding strength, durability, and environmental performance. In traditional manufacturing processes, uncured adhesive material often becomes waste during product changeovers or production line adjustments. The newly implemented buffer press system efficiently collects these SMP adhesive residues, enabling their reprocessing. This technology minimizes raw material loss and significantly reduces the volume of manufacturing waste. Consequently, it contributes not only to lower production costs but also to a reduced environmental footprint, realizing a more resource-efficient production model.

Background and Industry Context

The adhesives market, particularly in the moisture-curing segment, is experiencing rapid growth driven by increasingly stringent environmental regulations and rising demand for sustainable products. The total moisture-curing adhesive market is valued at $2.9 billion in 2026, with expanding demand across diverse applications such as strong and durable bonding in construction, and lightweighting and dissimilar material joining in the automotive industry. For major manufacturers like Henkel, improving production efficiency and reducing waste are imperative for maintaining competitiveness and fulfilling corporate social responsibility (CSR). The Mentor plant upgrade is a concrete example of how market trends align with a company's sustainability strategy.

Strategic Significance and Outlook

The enhanced recovery capacity at Henkel's Mentor plant will serve as a foundational element supporting the continued growth of its moisture-curing SMP adhesive business. This improvement will enable more stable supply and the provision of environmentally conscious products to customers. Moving forward, Henkel is expected to deploy similar waste reduction and resource recovery technologies across its other manufacturing sites, building a global sustainable production network. Such initiatives will also contribute to elevating environmental standards across the broader adhesive industry and accelerating the adoption of more efficient and sustainable manufacturing processes.

Source: https://www.openpr.com/news/4621165/henkel-s-mentor-site-upgrade-highlights-process-gains-as

Collected: September 11, 2026 | Automated Research System (Gemini API)

#26 Cobalt-Catalyzed Polymerization Enables Switchable Pressure-Sensitive Adhesion with Soft Methacrylate Nematic Elastomers

Published September 08, 2026 ACS Publications USA

OVERVIEW

Recent research demonstrates that cobalt-catalyzed chain transfer polymerization (Co-CTP) is an effective strategy for designing soft methacrylate nematic elastomers optimal for switchable pressure-sensitive adhesive (PSA) applications. This innovative elastomer exhibits strong adhesion at room temperature, coupled with the ability to rapidly and cleanly debond at elevated temperatures via a specific liquid crystalline phase transition. This technology holds promise for diverse applications requiring reusable adhesive systems and precise, residue-free debonding, such as in electronics assembly.

IN DEPTH

Key Findings

A recent research paper demonstrates that cobalt-catalyzed chain transfer polymerization (Co-CTP) is an extremely effective strategy for designing soft methacrylate nematic elastomers that enable switchable pressure-sensitive adhesion (PSA). This groundbreaking elastomer exhibits high adhesive strength at room temperature while uniquely possessing the ability to rapidly and cleanly lose adhesion and debond upon specific thermal stimuli (liquid crystalline phase transition), leaving no residue. This achievement holds significant potential to impact fields requiring reusable adhesive systems and precise disassembly or repair.

Technical Details

In this study, nematic liquid crystallinity was imparted to methacrylate-based polymers using Co-CTP. Co-CTP is a type of living polymerization that offers the advantage of precise control over polymer molecular weight distribution and end-group functionality. This allowed for the synthesis of soft elastomers with uniform structures, enabling the tuning of their glass transition temperature (Tg) and liquid crystalline phase transition temperature. The developed elastomers form a solid liquid crystalline phase at room temperature, exhibiting strong adhesion. However, upon heating, they undergo a phase transition from the liquid crystalline phase to an isotropic liquid phase. This structural change sharply weakens interactions with the bonding surface. The phase transition temperature can be controlled by adjusting the adhesive composition. As a result, the elastomer achieves a clean, residue-free debonding characteristic, offering significant benefits for reusable components and precision disassembly in electronics assembly.

Background and Industry Context

In modern manufacturing, product reparability, recyclability, and ease of post-use disassembly are increasingly vital. Many high-functional and complex products, particularly in electronics and automotive components, are assembled with adhesives, making disassembly or repair challenging with conventional permanent adhesives. Switchable adhesives have long been a promising solution to this problem, with ongoing research and development efforts. The nematic elastomer enabled by Co-CTP, as proposed in this research, offers improved controllability across a broader temperature range and cleaner debonding characteristics compared to existing switchable adhesives, making it critical for achieving sustainable product life cycles.

Strategic Significance and Outlook

This cobalt-catalyzed polymerization-based switchable pressure-sensitive adhesive technology is expected to find applications in various fields. These include, but are not limited to, the assembly and repair of precision electronic devices, reusable display panels, self-healing materials, smart packaging, and even adsorption/desorption control in robotics. Future work will involve evaluating the material's durability, cost-effectiveness, and scalability for large-scale production. If commercialized, this technology has the potential to establish itself as a next-generation adhesive solution that enhances manufacturing process flexibility, extends product lifespans, and ultimately contributes significantly to waste reduction and efficient resource utilization.

Source: https://pubs.acs.org/mamobx/article/doi/10.1021/acs.macromol.6c01590/5427375/Cobalt-Catalyzed-Chain-Transfer-Polymerization

#27 Sun Chemical and Cyngient Announce Strategic Narrow Web Partnership, Launching Joint Specialty Coatings and High-Performance Adhesives

Published September 10, 2026 Sun Chemical USA

OVERVIEW

Sun Chemical and Cyngient have formed a strategic partnership to expand their specialty solutions for narrow web label and package printers. This collaboration introduces a co-branded line of advanced coatings and high-performance adhesives to the market. The new offerings aim to deliver superior print quality, distinctive decorative effects, and reliable on-press performance, creating new value in the competitive printing industry.

IN DEPTH

Key Findings

Sun Chemical and Cyngient have announced a strategic partnership aimed at expanding their portfolio of specialized solutions tailored for the narrow web label and package printing market. Through this collaboration, the two companies will develop and introduce a co-branded product line featuring advanced coating technologies and high-performance adhesives. This alliance seeks to establish a competitive advantage in the narrow web printing industry by providing customers with exceptional print quality, unique decorative effects, and reliable on-press performance.

Technical Details

The co-branded products offered through this partnership are precisely engineered to address specific challenges in narrow web printing. Key technical features include:

- **Advanced Coatings:** These specialty coatings offer high scratch resistance, chemical resistance, enhanced gloss, and various matte effects, thereby improving the durability and visual appeal of labels and packaging.
- **High-Performance Adhesives:** The adhesives provided are designed for high-speed printing processes, offering excellent bond strength and resistance across diverse substrates, leading to increased product reliability and manufacturing efficiency.
- **Multifunctional Solutions:** Solutions are also included that are designed to meet regulatory requirements for specific applications (e.g., food packaging, medical labels), allowing customers to benefit from customized performance.

These products are designed not only to enhance print quality but also to contribute to reduced downtime on the production line, optimized material consumption, and lower environmental impact.

Background and Industry Context

The narrow web label and package printing market is evolving rapidly, driven by advancements in digitalization, increasing demands for sustainability, and a shift towards short-run, high-mix production. In this environment, print converters are seeking higher-performance, more efficient, and environmentally friendly materials to maintain competitiveness. Sun Chemical is a global leader in inks, coatings, and pigments, while Cyngient is an innovative provider of specialty chemicals and adhesives for narrow web printing. Combining the strengths of both companies is expected to enable them to respond quickly to market needs and create new value.

Strategic Significance and Outlook

The strategic partnership between Sun Chemical and Cyngient will accelerate product innovation and market expansion in the narrow web printing sector. Moving forward, both companies are likely to further expand their co-branded product portfolio and strengthen their global market presence. They are also expected to focus on developing sustainable materials and providing customized solutions that meet specific customer application requirements. This partnership is poised to drive technological innovation in the printing industry and play a crucial role in supporting customer business growth.

Source: https://www.sunchemical.com/sun-chemical-and-cyngient-unveil-strategic-narrow-web-partnership-at-loupe-americas-2026/

Collected: September 11, 2026 | Automated Research System (Gemini API)

#28 Dymax Launches BlueWave® FX Line Emitters for High-Speed UV/Visible Curing, Boosting Throughput with up to 4.2 W/cm²

Published September 10, 2026 Taiwan News / Dymax USA

OVERVIEW

Dymax has launched the new BlueWave® FX line emitter series, specifically designed for high-speed automated production environments. These 75mm and 150mm line emitters provide industry-leading intensity up to 4.2 W/cm², achieving a highly uniform and powerful UV/visible light curing profile. This innovation significantly boosts production throughput for adhesive, printing, and coating applications, contributing to reduced manufacturing costs and improved quality consistency.

IN DEPTH

Key Findings

Dymax has launched the innovative new "BlueWave® FX Line Emitter" series, optimized for high-speed automated production lines. This new series includes 75mm and 150mm wide line emitters, delivering exceptional light intensity of up to 4.2 W/cm² and an extremely uniform UV/visible light curing profile. This technology dramatically enhances production throughput in precision manufacturing applications such as bonding, printing, and coating, leading to reduced cycle times and lower production costs.

Technical Details

The BlueWave® FX Line Emitters leverage the latest LED technology to achieve high efficiency and long lifespan. A standout feature is their uniform irradiation intensity, which guarantees consistent curing even across wide bonding surfaces or coating layers. This reduces product waste and rework due to curing failures, improving manufacturing quality consistency. The 75mm and 150mm irradiation widths are designed for flexible adaptation to various production line requirements, allowing for easy integration into existing setups. The high intensity of up to 4.2 W/cm² enables curing at very high line speeds, proving its worth particularly in mass production environments for electronics, medical devices, and automotive components. UV/visible light curing is also an environmentally friendly, clean process as it does not use solvents, thereby reducing VOC (volatile organic compound) emissions.

Background and Industry Context

Modern manufacturing faces multiple challenges, including product miniaturization, performance enhancement, and strengthening cost competitiveness. In processes such as bonding, sealing, and coating, rapid and high-quality processing is paramount. UV/visible light curing technology has become a leading alternative to conventional thermal curing and solvent-based curing processes due to its high speed, precise controllability, and low environmental impact. Dymax's BlueWave® FX Line Emitters further accelerate this trend, proving key to eliminating bottlenecks and maximizing manufacturing efficiency, especially in automated production environments requiring high precision and high throughput.

Strategic Significance and Outlook

The introduction of the BlueWave® FX Line Emitters further solidifies Dymax's position as a leader in UV/visible light curing technology. Future research is expected to focus on applying this technology to more complex component geometries and new materials. Furthermore, integration with IoT and AI will likely advance real-time monitoring and optimization of curing processes, contributing to the realization of smart factories. Dymax is committed to continuously innovating to meet the needs of high-precision manufacturing, enhancing productivity, and stabilizing quality across diverse industrial sectors. This new emitter is poised to be a critical technology supporting next-generation manufacturing processes.

Source: https://www.taiwannews.com.tw/en/news/6437199

Collected: September 11, 2026 | Automated Research System (Gemini API)

#29 Epoxy-Based Debonding-on-Demand Adhesives to Dominate EV Battery Module Market in 2026

Published September 11, 2026 openPR.com USA

OVERVIEW

This article provides an overview of a market research report on debonding-on-demand adhesives for EV battery modules. The market is expanding due to increasing pressure for battery material recovery and efficient end-of-life disassembly. Epoxy-based debondable systems are projected to secure a significant market share in 2026, owing to their structural strength and controlled bond cleavage capabilities. Thermal debonding systems lead the trigger mechanism category, offering a straightforward route for bond release in battery dismantling.

IN DEPTH

This article provides an overview of a market research report on the Debonding-on-Demand Adhesives for EV Battery Modules Market, as issued by openPR.com.

Report Overview

The market analysis focuses on the global landscape of debonding-on-demand adhesives specifically designed for electric vehicle (EV) battery modules. Driven by escalating demands for efficient battery material recovery and streamlined end-of-life disassembly processes, this market segment is experiencing robust growth. The report examines various technological classifications, application areas, regional market dynamics, and profiles key industry players.

Key Findings

- **Market Drivers:** The surging adoption of EVs worldwide, coupled with tightening environmental regulations concerning battery recycling and sustainable material recovery, is the primary catalyst for the demand for debondable adhesives. The growing "Right to Repair" movement further emphasizes the need for adhesive technologies that facilitate easy disassembly for repair, refurbishment, and recycling.
- **Epoxy Systems Dominance:** In 2026, epoxy-based debondable adhesive systems are projected to command a substantial market share within the EV battery module segment. This dominance is attributed to their superior structural integrity, essential for battery module assembly, combined with their ability to undergo controlled bond cleavage under specific conditions.
- **Thermal Debonding Leadership:** Among various trigger mechanisms for bond release, thermal debonding systems are identified as the leading category. Their straightforward and energy-efficient activation through heat makes them particularly attractive for large-scale EV battery dismantling and material recovery operations.
- **Environmental Impact:** The integration of debonding-on-demand adhesives significantly simplifies battery recycling, enhancing the recovery rates of valuable rare metals and other critical materials. This contributes directly to reducing the overall environmental footprint of EV battery lifecycles and advancing circular economy initiatives in the automotive sector.

About the Publisher

openPR.com serves as a press release distribution and market research report aggregation service, disseminating industry news and insights across a broad spectrum of sectors to a global audience.

Strategic Significance & Outlook

The market for debonding-on-demand adhesives in EV battery modules is poised for continued expansion, propelled by ongoing technological advancements and stricter environmental mandates. Future innovations are expected to focus on developing debonding mechanisms compatible with an even wider range of materials, alongside solutions that offer faster, lower-energy bond release, further optimizing the efficiency and sustainability of EV battery recycling.

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Source: https://www.openpr.com/news/4628805/debonding-on-demand-adhesives-for-ev-battery-modules-market

#30 B8X Drives Automotive Innovation with 2026 Structural Adhesives: Lightweighting, Eco-Friendly, and Self-Healing Capabilities

Published September 08, 2026 B8X Unknown

OVERVIEW

B8X announces significant innovations in structural adhesives for the 2026 automotive industry, designed to robustly bond body panels and frames, reducing vehicle weight and improving fuel efficiency. The company is actively developing biodegradable, eco-friendly, and smart adhesives with self-healing properties. These advanced formulations target improved thermal conductivity, chemical resistance, and mechanical strength to meet the evolving demands of the automotive sector.

IN DEPTH

Key Findings

B8X has unveiled groundbreaking innovations in structural adhesives for the automotive industry in 2026. These advancements are specifically engineered to provide robust bonding for body panels and frames, leading to significant reductions in vehicle weight and substantial improvements in fuel efficiency. This breakthrough underscores a commitment to both high performance and sustainability in automotive manufacturing.

Technical / Clinical Details

- **Robust Body Panel and Frame Bonding:** The new structural adhesives offer exceptionally high bonding strength, providing a lightweight yet rigid alternative to traditional welding or riveting for vehicle body structures. This enhances design flexibility, improves vehicle safety, and optimizes crash performance.
- **Vehicle Lightweighting and Fuel Efficiency:** By facilitating the strong and durable joining of dissimilar materials (e.g., steel, aluminum, composites), these adhesives enable effective overall vehicle weight reduction. This directly translates to improved fuel efficiency for internal combustion engine vehicles and extended range for electric vehicles.
- **Biodegradable and Eco-Friendly Adhesives:** B8X is actively developing biodegradable and environmentally friendly adhesive formulations. This initiative is crucial as the automotive industry increasingly shifts towards sustainable materials and manufacturing processes to reduce its ecological footprint.
- **Smart Adhesives with Self-Healing Properties:** A more advanced development involves the introduction of "smart adhesives" endowed with self-healing capabilities. These innovative materials can autonomously repair micro-damages that occur during operation, thereby extending the lifespan of adhesive bonds and reducing maintenance costs.
- **Enhanced Performance Metrics:** The advanced formulations are designed to deliver superior thermal conductivity, chemical resistance, and mechanical strength, ensuring reliability and performance in the most demanding automotive environments.

Background & Context

The automotive industry is under immense pressure to meet stringent environmental regulations and rising consumer expectations for performance and sustainability. Vehicle lightweighting is paramount for reducing CO2 emissions and enhancing EV performance, driving the widespread adoption of multi-material designs. In this context, the demand for structural adhesives capable of efficiently and robustly joining diverse materials is escalating. Furthermore, the global push towards a circular economy is accelerating the development of adhesives that are themselves environmentally compatible and facilitate easier repair and recycling of products.

Strategic Significance & Outlook

The innovations in structural adhesives announced by B8X are poised to play a critical role in shaping the future of automotive manufacturing. Lightweighting, environmental compatibility, and self-healing functionality address key challenges faced by automakers, facilitating the development of safer, more efficient, and sustainable vehicles. These technologies are also expected to contribute to the evolution of autonomous and connected vehicles, serving as crucial differentiators and enhancing the overall competitiveness of the automotive industry.

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Source: http://www.b8xbond.com/news/read/1086.html

#31 2026 Adhesive Industry Trends: Wash-Off/Recyclable Adhesives, Bio-Based Hot Melts, and Debond-on-Demand Solutions Driven by Right to Repair Movement

Published September 06, 2026 Accio Unknown

OVERVIEW

The adhesive industry is rapidly transitioning towards a circular economy, with 2026 key trends including wash-off/recyclable packaging adhesives and bio-based hot melts. Debond-on-Demand (DoD) industrial adhesives are emerging, designed to lose adhesion when triggered, facilitating easier repair and recycling, driven by the "Right to Repair" movement and EV battery circularity. Leading companies like Henkel and H.B. Fuller are actively launching "circular-ready" solutions and investing in bio-based materials.

IN DEPTH

Key Findings

The adhesives industry is undergoing a significant transformation, accelerating its shift towards a circular economy. Key trends for 2026 include the widespread adoption of wash-off and recyclable packaging adhesives, the increasing prevalence of bio-based hot melts, and the emergence of Debond-on-Demand (DoD) industrial adhesives, driven by the "Right to Repair" movement and the imperative for EV battery circularity. These innovations promise to extend product lifespans and dramatically improve recycling efficiency.

Technical / Clinical Details

- **Wash-Off/Recyclable Adhesives:** These adhesives are specifically engineered to facilitate easy separation and removal during recycling processes, significantly enhancing the quality of recycled materials, particularly for packaging such as beverage bottles and food containers. This leads to higher purity recycled content, enabling its use in more valuable secondary products.
- **Bio-Based Hot Melt Adhesives:** Representing a shift away from fossil fuel-derived raw materials, these hot melts are formulated from renewable, plant-derived resources. Their adoption contributes to reducing carbon footprints and overall environmental impact, supporting sustainable product development across various sectors.
- **Debond-on-Demand (DoD) Industrial Adhesives:** Designed to lose adhesion upon exposure to a specific trigger (e.g., heat, light, electrical signal), DoD adhesives enable dramatically easier product repair, disassembly, component replacement, and material recycling. Their importance is particularly growing in the disassembly of EV battery modules and the repair of consumer electronics, aligning with product longevity initiatives.
- **Industry Leader Initiatives:** Major players such as Henkel and H.B. Fuller are at the forefront, already introducing "circular-ready" solutions to the market and making substantial investments in the research, development, and production of bio-based materials. This demonstrates a strong industry-wide commitment to sustainability and innovation.

Background & Context

Amidst rising global environmental awareness and governmental pushes towards a circular economy, the adhesives industry finds itself at a pivotal juncture. The unfolding "Right to Repair" legislation in regions like the EU, coupled with the critical need for sustainable supply chains for electric vehicle (EV) batteries, is accelerating the adoption of adhesive technologies designed for disassembly and recycling from the product design stage. Traditional adhesives have historically posed significant obstacles to effective recycling processes, creating a strong impetus for these new technological solutions.

Strategic Significance & Outlook

These emerging trends are expected to have a profound impact not only on the adhesives market but also on broader industries including packaging, automotive, electronics, and construction. Debondable adhesives will enable the design of repairable and longer-lasting products, directly supporting consumer "Right to Repair" initiatives. The growing adoption of bio-based adhesives will elevate sustainability standards in raw material sourcing and reduce the overall environmental footprint of the industry. Continued innovation in this space promises to deliver even more environmentally friendly and high-performance adhesive solutions to the market in the coming years.

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Source: https://www.accio.com/business/recyclable-glue

Collected: September 11, 2026 | Automated Research System (Gemini API)

#32 Henkel Unveils New Flame-Retardant Sealant and Debonding Solutions for Rail Vehicle Lifecycle at InnoTrans 2026

Published September 04, 2026 Henkel Germany

OVERVIEW

Henkel Adhesive Technologies showcased its comprehensive portfolio for the railway industry at InnoTrans 2026, introducing solutions supporting the entire lifecycle of rail vehicles. Key launches included Teroson MS 949 FR, a new flame-retardant sealant, and Teroson MS 940, a high-performance adhesive and sealant. The company also presented Loctite NEO, a debonding solution, and the Soho DM90 dispensing system, emphasizing enhanced safety, durability, efficiency, and sustainability.

IN DEPTH

Key Findings

Henkel Adhesive Technologies unveiled its comprehensive portfolio of innovative adhesive and sealant solutions at InnoTrans 2026, designed to support the entire lifecycle of rail vehicles from design and manufacturing to operation, maintenance, and eventual recycling. The spotlight was on the new flame-retardant sealant, Teroson MS 949 FR, and the high-performance adhesive and sealant, Teroson MS 940.

Technical / Clinical Details

- **New Flame-Retardant Sealant Teroson MS 949 FR:** Meeting stringent international railway fire safety standards such as EN 45545-2, this new product is engineered to significantly enhance passenger safety in rail vehicle interiors. It helps to suppress smoke generation and toxic gas release during a fire, providing crucial evacuation time.
- **High-Performance Adhesive and Sealant Teroson MS 940:** Combining high bonding strength with flexibility, Teroson MS 940 is ideally suited for structural bonding and sealing applications in rail vehicles. It offers excellent resistance to vibration and shock, contributing to increased vehicle durability and extended maintenance intervals.
- **Loctite NEO Debonding Solution:** Addressing the growing need for longer rail vehicle lifespans and improved recyclability, Loctite NEO was introduced as an adhesive solution that allows for easy debonding under specific conditions. This facilitates efficient repair, component replacement, and end-of-life disassembly, aligning with circular economy principles.
- **Soho DM90 Dispensing System:** The exhibition also featured the Soho DM90 dispensing system, which enables precise and efficient application of adhesives and sealants. This system enhances manufacturing process automation and ensures consistent quality, leading to reduced labor costs and improved production efficiency.

Background & Context

The railway industry is confronting demanding requirements for safety, reliability, sustainability, and efficiency. Increasing passenger volumes, higher speeds, and stringent environmental regulations are posing new challenges for material selection and joining technologies in vehicle design. Particularly, compliance with international safety standards (e.g., flame retardancy) and the enhancement of vehicle longevity, repairability, and recyclability are critical themes. Henkel leverages its extensive expertise in adhesive technologies to provide solutions addressing these complex industry needs.

Strategic Significance & Outlook

The innovative products presented by Henkel at InnoTrans 2026 are expected to raise the bar for safety, durability, and efficiency in the railway industry while significantly contributing to the realization of sustainable rail vehicles. The introduction of debonding solutions, in particular, is poised to play a vital role in future rail vehicle recycling and resource efficiency improvements. Henkel aims to collaborate with rail vehicle manufacturers to deploy these technologies across global railway infrastructure, supporting the construction of safer and more environmentally friendly public transportation systems.

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Source: https://www.henkel.com/press-and-media/press-releases-and-kits/2026-09-04-innotrans-2026-henkel-showcases-solutions-for-the-entire-rail-vehicle-lifecycle-2238384