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AUGUST 2025

VOLUME # 43 | ISSUE # 1

MUMBAI | PAGES 80

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Connecting the Chemical Industry Together !

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No	**Exibitions**	**Date**	**Place**
1	CPhI North America	June 2-4, 2026	Pennsylvania Convention Center, Philadelphia
2	CPhI Frankfurt	Oct 28-30, 2025	Messe Frankfurt
3	CPhI Middle East & Africa	Dec 8-10, 2025	Riyadh, Saudi Arabia
4	CPhI China- Virtual CPhI	June 16-18, 2026	Shanghai New International Expo Center
5	CPhI Japan	Apr 21-23, 2026	Tokyo, Japan
6	CPhI Korea	Aug 26 - 28, 2025	COEX, Seoul, Korea
7	CPhI India	Nov 25-27, 2025	Noida, India
MECS (Coating Show)			
1	Asia Pacific Coatings Show	Sept 3-5, 2025	Indonesia
2	Saudi Arabia Coatings Show	2027	Dammam Saudi Arabia
3	Middle East Coatings Show	Apr 14-16, 2026	Dubai World Trade Centre
4	Coatings For Africa	June 24-26, 2026	Johannesburg, South Africa
DYE+CHEM			
1	Dye+Chem Morocco International Expo	Nov 5-7, 2025	Morocco
2	51st Dye+Chem Sri Lanka International Expo	March 5-7, 2026	Colombo Sri Lanka
3	Dye+Chem Bangladesh International Expo	Sept 10-13,2025	Bangladesh, Dhaka
4	50th Dye+Chem Brazil International Expo	Nov 2025	Brazil
Red Carpet Events			
1	Bangladesh Int'l Dyes, Pigments and Chemicals Expo	TBD	Dhaka, Bangladesh
Turkey (Arkim Group)			
1	InterDye Textile Printing Eurasia	Nov 25-27, 2026	Istanbul, Turkey
2	Paint Istanbul TURKCOAT	2026	Istanbul
3	Paint Expo Eurosia	Oct 01-03, 2025	Istanbul Expo Center / Istanbul Fuar Merkezi
Other Exhibitions			
1	Paint India	Feb 19-21, 2026	Bombay Exhibition Centre, Mumbai
2	Expo Paint and Coating	TBD 2026	Pragati Maidan, New Delhi, India
3	CIPI	TBD	Mumbai, India
4	Chemspec Europe	May 6-7, 2026	Koelnmesse, Germany
5	ChemUK Expo	May 20-21, 2026	NEC, Birmingham, UK
6	American Coatings Show	May 5-7, 2026	Indianapolis
7	China Coat China	Nov 25-27, 2025	China Import & Export Complex, Guangzhou
8	Interdye China	Apr 15-17, 2026	Shanghai, China
9	Paint Expo Germany	Apr 14-17, 2026	Messe Karlsruhe Germany
10	India Chem	TBD 2026	Mumbai Exibition Centre, India
11	Water Expo	Apr 24-26 2026	Pragati Maidan, New Delhi
12	Inacoating	July 28-30, 2026	JlExpo Kemayoran, Jakarta - Indonesia

Chemical Market

(A Monthly Magazine)

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Publisher:
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Published by
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401/C Himachal Bldg, Opp. Sunder Nagar, S.V.Road, Malad (West), Mumbai 400064.
Mobile: 91-87798-30330

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Phone: 98196-44048 / 91-877-9830330

EDITORIAL

CHEMICAL MARKET

A MONTHLY MAGAZINE DEVOTED TO THE DYES, CHEMICALS, PHARMACEUTICALS, TRADE & INDUSTRY SINCE 1982

Do as we say, not as we do! The West's Russian Chemical Imports

Despite years of tough sanctions and diplomatic broadsides against Moscow for its ongoing conflict in Ukraine, the United States and the European Union continue to quietly import billions of dollars' worth of chemicals and other goods from Russia—even as they pressure countries like India, China, and Brazil to halt their own trade ties with Moscow.

The Scale of US Imports: Chemicals, Fertilizers, Uranium

While the US dramatically slashed Russian oil, coal, and seafood imports since 2022, key Russian exports deemed "critical" to American industry keep flowing across the border. These include:

- Fertilizers: US imports of Russian fertilizers (such as urea and potassium chloride) hit $806million between January and May 2025, up 21% year-on-year. For all of 2024, fertiliser imports reached $1.1billion, making up the single largest category of Russian goods imported into the US.
- Inorganic Chemicals: The US brought in roughly $695.7million of inorganic chemicals—including radioactive compounds, gases, and specialty chemicals essential for nuclear and high-tech industries—in 2024.
- Uranium Hexafluoride: Critical for nuclear power, Russian uranium imports to the US surged 28% year-on-year in early 2025, reaching $624million for 2024. Notably, American companies continue buying Russian uranium under "national interest" waivers until at least 2028.
- Palladium: Widely used in vehicle catalytic converters and electronics, US palladium imports from Russia totalled roughly $878million in 2024—a category shielded from full sanctions due to limited global alternatives.

Even though the public focus remains on oil and gas, chemicals and fertilizers now comprise the overwhelming bulk (90%) of US imports from Russia—a pattern that persists despite intense rhetoric against Russian trade.

Europe's Chemical Connections: Fertilizers, Metals, Critical Inputs

The European Union's imports from Russia reflect a similar pattern of pragmatic double standards:

- Fertilizers: Russia remains the EU's largest supplier of fertiliser, accounting for 25-28% of the bloc's total fertiliser imports—a share that actually increased in recent quarters despite harsh sanctions and prohibitive tariffs approved by the European Parliament in May 2025.
- Chemicals: EU trade data shows that chemical imports from Russia reached $17.6billion in 2024, with specialty and industrial chemicals used across agriculture, manufacturing, and the food sector. For comparison, this is nearly six times India's $3.1billion in Russian chemical imports.
- Nickel, Iron, and Steel: While drops have occurred in Russian nickel, iron, and steel imports due to certain restrictions, trade in these essential metals continues, valued at $6.7billion for 2024.
- Liquefied Natural Gas (LNG): The EU's LNG imports from Russia rose to account for 22% of the bloc's total LNG purchases by late 2024, up from 11% in 2022—even as pipeline gas imports declined sharply.
- Other Chemicals: The EU also imports significant quantities of organic chemicals, plastics, and pharmaceutical precursors from Russia, supporting critical sectors despite ongoing sanctions.

These facts reveal an unmistakable double standard in trade policy:

- Washington and Brussels maintain harsh rhetoric and push secondary sanctions on third countries, particularly India and Brazil, for their energy trade with Russia.
- US President Donald Trump, when confronted about Russian chemical imports, claimed ignorance, while a senior official later admitted that the imports continue for "commodities we don't currently have good alternatives for" but insisted they remain "modest compared to India's".

The Global Reaction: Calls for Fairness

India, Brazil, and China have all pushed back against the "unjustified and unreasonable" targeting, arguing their trade is comparable or much lower than the ongoing imports into Western countries. India's Ministry of External Affairs pointedly noted that Western countries continue to trade more intensively with Russia in many categories, particularly chemicals, fertilizers, and strategic metals.

US and European policies reveal an uneven and often hypocritical approach to sanctioning Russian trade, especially in chemicals and industrial inputs critical to agriculture, manufacturing, and energy. While loudly demanding other nations sever financial ties with Moscow, both America and Europe quietly maintain their own streams of Russian products—prioritising economic needs over political ideals. As global criticism mounts, the gap between rhetoric and reality becomes harder to justify, exposing the fragile foundations of current "values-based" trade diplomacy.

- Rajiv Parikh

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Ammonium Nitrate	50Kgs	30.00
Ammonium Phosphate (Mono)	50Kgs	135.00
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Camphor	25Kgs	415.00
Cellosolve –Ethyl	195Kgs	139.00
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Cresote Oil	50Kgs	88.00
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Methylene Dichloride (Refill)	250Kgs	40.00
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Monochloro Phenol	50Kgs	120.00
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Isopropyl Alcohol	160Kgs	124.00
Isopropyl Alcohol (Refill)	160Kgs	103.00
Poly Aluminium Chloride	25kgs	

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Product	Quantity	Grade
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Triphenyl Phosphine Details : We are having spent Triphenyl Phosphine 99% available in stock. Buyers can contact us. Hyderabad, India	**80 Tonnes**	**Any** **CLICK HERE TO VIEW**
Hydrobromic Acid 48% Details : We currently have a large stock of Hydrobromic Acid (HBr) 48% (Water White in colour) available. If you or your organization are in need of this product, we're offering it at highly competitive prices lower than current market rates. High-quality product. Bulk quantities ready for dispatch. Best pricing guaranteed. Hyderabad, India	**400 Tonnes**	**Any** **CLICK HERE TO VIEW**
(4-Methylphenyl) acetonitrile Details : Call Mumbai, Maharashtra, India	**200 Kgs**	**Anatase** **CLICK HERE TO VIEW**
TriIsoPropanolAmine Details : Please connect with me and reply to my inquiry asap Mumbai, Maharashtra, India	**200 Kgs**	**Any** **CLICK HERE TO VIEW**

BUY INQUIRIES

Product	Quantity	Grade
Mix Xylene isomer Details : We require 25 tons of Mix Xylene Isomer grade by 14.07.2025 CLICK HERE TO VIEW Mumbai, Maharashtra, India	**25 Tonnes**	**Technical**
Toluene Details : Need it to export to China on a repeat basis. CLICK HERE TO VIEW Mumbai, Maharashtra, India	**10 Kgs**	**VirginPure**
Styrene Details : We require 20 tons of Styrene at Chiplun by 4.7.2025. CLICK HERE TO VIEW Mumbai, Maharashtra, India	**20000 Kgs**	**Any**
Monoethanolamine Details : we require MonoethanolAmine 12 tons at Chiplun. It is requres in barrels as soon as possible. CLICK HERE TO VIEW Chennai, Tamil Nadu, India	**12000 Kgs**	**Industrial**
N-Ethyl-O-P-Toluene Sulfonamide Details : Used in manufacturing ink for batch coding machines. Quantity: 50 Kgs Urgent Requirement. CLICK HERE TO VIEW Chennai, Tamil Nadu, India	**50 Kgs**	**Any**

BUY INQUIRIES

Product	Quantity	Grade
Hydroxypropylcellulose (HPC) Details : HPC 25KG Ashland make only Bhiwandi CLICK HERE TO VIEW Bhiwandi, Maharashtra, India	**25 Kgs**	**Any**
Sodium Periodate Details : Urgent Requirement. CLICK HERE TO VIEW Telangana, India	**100 Kgs**	**Chemical**
n-Butyllithium solution 2.5 M in THF Details : Quantity: Minimum possible package ×1 Grade/ Document Required: COA (Certificate of Analysis) requested CLICK HERE TO VIEW Poland	**1 Pkt**	**Any**
Zinc Sulphate Details : Di ethylene Glycol CLICK HERE TO VIEW Bhiwandi, Maharashtra, India	**3000 Kgs**	**Industrial**
METHYL TRICHLOROSILANE Details : We Request You To Send The Quotation, Specification And Delivery Period As Early As Possible CLICK HERE TO VIEW Mumbai, Maharashtra, India	**200 Litres**	**VirginPure**

Macsen Labs Achieves Breakthrough in Sodium-Ion Battery Chemistry, Files Provisional Patent, and Advances Toward Pilot-Scale Manufacturing

UDAIPUR, India, July 21, 2025 / PRNewswire/ -- Macsen Labs, a manufacturer of APIs, dyes, and specialty chemicals since 1952, has announced a major breakthrough in Sodium-Ion battery technology through the successful R&D-scale synthesis of its high-performance Prussian White, a next-generation cathode material for Sodium-Ion batteries. The company has filed a provisional patent for its proprietary synthesis process. The material has already undergone optimization for battery use at the company's electrochemistry and battery R&D facility and has shown promising results, driving the next phase toward pilot-scale manufacturing.

"It's an interesting story, how a pharmaceutical company like ours entered the energy storage space," said Mr. Achal Agrawal, CEO of Macsen Labs and the lead researcher behind the project. "While working on Prussian Blue as a drug for radioactive poisoning, we discovered its derivative — Prussian White, which was emerging as a leading candidate for Sodium-Ion battery cathodes. That moment of curiosity led us down this path."

Exactly one year ago, with zero experience in electrochemistry, Macsen's team fabricated a basic pouch cell inside a regular chemistry R&D lab, without specialized equipment. "We had no glovebox, no coater, no calendering machine, just our lab experience and synthesized material," recalled Agrawal. "When that small cell lit up an LED bulb, we knew we had something worth pursuing. That spark led us to establish a full-fledged electrochemistry lab."

Today, Macsen's battery R&D facility includes an argon-filled glovebox for inert atmosphere handling, coin and pouch cell fabrication stations, electrode coaters, crimpers, vacuum dryers, and electrochemical testing systems, such as cyclers and potentiostats. With this setup, Macsen can rapidly prototype and test battery cells using its own synthesized materials, significantly reducing development time.

The company already operates a pilot-scale chemical synthesis facility, which is now being used to produce Prussian White at a kilogram scale. Through numerous experiments conducted over the last year, the team has gained proficiency in Prussian White chemistry and has achieved what is likely to be one of the finest quality variants produced to date.

Through its proprietary process, Macsen has achieved an energy density exceeding 150 mAh/g with Prussian White, which is comparable to Lithium Iron Phosphate (LFP). The material also shows excellent stability, fast sodium-ion mobility due to its open crystalline structure, and compatibility with existing Li-ion cell manufacturing infrastructure.

"Performance-wise, it's at par with LFP, but made from abundant, low-cost materials like sodium and iron," said Agrawal. "And these elements are easily available, affordable, and free from geopolitical constraints."

This project, originally incubated within Macsen Labs, is now being advanced under a dedicated entity currently under formation — 'Macsen Energy', which will focus exclusively on energy storage innovation and scale-up.

"The real potential of sodium-ion batteries lies not just in electric vehicles," said Agrawal. "It lies in stationary energy storage systems that store and manage renewable energy from solar and wind. This is where India's energy transition will happen at scale."

Macsen's current Sodium-Ion battery technology, using its Prussian White as cathode paired with a hard carbon anode, is well suited for applications such as battery energy storage systems (BESS) for grid and solar, household backup and inverter systems, short-range EVs, auto-rickshaws, two-wheelers, city buses, rural microgrids, and energy access solutions.

The company is now focusing not only on improving cycle life, energy density, charge-discharge rates, and optimizing electrolyte-additive systems, but also on reducing the cost contribution of other components of the battery cell. Macsen aims to develop economical form factors by innovatively combining low-cost battery materials, components, and manufacturing processes, especially for large-scale stationary energy storage.

One inherent cost advantage of sodium-ion technology is its use of aluminium in place of copper as the cathode current collector, which would further reduce raw material costs.

To demonstrate the performance of Prussian White in commercial large-format cells, Macsen is setting up a pilot-scale cell fabrication line. The company is already sourcing equipment for this and aims to have the pilot-scale production facility operational by early 2026.

"We are trying to make a new energy future for India," concluded Agrawal. "Sodium-ion batteries are India's opportunity to build a truly indigenous, scalable, and affordable energy storage ecosystem."

Read the full report : http://www.focusgraphite.com

If you want your report abstract to be published please contact info@chemicalmarket.net

Algenesis Labs Announces Breakthrough in Sustainable Polyurethane Chemistry: The World's First 100% Biogenic carbon, Phosgene-Free, Isocyanate (Bio-Iso™)

SAN DIEGO, Aug. 4, 2025 /PRNewswire/ -- Algenesis Labs, a leader in sustainable materials science, today announced the commissioning of our Bio-Iso™ pilot plant, where we now make the world's first 100% biogenic carbon isocyanate that is made from plants—a disruptive innovation in polyurethane chemistry. Unlike traditional isocyanates derived from petroleum and manufactured using highly toxic phosgene, Bio- Iso™ is made from plant-based dicarboxylic acids and manufactured without the use of phosgene. This novel process is both modular and scalable, setting a new benchmark for performance, safety, and sustainability.

For decades, the global plastics industry has been dependent on fossil fuel-based isocyanates, locking manufacturers into a cycle of environmental harm and hazardous processes. Bio-Iso™ breaks that cycle—offering a solution that performs on par with petroleum-based isocyanates while fully eliminating fossil carbon and phosgene from the isocyanate supply chain.

"This isn't just a greener alternative. Bio-Iso™ represents a fundamental shift in how we think about polyurethane production," said Dr. Stephen Mayfield, CEO at Algenesis Labs. "Combined with our Soleic® polyol, Bio-Iso now enables a 100% biobased TPU—validated through ASTM D6866-24 analysis by Beta Analytic—that delivers truly circular, sustainable materials without compromising durability or performance."

Bio-Iso™ is the foundation for a new class of plant-based polyurethanes, enabling manufacturers to align their products with global sustainability goals and meet increasing regulatory and consumer demands for safer, eco-conscious materials.

Algenesis is actively scaling the Bio-Iso™ process at its San Diego facility, and is seeking strategic partners to support global industrial-scale commercialization. These partnerships may include financial, technical, engineering, or operational collaboration. In return, early partners will gain priority access to Bio-Iso materials, options for future volume, and shared leadership in transforming the urethanes industry.

A technical data pack is available, including detailed analytical results and performance data on Soleic® TPU materials made with Bio-Iso™.

Read the full report : www.algenesislabs.com.

If you want your report abstract to be published please contact info@chemicalmarket.net

2025 Global Chemical Supply China Summit Value Chain Transformation Future Supply Chain

Press Release

We are thrilled to announce 2025 Global Chemical Supply Chain (China) Summit is coming! Under the theme "Value Chain Transformation, Future Supply Chain", this premier event will convene 600+ senior executives from the chemical industry.

Date: 20th-21st, November 2025
Venue: Chateau Star River Pudong Hotel - Shanghai, China

Summit Presents:

- 600+ Participants
- 150+ Chemical Manufacturers
- 100+ Solution Providers
- 30+ Authoritative Speakers
- 10 Hours+ Networking
- 30+ Exhibition Booths

The continuous turbulences in the global chemical market are having a huge impact on the entire industry landscape, causing both short-term pains and driving profound transformation across the entire value chain. Upstream and downstream firms of the industrial chain must maintain high level collaboration, embrace sustainability, build resilience and agility, accelerate digital and intelligent transformation, promote cost reduction & efficiency improvement, innovate business models, reinvent operational strategies to achieve the reconstruction of supply chain networks and the transformation of value chains.

The traditional supply chain is being disrupted. Trade frictions, geopolitical conflicts, economic downturns, and sluggish demand have made the future full of challenges and uncertainties. Decision makers are reformulating supply chain strategies, continuously promoting transformation and upgrading, and striving to build a future-proofed sustainable supply chain.

The reinvention of chemical supply chain still faces many challenges: How to build a green supply chain across the entire life cycle? How to build resilient and agile supply chains to deal with future uncertainties? How to create end-to-end supply chain visibility? How to balance compliance, sustainability, resilience, cost and customer experience? How to improve logistics efficiency and achieve reliable delivery? How to formulate an effective and executable data strategy & management process? In addition, sustainability & ESG, intelligent decision, demand planning, AI application, hazardous chemicals regulations, trade compliance; smart warehousing & logistics, supply chain talents & working models… have also become the focus of attention.

GCSCS2025 will bring together about 600 executive participants from the Government & Associations, Academies, Leading Chemical Manufacturers, LSPs, Distributors, Consulting Agencies, Software, Equipment, Packaging and other solution providers.

Agenda Overview:

20th Nov: Value Chain Transformation; Future Supply Chain; Sustainability & ESG; Supply Chain Network; Resilience & Agility; E2E Visibility; Efficiency & Delivery

- Construction of Sustainable Value Chains in Chemical Industry and Innovation & Challenges on Supply Chains under New Business Forms
- Supply Chain Improvements & Reinvention Driven by Value Chain Transformation
- Release and Interpretation of the Global Chemical Supply Chain Sustainability (ESG) Report
- Industry Collaboration that Connects Upstream & Downstream: Building a Green Supply Chain Across the Entire Life Cycle
- Panel Discussion: Global Supply Chain Layout of Chemical Companies and How to Build a Future-proofed Supply Chain

Supply Chain Strategy and Network Restructuring under the Risk of Global Supply Chain Disruptions

Build Resilient and Agile Supply Chains to Adapt to Demand Fluctuations and Future Uncertainties

How to Enhance Supply Chain Resilience and Build Sustainable Risk-resistance Capacity?

Interconnection between Upstream & Downstream Achieved by End-to-end Visibility of Supply Chains

How to Improve Logistics Efficiency and Achieve Reliable Delivery in Chemical Industry?

Panel Discussion: How to Balance Compliance, Sustainability, Resilience, Cost and Customer Experience in the Process of Reshaping Your Supply Chains?

Continued on page 35

COVESTRO LAUNCHES ADVANCED FLAME-RETARDANT ENCAPSULATION FOAM FOR EV BATTERIES

- Aligned with China's new battery safety regulation in the world's largest EV market
- Polyurethane foam limits thermal propagation to enhance battery safety
- Supports global EV growth through advanced materials innovation

Covestro has unveiled its next-generation flame-retardant encapsulation polyurethane foam technology, addressing one of the most critical challenges in electric vehicle (EV) adoption worldwide: battery safety. This innovation strengthens Covestro's position as a trusted materials partner in the evolving EV value chain.

As the world's largest EV market, China is taking a decisive step with the introduction of the groundbreaking national standard GB 38031-2025: Electric Vehicles Traction Battery Safety Requirements. Effective from July 2026, this regulation demands that batteries must not catch fire or explode—even in the event of a thermal runaway. These stringent requirements are expected to shape global safety standards in the years ahead.

Breakthrough flame-retardant encapsulation foam technology

Covestro's newly launched Baysafe® BEF flame-retardant encapsulation foam series is designed to minimize thermal propagation between battery cells—tackling a key safety concern that has challenged consumer trust in EVs. The lightweight foam delivers superior flame-retardant performance by effectively inhibiting fire spread, significantly enhancing battery safety in applications ranging from EVs to portable energy storage systems.

"This innovation represents a significant step toward enabling sustainable mobility through enhanced safety," said Akhil Singhania, Global Head of PU Specialties in Covestro's Tailored Urethanes Business Entity. "By launching our advanced flame-retardant technology, Covestro reaffirms its commitment to innovation and strengthens our product portfolio to meet the evolving needs of the EV industry."

This development comes at a pivotal time as EV adoption accelerates globally and safety regulations become more demanding. As Chinese automotive companies expand internationally, Covestro's innovative materials solutions illustrate how technological advancements support successful cross-border market growth.

Comprehensive solutions for the new energy ecosystem

Beyond encapsulation foams, Covestro offers a wide range of polyurethane-based solutions for EV batteries, including battery covers and shock-absorbing materials. The new Baysafe® BEF technology further strengthens Covestro's position in the fast-growing new energy sector, supporting safer, more reliable electric mobility applications such as new energy vehicles and e-bikes, as well as portable battery generators.

With continued innovation in materials science, Covestro is supporting the development of next-generation electric transportation by providing a reliable technological foundation that meets evolving safety and performance requirements.

Source : Covestro

MACSEN LABS FILES PATENT FOR ITS PROPRIETARY SYNTHESIS PROCESS IN SODIUM-ION BATTERY TECHNOLOGY

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Source : Indian Chemical News

DESAY BATTERY UNVEILS PROACTIVE-SAFETY-FOCUSED ENERGY STORAGE TECH-NOLOGIES

CHANGSHA, China, July 23, 2025 / PRNewswire/ -- On July 23, Desay Battery, a leading global provider of comprehensive energy storage solutions, held its mass production launch event in Changsha, China. The event showcased a new generation of proactive safety battery cells and systems, UPS 2.0, and Data Center Energy Integration: Source-Grid-Load-Storage Solution marking a key milestone in Desay's mission for high-performance, safety-first technologies, bolstered by a series of strategic partnership signings aimed at accelerating regional energy structure transformation.

At the event's core was Desay Battery's renewed commitment to safety, which has long been the foundation of its innovation and growth. Company President Leon Cheng emphasized that safety is a top priority in product design and system architecture. Through advancements in digitalization, modularization, and intelligent manufacturing, Desay enhances battery performance while ensuring reliability and cost-efficiency. Cheng highlighted that the company's commitment to the global energy transition is grounded in delivering safe, high-quality solutions that are built to last.

Desay Battery's innovative safety battery cells and system highlight the company's commitment to safety. Utilizing advanced smart manufacturing and rigorous quality control, these cutting-edge cells offer exceptional resistance to high temperatures and overcharging. Proprietary pressure sensing

technology enables real-time health monitoring, while AI-driven predictive modeling provides rapid risk alerts and precise lifespan forecasts. Additionally, material-informed designs improve energy efficiency and durability, demonstrating Desay's dedication to proactive safety through both intrinsic and active protection mechanisms.

Also unveiled was UPS 2.0, which utilizes high-discharge 8C-rate battery cells and provides emergency backup of up to 300KVA for 10 minutes. The Source-Grid-Load-Storage Solution offers a competitive LCOE of RMB 0.25/kWh, enabling data centers to save up to 79% on peak electricity costs.

Yu Qingjiao, Secretary-General of Zhongguancun New-Battery Technology - Innovation - Alliance, commended Desay Battery's new products for addressing critical safety concerns and establishing benchmarks in lifecycle protection and integration. He described the release as an industry model that aligns with national priorities for technological safety and performance enhancement.

Recognizing that energy storage safety requires systemic collaboration, Desay Battery brought together industry experts at the event to explore the future of storage technologies, value-chain integration, and innovation-driven safety.

With its end-to-end solution capabilities and extensive design expertise, Desay Battery continues to serve global energy storage leaders with tailored lithium battery solutions. Its recent inclusion in BloombergNEF's 2025 Q2 Energy Storage Tier 1 further affirms its standing as a globally recognized energy storage innovator.

Source Huizhou Desay Battery Co.,Ltd.

SOLUTRANS 2025: EXCEPTIONAL MOBILISATION BY 15 MANUFACTURERS TO HIGHLIGHT THE LIGHT COMMERCIAL VEHICLE (LCV) SECTOR

At the tradeshow SOLUTRANS, the global hub for heavy and light industrial vehicles taking place from 18 to 22 November 2025, a special focus will be placed on light commercial vehicles (LCV). Manufacturers in this category are showing particularly keen interest in the event this year. Hailing from all corners of the world, some are first-time exhibitors, while others are increasing their exposure at the show, all of which offers proof of the market's vitality and the challenges ahead.

The light commercial vehicle market is continuing is expansion, fuelled by two key factors: decarbonisation and use optimisation. With approximately 400,000 registrations per year in France in recent times, the market dipped in 2022-2023 before recovering in 2024. Today, LCVs account for almost 20% of all new vehicle registrations in the country.

Solutrans 2025: A Powerful Showcase for Lcv Players

Visitors to SOLUTRANS will be able to discover the leading names in light commercial vehicles, among which (in alphabetical order): Flexis, Ford, Guangxi Automotive Group, Isuzu, Jac Motors, Kia, MAN, Maxus, Mobilize, Qinomic, Renault PRO, Stellantis, TOLV, Toyota and Volkswagen.

This mass mobilisation by the sector's leading brands cements SOLUTRANS' status as an unavoidable gathering for all the professionals expected at show over its five-day duration: tradesmen, SMEs, logistics and delivery companies, but also local authorities, fleet managers and key accounts.

To accompany this unprecedented participation by LCV manufacturers, the show is inaugurating an area designed to structure and promote the entire LCV ecosystem.

Lcv S Retail by Solutrans": A Unifying and Forward-looking Area

With a market growing nonstop and more than 850,000 transactions registered in a year, the reconditioned light commercial vehicle category is becoming a strategic link in professional transport. It addresses many issues applicable to the whole sector: vehicle valuation, fleet optimisation and specialist distribution, to name but a few.

With this in mind, SOLUTRANS presents "LCV s Retail by SOLUTRANS", an unprecedented feature area in the middle of Hall 6 dedicated to the reconditioned light commercial vehicle value chain, created in association with Les Fédérateurs.

This new concept reflects a powerful intention: to offer a visibility platform on a par with the central role played by LCVs in professional mobility, urban logistics and the energy transition, a rapidly changing ecosystem.

This space aims to be both an innovation showcase and a catalyst for meetings and exchange. It will offer trade visitors a chance to get a better overview of the LCV range, identify the innovations proposed by manufacturers, parts suppliers, fitters and startups, and contribute to collective thought on the mobility of tomorrow.

Spanning 500 square metres, the "LCV C Retail by SOLUTRANS" village will host around 15 exhibitors representing

all the players in the LCV remarketing world: sourcing, logistics, reconditioning, digital solutions, distri- bution. It will offer a venue for meetings and conviviality where companies will share their products and services through presentations, demon- strations and meetings.

At the centre of the "LCV C Retail by SOLUTRANS" Village, a TV studio will offer a series of interviews, talks and debates on the sector's key issues, coming on top of the exhibition's live content pro-gramme and covering topics such as distribution channels, digitisation of the customer journey, fleet management and market innovations. The agenda is designed to be lively and intelligible, with a view to cultivating thought and offering a platform to the professionals who are making all the moves in today's LCV remarketing sector.

From Energy Transition and Connectivity to New Uses, the Changing Face of Lcvs

The energy transition underway is generating increasing pressure on both LCV manufacturers and LCV users. In an environment marked by continued zones of uncertainty, the growing momentum of electric powertrains is leading to substantial demand for information on the subject.

While the offering is still expanding, it is being held back by several factors: ever-increasing purchasing costs, ranges that are still relatively limited, and insufficient geographical coverage of LCV-specific charging infrastructure. These issues combine with the outlook for hydrogen – which is addressed in the SOLUTRANS 2025 Hydrogen Village – and the prospects for the booming practice of retrofitting. Moreover, the incorporation of connected services (geolocation, fleet management, predictive maintenance) is becoming a key lever to optimise uses: delivery rounds, consumption, driving style, etc.

Finally, the growing influence of online retail is also leading to higher demand for LCVs that can be used for deliveries in urban settings. This translates into more compact, quieter and zero emission vehicles, of which a wide range will be on show at SOLUTRANS.

Source : Automotive Technology

REIMAGINING EV OWNERSHIP: TATA MOTORS INTRODUCES LIFETIME HV BATTERY WARRANTY FOR CURVV.EV AND NEXON.EV 45 KWH

As part of its consistent efforts to remove barriers to electric vehicle adoption in India, Tata Motors – the leader of India's electric vehicle revolution and the nation's leading SUV manufacturer – today announced the introduction of Lifetime HV Battery Warranty for the Curvv.ev SUV Coupe and the Nexon.ev 45 kWh.

The Lifetime HV Battery Warranty, first introduced with the recently launched Harrier.ev, received widespread appreciation from consumers nationwide. Encouraged by this positive response, the company has now extended this offering to existing and new first-time customers of two of its most popular SUVs.

Talking about the benefit of Lifetime HV Battery Warranty to the customer, Mr. Vivek Srivatsa, Chief Commercial Officer, Tata Passenger Electric Mobility Ltd., said, "By democratising premium EV technology, we have played a significant role in advancing India's EV category's exponential growth. One of the key factors behind this growth is the ability to instil confidence amongst customers for a worry-free ownership experience. Today, we are proud to extend this feeling even further with the introduction of the Lifetime HV Battery Warranty solution for all customers of the Curvv.ev and Nexon.ev 45 kWh. By offering this unprecedented assurance, we are enabling a truly carefree, future-ready ownership journey for every TATA.ev buyer."

By removing one of the biggest barriers to EV adoption — uncertainty around long-term battery health and replacement costs — TATA.ev is ensuring a greater ownership experience to its customers with this solution. This warranty, which is among the most comprehensive assurances when it comes to purchasing an EV, is being extended to all private individual customers of the Curvv.ev and Nexon.ev 45 kWh. This includes both new first-time buyers and current owners who are registered as the first owners of either of these two SUVs.

This new warranty not only supports the progressive development of long-term resale value for EVs but also complements the significant savings in running costs (estimated at ₹8–9 lakh over 10 years), creating a compelling ownership proposition.

Additionally, as a part of an exclusive loyalty program for existing TATA.ev owners, the company is providing a direct benefit of ₹50,000 on the purchase of the Curvv.ev and the Nexon.ev 45 kWh.

Through this initiative, Tata Motors continues to lead with purpose — making electric mobility more accessible, reliable, and future-focused for Indian consumers.

Source : Tata Motors

SPRITAM® (LEVETIRACETAM) TABLETS FOR ORAL SUSPENSION APPROVED BY FDA FOR NASOGASTRIC AND GASTROSTOMY TUBE ADMINISTRATION

MASON, Ohio, July 22, 2025 /PRNewswire/ -- Aprecia, the global leader in 3DP (three-dimensional print) technology for commercial-scale pharmaceutical manufacturing, today announced that the U.S. Food and Drug Administration (FDA) has approved administration via nasogastric tube (NG-tube) and gastrostomy tube (G-tube) for SPRITAM.

SPRITAM is the world's first, FDA-approved three-dimensionally printed medication manufactured at commercial scale. The approved formulation allows for disintegration in seconds with a small volume of liquid. This approval for administering the drug product via nasogastric tubes (NG-tube) and gastrostomy tubes (G-tube) is based on Aprecia data which confirmed that SPRITAM can be effectively delivered through NG and G-tube sizes appropriate for all indicated age groups.

"Aprecia's advanced manufacturing technology enables disintegration in minimal fluid volumes, supporting multiple oral administration routes and enhancing patient accessibility through a single, adaptable formulation," said Kyle Smith, President and Chief Operating Officer at Aprecia.

This additional route of administration provides an important option for patients who are unable to take medications by mouth. SPRITAM is the only levetiracetam formulation with FDA approval for NG and G-tube administration.

"Levetiracetam is a first-line therapy for partial onset seizures in patients 4 years and up and its accessibility for patients with swallowing challenges is critical. Aprecia is committed to improving access and flexibility for patients with complex medical needs," said Smith.

"Our data demonstrated that, when dispersed in a dosing cup and administered via nasogastric or gastrostomy tube, the formulation maintains consistent delivery characteristics appropriate for enteral administration," said Kathi Rinesmith, R.Ph, MS, Senior Vice President Scientific Affairs at Aprecia. "We are pleased that patients and care teams who rely on enteral feeding now have precise instructions to administer SPRITAM without compromising efficacy or safety," said Rinesmith.

SPRITAM (levetiracetam) is a first-line and adjunctive prescription medicine for certain types of seizures (see complete indication and important safety information below) that is approved for administration in three ways – dissolving on the tongue with a small sip of liquid, dispersed in a cup with a small volume of liquid and consumed by mouth as a suspension, or dispersed in a cup with water and administered via a nasogastric or gastrostomy tube.

Source :Aprecia Pharmaceuticals

CLINICAL BREAKTHROUGH IN DIABETIC FOOT ULCER CARE: BOTANICAL-BASED GEL SHOWS STRONG POTENTIAL IN HEALING AND PAIN REDUCTION

MIAMI, July 22, 2025 /PRNewswire/ -- A newly published, multicenter clinical trial in the Journal of Wound Care presents promising evidence supporting the use of a botanical-based hydrogel for the management of diabetic foot ulcers (DFUs)—a serious complication associated with limb amputation, prolonged hospitalization, and diminished quality of life for millions of people with diabetes.

The study, "Healing wounds with a

multimodal botanical hydrogel: a clinical outcomes comparison study," evaluated the performance of LAVIOR Diabetic Wound Gel, a botanical-based topical formulation, compared to a widely used standard hydrogel. Conducted across five U.S. outpatient wound care centers, this randomized, double-blind, controlled trial enrolled 65 patients with chronic, hard-to-heal DFUs.

Understanding the Clinical Need

DFUs affect up to 25% of people with diabetes during their lifetime and are a leading cause of non-traumatic lower-limb amputations. Healing is often complicated by poor blood flow, chronic inflammation, and increased risk of infection, making effective, patient-friendly treatments an urgent clinical priority.

Key Study Insights

The study confirmed that the botanical-based hydrogel performed at least as well as a standard hydrogel in overall healing outcomes. Notably, the botanical gel group showed greater wound surface area reduction and significantly better pain relief, both critical factors in improving patient adherence and enhancing healing potential.

While wound closure rates and quality of life improvements were comparable between groups, the botanical gel's performance in pain management suggests a meaningful advantage in clinical practice. These findings support the role of botanical-based therapies as a valuable addition to diabetic wound care.

Key Findings at a Glance

Non-inferiority confirmed: Comparable healing outcomes to standard hydrogel

Greater wound surface area reduction: Significant improvement at Week 3 ($p = 0.036$)

Superior pain reduction: Marked improvement in Weeks 1–4 ($p < 0.001$)

Improved patient-reported quality of life: Significant gains by Week 5 ($p = 0.001$)

Conclusion

This randomized, controlled study highlights the potential of botanical-based wound care in diabetic foot ulcer management. While both hydrogels delivered positive outcomes, LAVIOR Diabetic Wound Gel demonstrated superior pain reduction and a trend toward faster wound healing. These results support further research and clinical consideration of botanical-based options for DFU care.

Source : Lavior

BON LAUNCHES AI-POWERED NEW DRUG RESEARCH AND DEVELOPMENT

XI'AN, China, July 30, 2025 /PRNewswire/ -- Bon Natural Life Limited (Nasdaq: BON) ("BON" or "the Company"), a leading provider of bio-ingredient solutions for the natural health and personal care industries, today announced the official launch of its AI-driven drug research and development (R&D) business. Leveraging its extensive library of natural compounds - many derived from Traditional Chinese Medicine (TCM) - the Company will apply artificial intelligence algorithms to identify high potential lead compounds, marking a significant evolution in its pharmaceutical strategy.

A lead compound is a molecule with specific biological activity and a chemical structure that serves as a foundation for further development in drug discovery. Identifying such compounds through activity screening is a fundamental step in early-stage pharmaceutical R&D.

With nearly two decades of experience in the research and development of natural products, BON has curated a robust library of biologically active compounds — many with proven therapeutic value and high druggability. While previous R&D efforts were limited by traditional screening technologies, the integration of advanced AI-driven models is expected to significantly enhance the efficiency, speed, and success rate of BON's drug discovery process.

Yongwei Hu, BON's CEO, stated, "Backed by the high druggability of our TCM-derived compound libraries and the efficiency of AI-powered screening technology, we are optimistic about Bon's potential to achieve meaningful breakthroughs in drug discovery. This initiative represents a strategic leap forward for our company and reinforces our long-term commitment to innovation in pharmaceutical research."

The Company's new AI-driven platform is designed to quickly analyze and identify promising lead compounds for further optimization, supporting BON's broader goals of accelerating the development of innovative therapies rooted in natural product chemistry.

Source : Bon Natural Life Limited

BPCL LAUNCHES GEOCELL TECHNOLOGY TO TACKLE PLASTIC WASTE IN ROAD CONSTRUCTION

Bharat Petroleum Corporation Limited (BPCL), a Fortune Global 500 company, has developed a new solution for managing plastic waste. Through its Corporate Research & Development Centre and in collaboration with the Central Road Research Institute (CRRI), New Delhi, BPCL has introduced Geocell, a technical textile product that uses end-of-life and mixed plastic waste in road construction.

This initiative builds on BPCL's earlier Waste Plastic Module, which has already used over 250 metric tonnes of plastic waste in various states across India.

The inauguration was attended by Dr. Kalaiselvi, Director General of CSIR, Chandrasekhar N., Head of R&D at BPCL, and Dr. Manoranjan Parida, Director of CRRI, along with BPCL scientists Dr. Ravikumar, Dr. Chiranjeevi Thota, and Dr. Mahesh Kasture.

"This trial section using end-of-life plastic is a joint effort by BPCL and CRRI. If successful, it could lead to wider use of plastic waste in road construction,"

Chandrasekhar N. said

The trial covers about 1,280 square meters and uses 20–25 tonnes of plastic waste, in the form of both Modules and Geocells. The use of multi-layered plastic waste, which is not currently included in Indian Roads Congress (IRC) specifications, may increase the use of plastic in future infrastructure projects.

Geocell addresses challenges related to unsegregated municipal waste, especially multi-layered plastics (MLP). Plant trials, conducted with TATA Projects, showed that the technology is both technically and economically viable for use in roads and infrastructure.

India's first field trial using technical textiles made from waste plastic was inaugurated on July 11, 2025, at Loop No. 1 of the elevated section of the DND–Faridabad–KMP Expressway, New Delhi. The project is a joint effort by BPCL, CRRI, and the National Highways Authority of India (NHAI).

11, 2025, at Loop No. 1 of the elevated section of the DND–Faridabad–KMP Expressway, New Delhi. The project is a joint effort by BPCL, CRRI, and the National Highways Authority of India (NHAI).

With this field trial, BPCL continues to lead in sustainable innovation and plastic waste management, offering scalable solutions for future infrastructure development

Source : Indian Chemical News

WORLD'S LARGEST GENO™ BIO-BDO PLANT COMMENCES OPERATIONS IN IOWA

SAN DIEGO, July 11, 2025 / PRNewswire/ -- Geno announces the commencement of operations at the world's largest GENO™ Bio-BDO (1,4-butanediol) manufacturing plant. The new manufacturing plant, located in Eddyville, Iowa, uses Geno's proprietary biocatalyst and process technology to produce 1,4-butanediol (BDO) from U.S. grown, plant-based sugars, in a single-step fermentation process. The Geno-licensed facility is operated by Qore, a joint venture between Cargill and HELM that was created to help leading brands replace their fossil-based chemistries with more sustainable, plant-based alternatives.

Geno invented, scaled up, and engineered the GENO™ Bio-BDO process, which it licenses to global manufacturers. The technology was originally commercialized with the start-up of the first licensed plant in 2016. Geno's Bio-BDO process enables the use of traceable, responsibly sourced, and renewable plant-based feedstocks, replacing fossil fuel-based inputs. The process is expected to reduce greenhouse gas emissions associated with the production of BDO by up to 90 percent when compared to traditional fossil-based BDO

production. Qore publicly announced the official start of production at their new plant this week.

"Geno's proven biomanufacturing technology is being commercially deployed globally at industrial scale, to produce high-volume chemicals that are used in everyday products like textiles, packaging, home care and personal care products. These technologies are not only cost-competitive, but they also significantly reduce the carbon footprint of manufacturing by using renewable feedstocks and the power of state-of-the-art metabolic engineering and process design," said John Gugel, CEO of Geno. "I am incredibly proud of the Geno team as this vision has been realized for all of us and our partners in this project."

Geno licensed its GENO™ Bio-BDO biomanufacturing process technology to Qore®, which produces BDO under the brand name QIRA®. Qore invested $300 million to build and operate the new facility in Iowa. The widely used molecule, BDO, can be found in a wide range of performance textiles, engineered plastics, biodegradable packaging, and other industrial compounds. In 2024, the size of the global BDO market was estimated to exceed three million tons, with demand expected to surpass four million tons by 2030.

To date, Geno has 150,000 tons per year of licensed GENO™ Bio-BDO technology in operation or under construction. The Eddyville, Iowa facility is the second commercially operating licensed GENO™ Bio-BDO facility in the world and the first located in the United States. The first facility is operating in Italy, and as previously announced, a third is currently under construction in Vietnam. For more information, visit the Geno website at www.genomatica.com

Source : Geno

ASAHI KASEI TO SUPPLY 1MW-CLASS ALKALINE-WATER ELECTROLYZER TO HYDROGEN PROJECT IN FINLAND

Asahi Kasei will supply its Aqualyzer-C3, a 1 MW-class containerized alkaline water electrolyzer, to the Central Finland Mobility Foundation (Cefmof). This system will help produce hydrogen and support the region's efforts to reduce carbon emissions. Full operation is expected in the first half of 2026.

Asahi Kasei has been in the chlor-alkali electrolysis business since 1975 and expanded into hydrogen production technology. In 2020, they installed a large 10 MW Aqualyzer system in Fukushima, Japan. Building on this success, the smaller Aqualyzer-C3 was launched in 2024, offering 1 to 7.5 MW capacity to meet growing hydrogen market needs.

Cefmof promotes sustainable mobility using green hydrogen. Founded by the City of Jyväskylä, TOYOTA GAZOO Racing World Rally Team, and Toyota Mobility Foundation, Cefmof supports projects like hydrogen-powered vehicles and infrastructure. They plan to use fuel cell cars and hydrogen buses as models for hydrogen use in cold climates and transportation.

Cefmof selected Asahi Kasei's container-type Aqualyzer-C3 with a 1 MW capacity for reliable and efficient hydrogen supply. Installation in Jyväskylä is set to begin late 2025, with full operation planned for the first half of 2026.

The system can produce enough hydrogen in one hour to refill about three fuel cell vehicles (FCVs). Thanks to its modular container design, production capacity can be easily expanded by adding more units, providing flexibility to meet future increases in hydrogen demand.

"With this project, our hydrogen business has fully entered the commercialization stage," said Kenji Takeda, Executive

Officer at Asahi Kasei in charge of Green Solution Project development.

"This project is a key step in building a green hydrogen ecosystem in Central Finland and shows Cefmof's strong commitment to a carbon-neutral future," said Haruka Arai, Executive Director of Cefmof. "It helps make hydrogen refueling infrastructure in Jyväskylä a practical reality."

Source : Indian Chemical News

NEW PRODUCTS

SIBUR PRESENTS NEW SUPERPLASTIC AT INNOPROM

SIBUR scientists showcased a cutting-edge super-structural plastic polyphthalamide (PPA), developed using their proprietary technology at the international industrial exhibition Innoprom in Yekaterinburg. This innovative material was featured as part of an exhibition highlighting breakthrough materials created in the company's research centers.

Polyphthalamide is a high-performance super-structural plastic renowned for its exceptional strength, stability, and resistance to harsh environments. Films produced from this material exhibit outstanding barrier properties, including excellent resistance to moisture, fats, and temperature fluctuations. These qualities make it highly suitable for manufacturing packaging films used in the food and pharmaceutical industries.

Polyphthalamide exhibits excellent thermal stability and chemical resistance to oils, fuels, antifreezes, and salt solutions. It maintains its performance even when exposed to coolants and fuels, making it ideal for use in complex thermo-mechanical systems. These properties enable PPA to be used in the production of automotive engine compartment components—such as thermostat housings, fuel lines, and cooling system elements—as well as electrical parts like coils, connectors, and insulating components. Additionally, it finds applications in pumps, compressors, industrial fittings, and other systems where high strength and chemical resistance are essential.

The SIBUR exhibit also showcases a range of other super-structural plastics at various stages of development, including polyether ketone ketone (PEKK), polyaryl sulfones (PSU, PPSU, PESU), and polyphenylene sulfide (PPS).

Super-engineering plastics like polyaryl sulfones and polyether ketones, known for maintaining their properties under high temperatures and in aggressive environments, occupy the top tier of the polymer pyramid. At the base of this hierarchy are basic polymers such as polyethylene and polypropylene—widely used and most common. The middle tier is comprised of engineering plastics like polyamide and polycarbonate, which offer a balance of performance and versatility for a broad range of applications.

Products made from super-structural plastics are 40–50% lighter than aluminum and titanium, while offering exceptional durability, high-temperature resistance, and mechanical strength.

Currently, there are no large-scale production facilities for super-structural plastics in Russia. However, SIBUR's scientific advancements are paving the way for scaling up domestic technologies. At present, these technologies are in the development stage, with pilot batches of polyether ketone ketone (PEKK) being produced and tested at pilot-scale facilities.

The development of innovative synthetic materials, along with the creation of proprietary catalysts and specialized components to fine-tune polymer properties, is a key part of SIBUR's scientific and technical development strategy. These two strategic focus areas support the company's active role in advancing the national project "New Materials and Chemistry" and lay the foundation for achieving technological leadership across critical sectors—from food and consumer goods production to construction, healthcare, and the automotive industry.

Source : Indian Chemical News

ARCHROMA UNVEILS BREAKTHROUGH

WASHING-OFF AUXILIARY FOR OUTSTANDING COLOR FASTNESS AND RESOURCE EFFICIENCY IN REACTIVE DYEING

Pratteln, Switzerland, July 14, 2025 – Archroma, a global leader in specialty chemicals, today launched CYCLANON® XC-W e, an innovative washing-off auxiliary that improves productivity and reduces resource consumption in cellulosic dyeing while delivering outstanding color fastness, even in difficult high-electrolyte or hard water conditions.

"With CYCLANON® XC-W e, we are building on our proven trio-polymer platform to give mills a way to meet rising brand expectations for durable, high-quality casual wear with a lower environmental footprint – all at a cost profile comparable to conventional washing-off agents," said Dhirendra Gautam, VP Global Marketing and Strategy, Archroma.

Conventional polyacrylate or copolymer washing-off agents often struggle to fully remove unfixed dye from fabric, especially when a high concentration of salt remains on it from the dye bath or under hard water conditions. This can lead to excessive rinsing and multiple washing baths. Ineffective washing-off may result in quality rejections due to backstaining or uneven shade development.

Archroma's trio-polymer CYCLANON® XC-W e was designed to overcome these challenges, delivering high performance, improved productivity and water and energy savings, with minimal added cost compared to conventional polymer-based products.

Exceptional wet-fastness with measurable water, energy and time savings

CYCLANON® XC-W e delivers outstanding wet-fastness by minimizing the substantivity (or 'attraction') of unfixed dye for the fiber. This allows more effective dye removal, reducing backstaining and improving color fastness, even with the deepest shades.

With easier unfixed dye removal, mills can reduce pre-rinsing and the number of washing baths to achieve shorter washing-off cycles and save time, water, energy and chemical inputs compared to conventional polyacrylate or copolymer washing-off agents:

Up to 15% shorter process time

Up to 20% less water used in the washing-off stage

Up to 20% lower CO2 emissions through reduced energy consumption

Up to 20% reduction in chemical use

Significant productivity gains for competitive advantage

These efficiency gains also translate into higher productivity. By shortening

washing-off cycles and reducing rework, CYCLANON® XC-W e helps mills process more fabric with existing equipment.

Up to 15% increase in throughput with the same machine set up

For example, a knit production plant producing 10 metric tons (MT) of dyed fabric per day could increase daily output by 1 MT, without expanding capacity, by using CYCLANON® XC-W e to eliminate two washing baths and reduce quality rejections.

Part of the SUPER SYSTEMS+ portfolio

CYCLANON® XC-W e is part of Archroma's SUPER SYSTEMS+ portfolio and can be combined with the Blue Magic all-in-one pretreatment and NOVACRON® EC/S reactive dyes to create an end-to-end solution for high-quality dyeing of 100% cotton fabrics.

The system is categorized as an IMPACT+ solution within Archroma's SUPER SYSTEMS+ Impact Matrix. This means it delivers the highest level of resource savings, high wash durability and beyond-compliance chemicals – as compared to standard FOUNDATION processes with ZDHC Gateway MRSL Level 3 compliance.

CYCLANON® XC-W e complies with the latest regulatory and brand requirements, including stringent MRSL and RSL standards. Registration for bluesign®, ZDHC Level 3, and GOTS 7.0 are underway.

Source : Press Release

COVESTRO INDIA AND CSIR-NCL TIE-UP TO TRANSFORM POLYURETHANE WASTE

- Covestro India signs MOU with CSIR-NCL to develop sustainable polyurethane upcycling solutions
- Combines NCL's scientific expertise with Covestro's industry leadership to address polyurethane circularity challenges
- Project explores innovative approaches to transform polyurethane waste into valuable feedstock chemicals
- Initiative addresses critical limitations of current polyurethane recycling technologies
- The joint effort explores end-of-life solutions to polyurethanes waste

Covestro (India) Private Limited has signed a Memorandum of Understanding (MOU) with the CSIR-National Chemical Laboratory (NCL) launching an innovative Corporate Social Responsibility project aimed at developing sustainable upcycling solutions for polyurethane materials, addressing the critical limitations in current recycling technologies.

The collaborative project will explore innovative approaches to transform polyurethane waste into valuable chemical building blocks. This research aims to develop commercially viable technologies that could greatly improve the circularity of polyurethane materials while reducing environmental impact.

Currently, polyurethane recycling is limited primarily to mechanical methods and a few emerging chemical processes. These existing approaches face significant limitations including degradation of material properties, high energy requirements, potential generation of harmful byproducts, and limited applicability across different polyurethane types. The development of efficient chemical recycling technologies for polyurethanes represents a critical industry need that this project aims to address.

Commenting on the launch of the project, Avinash Bagdi, Director & Head of Sales & MD Solutions India & Projects - Tailored Urethanes said "This partnership strengthens our commitment to finding innovative solutions for polyurethane waste and directly supports Covestro's vision of becoming fully circular. By developing effective methods to upcycle polyurethanes, we're taking concrete steps toward creating a more sustainable future in line with our corporate vision of driving the transition to a circular economy."

The project addresses the critical global challenge of polyurethane waste management. Unlike conventional plastics, polyurethanes present unique recycling challenges due to their complex chemical structure and cross-linked nature. Currently, the polyurethane economy largely follows a linear model where these specialized materials, widely used in furniture, automotive components, insulation, and countless other applications, are often discarded after use, eventually accumulating in landfills.

Further commenting on the need for such solutions, Dr. Ashish Lele, Director of NCL, said - "CSIR-National Chemical Laboratory is excited to partner with Covestro (India) in this groundbreaking initiative to develop novel chemical upcycling methods for polyurethane waste. The conventional and electrochemical strategies we're developing address the critical limitations of current recycling technologies and align perfectly with our shared vision of a circular economy. This collaboration represents a significant step toward sustainable plastic management in India and globally, with potential to transform polyurethane waste into valuable chemical resources."

NCL's world-class expertise in chemical sciences and sustainable technology development makes them an ideal partner for this project. As one of India's premier research institutions with over seven decades of scientific excellence, NCL brings unparalleled capabilities in developing novel chemical processes. Covestro (India's) strategic partnership with NCL leverages the laboratory's cutting-edge infrastructure, distinguished research team, and proven track record in developing environmentally sustainable technologies. Building upon the recent agreement between the organizations, this MOU reinforces both Covestro's and NCL's shared commitment to addressing environmental challenges through scientific innovation. This collaboration further combines Covestro's industry leadership with NCL's

scientific expertise, creating a strategic partnership to resolve the challenges of plastic circularity.

Source : Covestro

ADVANCED COMPOSITES TO SUPPLY PROVEN SPACE-GRADE COMPOSITE MATERIALS FOR CONSTELLATION SOLAR ARRAYS

Langley Mill, UK — July 15 2025 – Toray Advanced Composites, a global leader in high-performance composite materials, is pleased to announce it has signed a long-term supply agreement (LTA) with Airborne Aerospace B.V. to provide advanced composite materials for the production of solar array substrates for mega-constellation satellites.

With over four decades of space heritage and in-flight, mission critical reliability, Toray's space qualified epoxy-based, carbon fibre-reinforced materials will be manufactured and supplied from Toray Advanced Composites' European Centre of Excellence for thermoset systems in Langley Mill, UK, and used by Airborne in the manufacture of the solar array substrates and yoke panels.

Produced to tight tolerances on fibre areal weight, resin content and slit width, the high-performance materials from Toray will be supplied in 6-inch (15cm) wide uni-directional prepreg tape format, enabling the efficiencies needed for the new space age, through high-volume production using Airborne's robotic Automated Tape Laying (ATL) technology, specifically developed for space applications.

Enabling Scalable, Affordable, and Reliable Space Power

"With over 40 years of space-flight heritage, Toray is proud to support the next generation of LEO satellite constellations with our flight-proven material systems," states Claire Baker, Development Lead, Space & Comms, Toray Advanced Composites. "Our lightweight composites offer the ideal combination of high stiffness, excellent toughness, and low outgassing—which when combined with their proven inflight reliability makes them perfectly suited for demanding space environments and for automated, scalable manufacturing."

Ms Baker continues, "As the space sector moves toward high-rate production, automation is key. Airborne demonstrates how advanced carbon fibre composites and smart manufacturing enable the performance, scalability, and affordability needed to expand global access to space."

Sandor Woldendorp, Director Aerospace, Airborne "This LTA is the result of many years of close collaboration between Toray and Airborne on the development and manufacturing of spacecraft structures. Our companies share a vision on making composites affordable and scalable for new space."

Source : Toray

BASF BATTERY MATERIALS AND CATL SIGN A FRAMEWORK AGREEMENT FOR CATHODE ACTIVE MATERIALS

- Both parties will cooperate on advanced and innovative cathode active material
- BASF will support CATL through its global production network

BASF and Contemporary Amperex Technology Co., Ltd. (CATL) have signed a framework agreement for cathode active materials. Under the agreement, BASF will cooperate with CATL on a global scale.

CATL has selected BASF as its important supplier. BASF will support CATL's global layout through its global production network.

"We are proud to work with CATL, a global market leader in battery technology. Our diversified and local production footprint for innovative cathode materials will support CATL's global business development," said Dr. Daniel Schönfelder, President of BASF's Battery Materials division. "We are committed to the global battery industry and continue leveraging partnerships like the one between CATL and BASF Battery Materials."

Source : BASF

CARBONBLUE LAUNCHES WORLD-FIRST INTEGRATION OF CARBON DIOXIDE REMOVAL WITH DESALINATION PLANT

TEL AVIV, Israel, July 15, 2025 / PRNewswire/ -- In a world-first for the Carbon Dioxide Removal (CDR) industry, CarbonBlue has launched a new pilot integrating CO_2 removal directly into a working desalination facility. The company today announced the installation of its 'Midway' pilot project in a brackish water desalination facility in Ma'agan Michael, Israel, enabling reduced costs and higher productivity while simultaneously lowering carbon dioxide levels in the atmosphere. The technology offers a practical approach for water-utilizing U.S. industries like desalination, energy, and manufacturing to meet climate goals while improving performance.

The Midway installation at the Ma'agan Michael desalination facility represents a first-of-its-kind milestone for the Carbon Dioxide Removal (CDR) industry. The system integrates directly into the plant's existing water inlet stream, capturing atmospheric CO_2 from process water while simultaneously providing needle-moving benefits in the form of increased efficiency and lowered operational costs.

"Our technology shows that carbon removal doesn't have to be disruptive or costly," said Dr. Dan Deviri, Co-founder and CEO of CarbonBlue. "By working with existing water infrastructure, we can lower emissions, increase operational efficiency, and deliver real benefits for both industry and the environment."

How It Works

CarbonBlue's system uses a chemical reactor to pull CO_2 from any type of water—whether from industrial water streams, brines, groundwater or natural water bodies. CO_2 dissolved in water quickly reacts with lime to form high-quality precipitated calcium carbonate (PCC), an important feedstock in various industries. CarbonBlue's technology allows for PCC's production Stateside, boosting the economy and manufacturers, and bolstering independent American value chains. When exposed to the atmosphere, the decarbonated water can reabsorb atmospheric CO_2, thereby lowering the industry's carbon footprint.

In the pilot's first phase, the system will process 10% of the desalination facility's saline water intake, removing 40 metric tons of CO_2 per year. Following this initial testing period, the facility will be scaled up to 100% of the desalination plant's water inlet stream, removing over 400 tons of CO_2 per year, with future plans to scale to tens of thousands of tons per facility, and millions of tons in combined operations.

For the desalination plant, Midway will prevent scaling, extend membrane lifetime, and increase produced water volume for use by both the local community and the national water grid. The technology is similarly beneficial to any water-utilizing infrastructure; with U.S. industries using massive amounts of water annually, this approach could address a significant market, and significantly impact the world's carbon balance.

Benefits for Industry and Environment

The technology lowers operating costs for facilities like cooling towers, power plants, desalination and other water-using industries, and generates a new revenue source by selling high-quality calcium carbonate and providing decarbonization benefits. Early interest from U.S. energy and manufacturing companies suggests potential for job growth and climate- and business-critical improvements in industrial efficiency.

"U.S. firms are already exploring how our system can fit into their existing plants," Deviri said. "It's a straightforward way to reduce carbon footprints and improve efficiency without disruptive changes to traditional industrial processes and infrastructure."

Why Water?

Founded in 2022 by CEO Dr. Dan Deviri, a physicist from the Weizmann Institute of Science, and COO Iddo Tsur, CarbonBlue chose to focus on water-based carbon removal when they realized CO_2 concentrations in water are more than 100 times higher than in the air, and that removing CO_2 from water is essentially equivalent to removing it from the atmosphere because of the natural balance between the two. Coupled with water's ubiquity and extensive infrastructure and utilization, water-based removal felt like a promising solution. "We saw water as the smarter path to scale carbon removal," Deviri explained.

The World Economic Forum notes that only 41 megatons of CO_2 were removed globally in 2023, far below the 1–1.5 gigatons needed annually for net zero by 2030–2035. The carbon removal market, worth $3.4 billion in 2024, is

expected to grow to $25 billion by 2029, a 49% annual growth rate. CarbonBlue's technology could help meet this demand.

A Step Toward Cleaner Industry

The Midway project highlights how CarbonBlue's technology can make industries more efficient and sustainable. From California's desalination plants to Midwest factories, it offers a way to align with net-zero goals while improving profitability.

Source : CarbonBlue

SABIC'S NEW LNP™ THERMOCOMP ™ COMPOUND WITH NON-HALOGENATED FLAME RETARDANCE HELPS BOOST EVCU SAFETY AND PROTECTION

Bergen op Zoom, The Netherlands, August 12, 2025 - SABIC, a global leader in the chemical industry, today introduced LNP™ THERMOCOMP™ WFC061I compound featuring non-brominated/non-chlorinated flame retardance (FR) that can help enhance the safety and functionality of critical components, such as electric vehicle control units (EVCUs). This new specialty material, a 2025 Edison Award winner, is well suited for the housing of these applications, providing excellent structural performance for the protection of sensitive internal electronic parts from fire/smoke, impact, moisture and other threats.

LNP THERMOCOMP WFC061I compound can replace metal in EVCU covers to reduce weight significantly and expand design freedom. Alternatively, it can replace FR polymers that use halogenated additives, which can impact the environment. Other advantages of the new compound include colorability, low warpage to increase yield and high optical transmission for precision laser welding. This glass fiber-reinforced compound is the world's first laser-weldable FR polybutylene terephthalate (PBT) material.

"The EVCU, which manages an EV's electrical systems to ensure peak efficiency and a safe and enjoyable driving environment, relies on high-performance materials," said Jenny Wang, Director, Formulation & Application, APAC, SABIC Polymers, Specialties business. "Specialty resins must provide flame retardancy, strength, stability, light weight and precision manufacturing. Based on our broad understanding of automotive power engineering trends and requirements, SABIC developed its new LNP THERMOCOMP WFC061I compound to help protect the EVCU and optimize its reliability and functionality."

Streamlining Manufacturing with Laser Welding

SABIC's LNP THERMOCOMP WFC061I compound provides the high optical transmission (20 percent at 3.0 mm. thickness) required for laser welding, a technology that joins two plastic parts without adhesives, chemicals, fasteners or vibration. The laser energy passes through the transmissive material to the surface of the absorptive material, where it generates heat at the interface, melting the plastic. The compatibility of LNP THERMOCOMP WFC061I compound with laser welding enables manufacturers to accelerate and simplify assembly, potentially saving time and increasing throughput.

LNP THERMOCOMP WFC061I compound is available globally.

The Edison Awards are an annual, global competition honoring excellence in new product and service development, marketing, design and innovation. The 2025 winners were announced on April 2, 2025.

Source : Sabic

Continued from page 20

21st Nov: Data Strategy & Management; Intelligent Decision; Demand Planning; AI Application; Policy & Regulation; Trade Compliance; Smart Warehousing & Logistics

- Data Strategy & Management for AI-Driven Chemical Supply Chains
- Exploration and Practice of Data Sharing and Standardization in Intelligent Decision-making
- How to Build a Cross-functional Planning Process to Enable Transparency and Agility in the Supply Chain?
- More Accurate Demand Forecasting and Planning Enabled by Digital and Intelligent Tools
- Panel Discussion: A Future-ready Master Data Foundation for Next-Gen Digitalized & Intelligent Supply Chain
- Interpretation and Development Trends of Policies and Regulations on Hazardous Chemicals Transportation
- How to Deal with the Challenges and Impacts of Tariffs, Trade Barriers and Geopolitics on Global Chemical Supply Chain?
- Compliance Management and Risk Control in Chemicals Import & Export Trade
- Intelligent Upgrade of Warehousing and Logistics Empowered by IoT Technology
- Case Study: Visibility of Logistics Operations and Efficiency Improvement
- Future Supply Chain Talent Cultivation and Working Models Innovation

Partial Attending Companies & Institutions (2022-2024):

Government, Associations & Academies				
RIOH	CSL	TFS	CRSAS	CWSAS
	BUCT	CQJTU	NISCI	SCBA
Chemical Manufacturers				
BASF	DOW Chemical	CNOOC	ExxonMobil	Air Liquide
AkzoNobel	Wanhua Chemical	Covestro	SABIC	Arkema
INEOS	PPG Industries	Nippon	Clariant	DuPont
Sherwin-Williams	HuaYi Group	Evonik	dsm-firmenich	Syngenta
Henkel	Borouge	ShengHong Petrochemical	Shell	Mitsubishi Chemical
TotalEnergies	The Linde Group	LANXESS	Westlake	ICL Group
Corteva	Huntsman	Eastman	Bohai Chemical	Solvay
Archroma	Chemours	YPC	Ecolab	Chevron
Lonza	Nouryon	INVISTA	Sibur	Befar Group
Sinochem Int'l	Honeywell	Toray	L'Oréal	Sanofi
Methanex	Elementis	Albemarle	Wacker	Momentive
Quaker Houghton	ARLANXEO	CNOOC and Shell	Sennics	BASF-YPC
Cepsa	Wilmar Int'l	Givaudan	SQM	Materion
Entegris	Chlor-Alkali Chemical	ASK Chemicals	Smit & zoon	Hempel
Transfar Chemicals	W. R. Grace	Sika	Fuchs Lubricants	Infineum
Kemira	Michelman	Celanese	Afton Chemical	Sinopec Shanghai Petrochemical
Würth	Bostik	Lord Chemical	SC Johnson	Shrieve Chemical

Jotun Coatings	OXEA	Croda	Daikin	LB Group
Guanggang Gases	Kraton Polymers	Sinochem Lantian	Perstorp	Becker Industrial Coatings
UPM	Novus	Musashi Paint	TREFFERT	Jiyi Holdings
ChangShun	Kerry Ingredients	Lianhetech	Chambroad	Amino-Chem
Thermo Fisher	Umicore	DL Chemical	Rianlon	AP Winner
Yingde Gases	Jiahua Chemicals	Bauhinia	Xilong Scientific	BATF
UPL	Shenhua Coal to Liquid & Chemical	Huafon Group	Satellite Petrochemical	Yangtze River Acetyls
Red Avenue New Material	Nantong Xingchen	Swancor	Mingri Holdings	Levima Advanced Materials
Debang Chemical	SECCO Petrochemical	NHU Company	Kingfa SCI and Tech	Dynamic Chemical
Baolijia Chemical	Amazon Papyrus Chemicals	DYMATIC Chemicals	RTP	Crystal Clear
Kaimeite Gases	Energy New Material	Kunlun Chem	Wynca Chemical	Feymer Technology
Heubach	Adisseo	Klüber Lubrication	Super-Dragon	Cathay Biotech
Yunnan Phosphate	Capchem Technology	Jinhe Industrial	Fuhua Tongda Chemical	Huarong Chemical
First New Material	Nanjing Chengzhi	Join King	Nagase	Ecisco New Material
Dynea	XJ Kansai Paints			
Würth	Bostik	Lord Chemical	SC Johnson	Shrieve Chemical

Post-Enzyme Strategy How Chemical Giants Can Future-Proof Their Portfolios

Vinodhini Harish

Introduction:

No industry is going behind sustainable imperatives. Every industry, the chemical industry and every sector in the industry are observing consumer expectations, performing rapid technological advances. Hence, the cleaning and laundry chemical sector is also moving toward cold-active, bio-degradable and highly stable enzymes and creating a redefined modern laundry and cleaning solutions. This is only the beginning. The chemical companies are expected to prepare themselves for the next wave of disruption, where personalization, smart systems, carbon neutrality and others are reshaping the future of detergents and surface care products. In this article, we have taken a deep dive into the subject, and this interesting read explores the future of the laundry and cleaning chemicals sector in an unimaginable way!

Chemical companies should focus on liquid enzymes- how can they do it?

Chemical companies that are involved in the laundry and cleaning sector are now expected to invest their time and money into specific strategies.

Invest in cold-active enzyme R&D

The global consumer behaviour is shifting towards energy-saving laundry habits such as cold-water and short-cycle washing. Therefore, the chemical companies are under pressure to develop enzymes that remain highly active even at low temperatures. The traditional enzymes and surfactants often require elevated temperatures to function effectively, but modern consumers are energy conscious, and they demand stain-fighting power without disturbing their energy conservation. Cold-active enzymes such as lipases, proteases, amylases and cellulases are engineered to perform at 15-30 degrees Celsius, and they are crucial to bridge this performance gap.

Therefore, chemical companies must begin focusing on enzyme stability, substrate specificity, and wash durability under sub-optimal thermal conditions. This often requires extensive protein engineering and direct evolution.

Likewise, the cold-active enzymes need to work effectively within complex detergent formulations that include builders, surfactants, fragrances and water-softening agents. Beyond the performances, cost-efficiency in producing these enzymes is equally critical. The global demand grows, and the companies that invest early in the cold-active enzyme R&D are expected to gain a significant advantage not just in meeting consumer expectations but also in aligning with global ESG goals and energy efficiency standards.

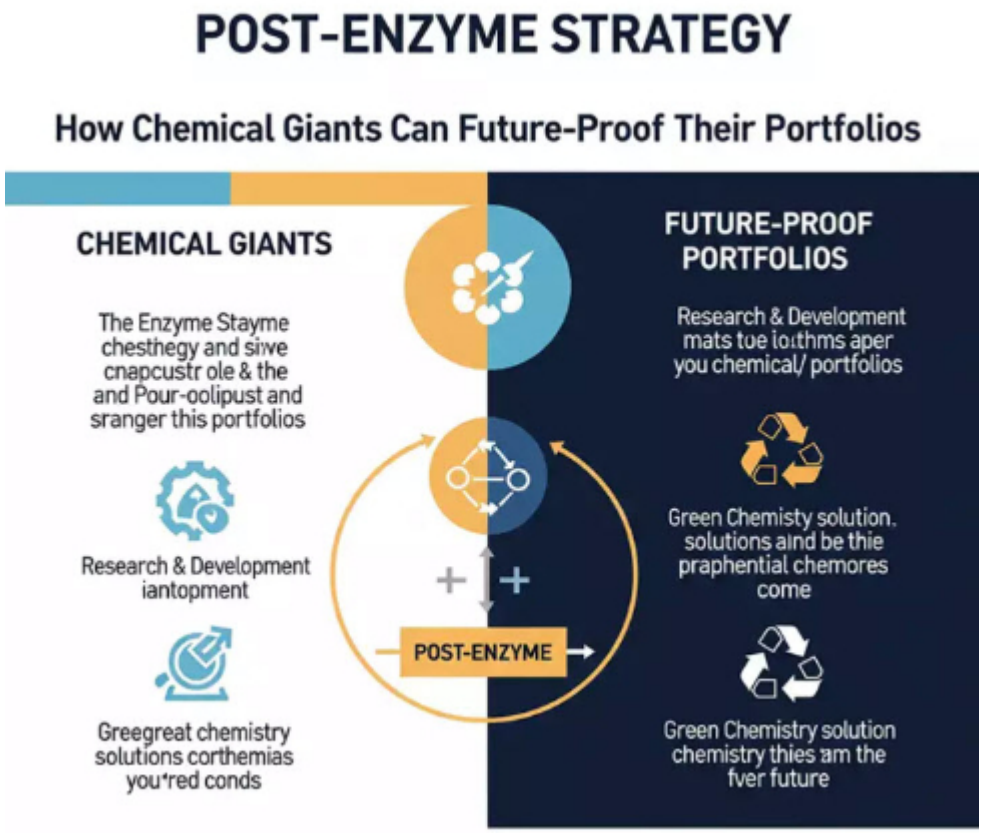
Scale fermentation and enzyme production:

The rising demand to produce enzyme-based formulations, which are driven by consumer preferences for sustainable, biodegradable, and cold-wash compatible cleaning agents, requires these chemical companies to ramp up their enzyme manufacturing capabilities.

Enzyme manufacturing generally involves microbial fermentation processes in which engineered bacteria, yeast, or fungi are cultured to express desired enzymes in scalable quantities. This means chemical firms must invest in large-scale bioreactors, downstream purification systems, and advanced analytics. These factors help in maintaining product consistency, yield, and cost-efficiency.

Although fermentation is a sustainable method of production, it comes with challenges such as media optimization, process control, genetic stability of strains and contamination prevention. Therefore, there is a need to implement advanced fermentation technologies such as continuous bio processing, automated monitoring and AI-driven fermentation control platforms.

Support liquid and concentrated form factors:



The consumers are gravitating towards liquid detergents, concentrated pods and refillable solutions due to convenience. Thus, companies must evolve their enzyme offerings to align with these product formats. Unlike powder-based detergents, these formulations require liquid-stable enzymes that remain active over extended shelf lives in various packaging environments.

If companies are willing to meet this requirement, then they have to formulate enzymes that are resistant to degradation from moisture, pH extremes, and ingredient interactions, especially when multiple enzymes, such as protease, cellulase, and lipase, are used together.

How BASF Reinforces Enzyme Leadership with New Lavergy® Liquid Enzyme Launch:

BASF is desiring to set itself as an innovative, superior provider of essential ingredients for the home care and I&I industry. Based on this goal, they have announced a major expansion of their New Lavergy® Liquid Enzyme lineup that adds advanced lipase, cellulase, and amylase products as they deliver more effective, sustainable laundry and cleaning products. The launch matters a lot in the industry, as they have created a comprehensive stain coverage with all five enzyme types that are available in liquid form. BASF enables complete multi-enzyme systems that are tailored to diverse stain types such as fat, protein, starch, food thickeners, and fabric wear.

These are formulated to be active in cold washes and quick cycles, thereby reducing energy use and carbon footprint. These are the factors considered by modern customers and appliance makers. Apart from these, the products are synergistic in stability, which means the new cellulase retains high activity even in the presence of proteases, addressing a common formulation challenge.

Furthermore, these enzymes are biodegradable and are aligned with global clean-label initiatives that support greater environmental compliance and brand trust.

How is this done? Let's take a closer look:

The company has added lipase, cellulase, and amylase to its offerings and thus provides a comprehensive range of all liquid enzyme types. By doing this, they meet the rising demand of their customers for high-quality and high-performance enzymes for various applications. T

Gisela Pinheiro, Senior Vice President, home care and I&I cleaning at BASF, stated that the expansion and integration of the enzyme types into the existing first-class product portfolio allows them to collaboratively develop sustainable and high-performing solutions for laundry and formulate with their customers.

BASF has certainly understood the pain points of customers and therefore created a series of products that meet their specific requirements.

Lavergy® L Pace: Indian customers increasingly use cold-water wash cycles to save electricity and energy and thereby reduce environmental impact. Traditional surfactants struggle with greasy stains in these situations. However, Lavergy® L Pace is a cold-active lipase which addresses the performance gap, and the enzyme catalyzes the breakdown of triglycerides, which are fats and oils, into water-soluble components even at 20–30°C. Therefore, the enzyme is found to be effective in cleaning food grease, body oils and cosmetic stains without the need for hot water.

Lavergy® C care: customers are inclined or concerned about the longevity of their fabrics and quality maintenance. BASF observed this rising priority of consumers and their inclination towards the quality maintenance of their clothes. Therefore, they engineered a high-performance cellulase, Lavergy® C care, that gently removes microfibrils from fabric surfaces. The enzyme gently removes fuzziness and pilling that naturally occur during repeated washes, especially on cotton and blended cotton fabrics. It yields the result, softer feel, brighter colours and newer-looking clothes after multiple washes.

Consistent fabric care performance in comprehensive stain removal detergents is another challenge in the market. Therefore, formulating multi-enzyme systems is chemically complex, especially when enzymes like proteases often degrade other enzymes like cellulases, which reduces their efficacy. Thus, BASF Lavergy® C Care is engineered for protease compatibility, which maintains stability and activity in mixed-enzyme formulations.

Lavergy® M Ace: BASF is specifically formulated to target complex carbohydrate stains that are derived from food thickeners such as guar gums and locust bean gums. These ingredients are commonly used in processed foods such as dressings, sauces, soups, ice creams, and desserts. Customers often struggle when such food items spill on their clothing or fabric, as they leave sticky, gel-like residues that are notoriously hard to remove with the standard detergents, especially in cold water.

Overall, customers are after solutions or enzymes that deliver efficient results at low temperatures and short wash cycles, especially for stubborn stains from guar gums and locust bean gums.

What's next?

The evolution continues, we can expect hyper-personalized AI-driven formulations such as detergent blends that are tailored for user-specific habits such as water hardness, fabric types, geography, machine model and so on. AI and machine learning will enable formulation-as-a-service, thereby offering enzymes and cleaning agents that are optimized per region or consumer lifestyle. Likewise, we can also expect these companies to dive into solid-state and waterless cleaning products that require no water, spray-n-enzyme cleaners, dry shampoos and so on. Therefore, companies are looking into preparing themselves by collaborating with material scientists to create solid or semi-solid carriers. Overall, the future of the cleaning and laundry chemical market is all set for an exciting journey, and there are areas that the market leaders are yet to explore.

Driving Sustainability The New Era of Propylene Glycol from Circular and Bio-Based Feedstocks

Team Chemical Market

Introduction:

We are living in the era of climate urgency, resource depletion and consumer demand for cleaner products. Consumers are seeking alternatives to fossil-based chemicals. The companies are facing mounting pressure to decarbonize and reduce environmental impact; in addition to this, the demand

for sustainable raw materials has intensified. Among other chemical compounds, propylene glycol is considered a vital ingredient in pharmaceuticals, cosmetics, food, agriculture and textiles. Therefore, any specific advancement in the sector should be highly regarded and further amplified to enhance production. Thus, in this article, we have explored sustainable innovations and practices related to PG production and their implications for industries and the environment.

Good things about propylene glycol production are happening – second-generation feedstocks, circular economy, recycled content, post-consumer and post-industrial waste streams:

Any advancement related to cutting down on fossil fuels or that involves second-generation feedstocks such as agricultural residues, non-food biomass and waste plant oils is appreciated in recent times. The concept of the circular economy is gaining more traction in propylene glycol production. The traditional methods of propylene glycol production rely on fossil fuels, and thus new solutions and approaches are emerging in propylene glycol production that make the processes better and safer. This is an era of climate urgency, resource depletion, consumer demand for cleaner products, and therefore industries are actively seeking alternatives to fossil-based chemicals. Among all other chemicals, propylene glycol stands out due to its extensive usage across diverse sectors such as pharmaceuticals, agriculture, food processing, cosmetics and industrial manufacturing. Innovations in feedstock sourcing, processing techniques and end-of-life solutions are enabling the emergence of lower-carbon, bio-based and circular PG alternatives.

Renewable and circular PG production:

During the biodiesel production, glycerol is obtained, 10% by volume, after distilling it from the impurities. Pure glycerol can be obtained, and it can be utilized in high-value applications such as pharmaceuticals, cosmetics, and propylene glycol production. Since this method of producing propylene glycol from the leftover glycerol recycles the waste and creates propylene glycol without using oil, thereby making it eco-friendly. Some companies like Dow are developing solutions to make full advantage of bio-based feedstocks, therefore reducing the reliance on fossil fuels.

Likewise, Dow is also making PG from the used products and factory leftovers; therefore, they use things that are reused instead of thrown away. This factor supports sustainability by reducing waste and promoting recycling. Dow's process has been officially recognized as eco-friendly through an international certification such as ISSC Plus. The certification builds trust and shows customers that the products meet global sustainability standards.

PG is utilized in products like anti-freeze, but it can harm nature. Therefore, scientists are working towards achieving a safer mixture with ethanol for weather instruments. Finding better options can reduce pollution and protect ecosystems. Similarly, PG uses up too much oxygen if it breaks down in the water, which can hurt the marine ecosystem. Therefore, developing better versions is in high demand.

Therefore, scientists are studying how PG mixes with water on a tiny scale to learn how it works in freezing protection and other uses. They use NMR techniques, and this research can help in improving PG's performance and expand its applications.

Studies are carried out on how PG mixed with water can be used for advanced cooling systems in machines. Better cooling systems mean improved energy efficiency and equipment safety.

Exploring the uses of propylene glycol:

Propylene glycol has appreciable virucidal properties; they have potential applications in nasal sprays, nebulizers and sanitizers. Therefore, the scientists are carrying out tests to see if they can be used in sprays and sanitizers to fight colds and other illnesses. This can lead to new health products, and therefore be helpful for the new pandemic world.

Propylene glycol can be used in skin care medicines; therefore, the researchers are working on how it can be used in gentler versions. Making PG safer for all skin types can improve product safety in cosmetics and pharmaceuticals. Since Propylene glycol is a thick liquid and has no unique smell or colour, it can be mixed with other chemicals easily. This factor helps many industries to utilize the chemicals from food to cosmetics to pharmaceuticals.

Propylene glycol is made from a chemical called propylene oxide and can be used to make plastics and other products. This highlights the industrial importance of propylene glycol.

Geographical dynamics:

Asia-Pacific makes the most of the PG in the world, followed by other regions. Asia-Pacific holds the biggest producers of PG, and this can influence global supply. Whereas the US can make up to 900,000 tons of PG mainly through big companies such as Dow and ADM. A study revealed that from 2016 to 2023, the US sold 115,000 tons of PG, which is more than it imported, and this amount grew by 7%. The study shows the increasing demand for US-made PG across the globe.

Germany sends out most of the PG to

other countries, and that accounts for about 280,000 tons, which is also more than their imports every year. Therefore, this highlights Germany's strong export position in the PG market.

Dow launches lower carbon, bio-based and circular propylene glycol solutions in Europe:

Dow is introducing new types of propylene glycol in Europe that are made using greener methods, that is, from plants, recycled materials and with less carbon pollution. This addresses the growing environmental concerns and resource wastage. This also aligns with the European goals on sustainability and the circular economy.

Dow is using three special technologies, such as Decarbia™, Ecolibrium™, and Renuva™, to achieve cleaner and eco-friendly production of PG. Through these processes, Dow showcases that branding and innovation don't include compromising on performance while switching to sustainable options.

The launch is a strategic response to Europe's strict climate policies and industrial demand for sustainable chemicals. Therefore, the produced PG can be used for food, medicines, and farming purposes. They claim that their products are sustainable and backed by third-party certification. Dow uses a tracking method called "mass balance" to ensure that renewable materials are used and properly recorded. The method is certified by ISCC PLUS. The mass balance method ensures integrity and transparency, especially in complex chemical production systems.

DOW has introduced three types of greener PG products that are now available in Europe, with verified sustainability credentials. The variety allows the industries to choose the most sustainable option for their application.

- Propylene Glycol RDC featuring Decarbia™
- Propylene Glycol REN featuring Ecolibrium™ bio-based technology from 2nd generation bio-based raw material
- Propylene Glycol CIR featuring Renuva™ recycled content from post-consumer waste streams

Dow doesn't stop here; they are continuing to make more plant-based or recycled materials while tracking them with a verified system. This demonstrates the long-term commitment and system-level change. The outside experts check and verify the materials that are really sustainable and tracked correctly. Dow is making every part of their production greener, from obtaining raw materials to finished products. Therefore, they have a bigger plan for a sustainable future concerning the PG production. This kind of full-cycle approach plays a crucial role and has a real impact on the industry.

What companies are expected to do now?

Everyone would agree that the regulations are tightening related to EU green deal targets, carbon border taxes, REACH and FDA compliance. The non-compliances could cost market access, and therefore, the companies are expected to stay alert and stick to these aspects. Customers are expected to purchase from companies that responsibly source their materials, perform recycling, reduce their BOD and toxic releases and similar other practices.

Therefore, companies are investing in recycling systems, renewable energy for production plants, waste recovery, and glycol purification systems. This enables them to achieve long-term cost savings, better control over raw material supply, and carbon footprint reduction. There is an urge to transition to sustainable feedstocks from fossil-based ones.

Take away:

The evolution of propylene glycol is a compelling example of how a traditional petrochemical can adapt to the demands related to sustainability, circular economy, and a low-carbon economy. From the renewable glycol conversion and bio-based feedstocks to recycled material integration and certified mass balanced systems, PG is shedding its fossil legacy and becoming a symbol of chemical innovation in the 21st century. Therefore, the companies are now expected to do more than simply manufacture to stay ahead in the competition. They should be conscious of aspects such as ESG compliance, along with monitoring and responding to the regulatory trends such as the EU green deal trends, carbon border targets and REACH and FDA compliance.

Redefining Clarity- The Rise of 62 Percentage Bio-Based Transparent Polyamides

Vinodhini Harish

Introduction:

Arkema is a global leader in advanced materials and specialty chemicals. They have announced their strategic investment of USD 20 million to establish a new production unit for Rilsan clear transparent polyamides in

Singapore. This news is creating a storm in the Asian industrial market, and this has already tripled the company's global capacity for bio-based transparent polyamides. This initiative is built upon the recent commissioning of Arkema's polyamide 11 facility in Singapore. Therefore, this article explores the technological, environmental, and market-driven imperatives that underpin this investment and how the product exemplifies the next generation of specialty materials.

Arkema's Rilsan Clear: A Transparent Leap Toward Bio-Based Excellence

Arkema has its vision for global growth, regional resilience, sustainability and specialty material leadership. Each part of their announcement reflects the company's proactive efforts to align with shifting industrial trends, market demands and environmental expectations. Due to its facility expansion, the production output for Rilsan Clear will increase three times across the globe, which highlights the significance.

Arkema's decision to construct a new Rilsan clear unit follows the successful commissioning of its polyamide 11 plant in the same location, which had already increased global Rilsan polyamide 11 output by 50%. Arkema's decision to build a new Rilsan Clear production unit in Singapore directly benefits Asian markets in several ways, including:

Shorter lead times:

Since the facility is within Asia, they can easily deliver the materials to regional customers in countries like China, Japan, South Korea, India and Southeast Asia. This improves the product availability, and thereby reduces the dependency on imports from Europe or the U.S and therefore enhances the responsiveness to sudden market demands.

Cost efficiency:

Local production helps in minimizing logistics, shipping costs, import duties and currency risks, which reduces the hidden costs that are passed on to customers. Therefore, customers get high-performance materials such as Rilsan clear that are most cost-accessible in Asian markets.

Resilient regional supply chain:

There is an increase in disruptions in global trade, such as port delays and geopolitical tensions. Thus, the regional manufacturing hubs ensure great supply chain stability and flexibility for Asian companies.

Sustainability alignment:

Several Asian governments are pushing green regulations and thus encouraging industries that use sustainable materials. Arkema's bio-based, recyclable Rilsan Clear products help companies meet environmental standards and thereby achieve ESG goals.

Features of the Rilsan Clear family of polyamides that benefit the industry:

Rilsan's clear product line is highly regarded in the market due to its superior performance and eco-profile. There are quite a few standout features, such as high transparency, that make them perfect for applications in eyewear frames, protective casings, and transparent components. Lightweight and flexible without compromising mechanical strength and flexibility compared to traditional plastics or glass. These features are essential for wearable products and compact electronics. Their chemical and heat resistance is a critical feature as they can be engineered in medical devices and electronic components that are exposed to tough environments.

They also exhibit excellent mechanical properties such as dimensional stability and durability, even under stress or long-term use. Therefore, they outperform many standard transparent plastics like PMMA or PC. The bio

compatibility is another excellent feature, which means they are safer even when they come in contact with the skin and even for medical applications, aligning with healthcare standards.

62% bio-based carbon content: Arkema's Rilsan Clear G820:

There are substantial environmental benefits that go beyond the simple substitution of petroleum-derived inputs. The composition is derived largely from renewable sources such as castor oil, providing a compelling case for more sustainable material innovation.

- One of the primary environmental advantages of using bio-based material lies in its renewable origin. The net carbon footprint of the polymer is significantly lower than that of fully fossil-based plastics.

- Most of the regular plastics are made completely from petroleum. The manufacturing process also involves drilling for oil, refining it, and turning it into plastic. All of them use energy and harm the environment by causing pollution, releasing harmful gases and damaging nature. Since Rilsan Clear G820 is made from 62% plant-based materials, it uses less oil, which helps protect natural resources. It also leads to less pollution, as it is dependent on plants like castor beans, which grow in dry areas and thus don't take away land that is meant for cultivation. This releases the pressure and competition for fertile land. This process also helps companies that avoid relying too much on oil from countries with unstable markets.

- Better performance is another significant benefit, which means Life cycle assessment (LCA) of high bio-content materials consistently shows better performance compared to conventional alternatives. Greenhouse gas emissions across the materials' full life, right from raw material cultivation to end-of-life, are reduced. The feedstocks are cultivated using relatively low-energy inputs and minimal irrigation in semi-arid regions. The company is more inclined towards reducing its environmental load; thus, they have optimized their facility for efficiency and sustainability. In many applications, switching to bio-based polymers can reduce product-level emissions by 20-50% which is vital in sectors such as electronics, healthcare, and consumer goods where the pressure for carbon neutrality is growing.

What does Arkema do differently?

Arkema is leveraging its distinctive expertise in material sciences, as it provides a comprehensive portfolio of cutting-edge technologies that is designed to meet the global demand for innovative and sustainable materials.

They have used 62% plant-based materials that are much appreciated in the market, as consumers are becoming more modern and more concerned about the balance in the ecosystem. Rilsan outperforms many rigid plastics without compromising on transparency. When these products are compared to petroleum-based polyamides, they tend to turn yellow or degrade under UV exposure; however, Rilsan clear retains optical clarity and toughness over time. Thus, the design engineers and purchasing managers evaluate these advantages as it checks all boxes, such as performance, aesthetics, sustainability, and is therefore called a smart material of choice.

Similarly, its outstanding quality and performance are so appropriate for optical clarity, as it offers flexibility, resilience and high-end applications such as luxury eyewear frames, safety visors, electronic device casings, where the visual aesthetics and mechanical strength are equally critical.

Asia is a manufacturing powerhouse of electronics, appliances, automotive components, and eyewear. All of these demand high-performance materials with strong environmental credentials. Therefore, the consumers and regulatory bodies in Asia are becoming increasingly conscious of sustainability. Since there is a rising shift towards eco-friendly alternatives to traditional plastics. Rilsan clear polyamides have perfectly aligned themselves with this demand. These materials are uniquely positioned to meet stringent performance and clarity standards while offering environmental advantages such as reduced carbon footprint and reduced dependence on fossil fuels.

Therefore, Asian OEMS and tier 1 suppliers can benefit from integrating Rilsan clear into their products to boost both global competitiveness and brand perception. Therefore, Arkema's investment in Asia is well-suited and appropriate to accelerate the region's green manufacturing evolution.

Final thoughts:

In this global industrial culture, sustainability and performance go hand in hand. The new development is quietly reshaping how industries think. This global specialty chemicals leader is taking a bold step that is influencing everything from the devices we use to the products that are manufactured across Asia. In the future, the company might plan to bring in local technical centers, fabrication partners, that are equipped to mould, extrude, and process these advanced materials, thus they can ensure the materials' unique properties like transparency, flexibility and chemical resistance are preserved in real-world applications.

Dow India recognized as one of India's Best Companies To Work For and Best Workplaces™ in Chemicals in India 2025

Mumbai, 14 July, 2025: Dow Chemical International Pvt. Ltd. (Dow India) has been recognized as one of India's Best Companies To Work For™, among the top 100 and has earned the distinction of Best Workplaces™ in Chemicals in India 2025.

Presented by Great Place To Work®, these accolades honour organizations that have created remarkable employee experiences, fostering inclusive culture, and set high standards in workplace practices. Through a strong focus on collaboration, continuous learning, and development opportunities, the company empowers its employees to thrive and contribute meaningfully to its success. This recognition highlights Dow India's commitment to building a resilient, growth-driven, and inclusive work environment —reinforcing its position as a trusted and forward-thinking leader in the chemical industry. Siddhartha Ghosal, CEO & Country President, Dow India, expressed his gratitude for the honor, said, **"We are proud to be recognized as one of the Best Companies To Work For and as the Best Workplaces in Chemicals™ in India for 2025. This achievement is a testament to our collective commitment to nurturing a culture of continuous learning, innovation, and collaborative growth. I am grateful to our teams for their dedication to making Dow India an industry leader and a truly great place to work."**

Source : Dow

Enzymes from the Ice Age Reshaping Textiles Pharma and Detergents

Team Chemical Market

Introduction:

How often do we receive updates on advancements or innovations in cold-active enzymes? There is a quest for greener, more energy-efficient industrial processes that are leading scientists to some of the coldest regions of the planet. The extreme environments like Arctic regions and Antarctic waters are proving to be the treasure house of cold-adapted enzymes, known as psychrophilic enzymes. These biological catalysts work efficiently in low temperatures and offer remarkable advantages such as reduced energy consumption, faster reaction, and environmentally safer processing. The industries from detergents to pharmaceuticals are seeking sustainable transformation, cold-adapted enzymes that stand at the forefront of the bio-innovation wave, unlocking massive potential from the icy fringes of our planet. Let's explore!

How is the cold-active enzymes market performing?

Cold-active enzymes are a subset of the larger industrial enzymes. The market value is projected to reach about USD 10.8 billion by 2029. The growing demand for industrial enzymes, especially in food and beverages, detergents and other applications. These cold-active enzymes are specifically useful in low-temperature industrial processes, and the demand for energy savings and increased efficiency is contributing to their market growth. These enzymes are finding applications in diverse industries that include food and beverage processing, such as dairy and baking, and other applications, such as detergents, textiles, and even in biomedication processes.

How Cold-Active Enzymes Are Reshaping the Detergent Industry

The cold-active enzymes are revolutionizing the detergent industry as they perform very well compared to conventional detergents, even at low temperatures. These enzymes, such as proteases and lipases, break down protein and fat-based stains in cold water; therefore, they eliminate the energy-intensive hot washes. Since this reduces the household energy consumption. At the industrial level, they are effective in removing the natural impurities from the raw fabrics; they perform well in removing oils, waxes, and so on. The textile industry uses these enzymes during scouring and desizing processes. Because of these enzymatic detergents, they can perform these procedures at ambient temperature, while preserving fabric quality and saving energy.

Some regions are enforcing stringent eco-textile standards and demanding that manufacturers meet sustainability targets. These enzymes are efficient in regions where there is water scarcity and strict effluent discharge regulations.

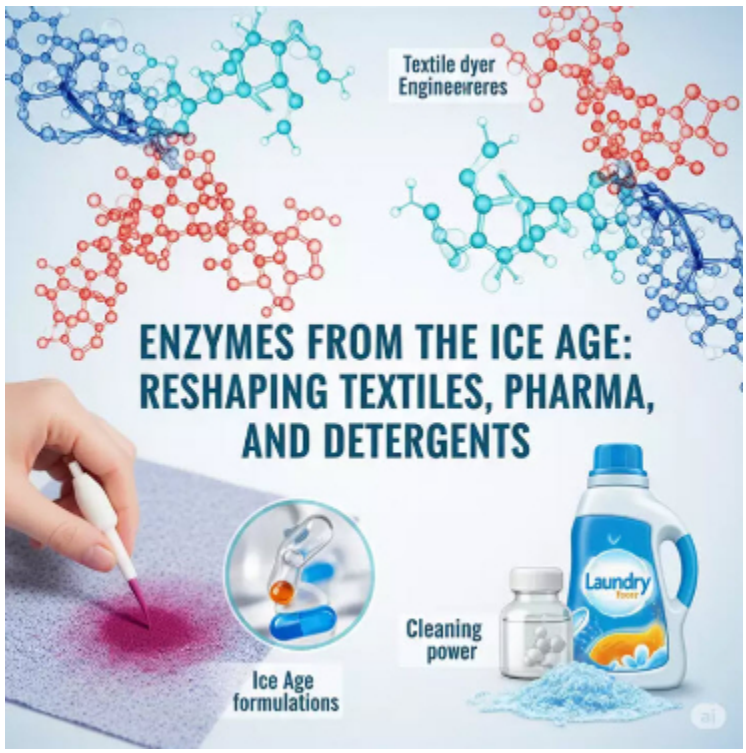
The textile industry can utilize the cold-active enzymes more effectively by replacing traditional textile operations such as scouring, desizing, bleaching and bio-polishing that depend on high heat and strong chemicals. Some of the best ways to utilize them are:

Using cold-active cellulases and lipases for scouring at 30–40°C, generally in textile processing, scouring involves high-temperature alkaline treatments that are carried out at 80–100°C to remove natural impurities like waxes, pectins, and oils from cotton or natural fibres. To perform deep cleaning, they use sodium hydroxide in boiling conditions. In the conventional methods, even higher temperature is required for higher and more contaminated fabrics. But when cold-active enzymes are used, scouring can be done effectively at 30–40°C; therefore, the energy consumption is cut down by over 50-70%. This condition prevents fibre damage caused by high alkali and high heat.

Companies should integrate cold enzymes into continuous processing as they could avoid halting the process for heating, and minimize time and energy costs. For example, they can incorporate enzymatic baths directly into conveyor-based fabric treatments instead of batchwise hot washes.

Likewise, textile companies are after consistent results; they should use enzyme stabilizers or encapsulation technologies to improve their shelf life, work with enzyme suppliers to develop formulations that are compatible with surfactants, dyes and textile auxiliaries.

Cold-active enzymes should be part of the industry at the ESG and green certification goals, such as GOTS



(Global Organic Textile Standard), OEKO-TEX and ZDHC(Zero Discharge of Hazardous Chemicals). These enzymes help in reducing water, chemical and energy footprints for key metrics and certification.

How cold-active enzymes enable selective synthesis in pharmaceuticals:

Cold-active enzymes function optimally at 5°C to 25°C, which allows sensitive reactions to occur without the need for high thermal energy. This factor helps with the thermolabile pharmaceutical compounds.

Cold-active enzymes help in reducing the formation of undesired by-products, thus helping in cleaner reactions and easier downstream purification. This boosts the yield and minimizes the waste. Enzymes are naturally stereoselective and regioselective, which means they can target specific molecular bonds or structures, which are crucial when synthesizing chiral drug molecules or complex APIs, where only one isomer is therapeutically effective. The cold-active enzymes eliminate the usage of harsh solvents, high heat, and metal catalysts; therefore, they take the pathway of greener, requiring milder conditions and often aqueous water-based solvents.

These cold-active enzymes are good at performing reactions at ambient or refrigerated temperatures, therefore cutting down energy consumption, while aligning sustainability and cost-efficiency goals. Furthermore, the lipases help in the synthesis of anti-inflammatory drugs, cold-active transaminases help in the production of chiral amines, and hydrolases help in modifying anti-cancer compounds.

We can't overlook the challenges of using them:

Cold-active enzymes offer precision, energy efficiency and greener processing; however, there are several critical hurdles as well.

Consider some of the hurdles:

Maintaining enzyme stability at ambient conditions is quite difficult. Cold-active enzymes are naturally adapted to low temperatures and can denature or lose activity quickly at room or elevated temperatures during storage or handling. This ensures stability in formulation, transport and industrial processes that require sophisticated stabilization techniques such as encapsulation or lyophilization, which raises the costs. We can't set up cold chains because it increases the

logistics costs and carbon emissions, which impacts the greener advantages. The stabilizing formulations, such as enzyme immobilization or the use of protective carriers, are under development, but they are not universally cost-effective. This ensures consistent performance over shelf-life, which remains a key bottleneck and must be overcome for wide industrial adoption of cold-active enzymes.

In the pharmaceutical industry, there are several cold-active enzymes that are sensitive to solvents, pH extremes, and process chemicals. This limits their usage in multi-step or harsh pharmaceutical synthesis pipelines. On the other hand, there are scale-up challenges; what works in the lab doesn't always scale well. The cold-active enzyme processes may need revalidation at larger volumes, which leads to longer development timelines.

Still, even after the developments, novel enzymes, especially the genetically modified or synthetically engineered ones, face complex regulatory scrutiny. Especially in APIs that are meant for human consumption.

The cold-adapted enzymes often come from remote or hard-to-access ecosystems such as arctic or deep-sea environments. There are rising concerns about biodiversity access laws and supply security.

What's Next? Future Outlook

Synthetic biology and protein engineering to improve enzyme robustness

The recent developments in the sector are offering tools to redesign the cold-active enzymes for better industrial performance, which are carried out through protein engineering. Scientists can enhance enzyme stability, adjust the temperature optima and improve resistance to pH and chemicals without losing their catalytic efficiency at lower temperatures. The techniques, like directed evolution and rational design, are used to identify mutations that optimize structure and activity.

With the help of synthetic biology, we can achieve the creation of hybrid enzymes that combine the cold-active traits with heat stability. These engineered variants can survive the transport and integrate more easily into diverse product formulations. Therefore, we can meet the demand for the mass-market acceptance and broader environmental benefits.

Integration with refillable and concentrated formulations:

To align with the zero-waste and circular economy trends, cold-active enzymes are delivered in refillable and concentrated product formats. The concentrated detergents benefit from enzymes that remain active even in small doses and varied storage conditions. The enzyme stability in the formats reduces the need for additional packaging, yet supports the eco-friendly logistics.

Creating partnerships between enzyme producers and FMCG companies:

The companies should build strategic collaborations between the enzyme producers and FMCG companies. This partnership will help in bringing them into the mainstream sectors, while accelerating R&D, reducing commercialization timelines and ensuring product market fit.

The enzyme developers should provide biotechnological expertise, and FMCG brands should contribute market insights, formulation experiences and global experience in the process. These joint ventures will help in co-branding sustainable products that appeal to eco-conscious consumers. Therefore, by sharing the risks and resources, both parties can benefit from the mutual growth and innovation.

Cold-Adapted Enzymes: Unlocking Industrial Potential from Icy Habitats

Gone are the times when we thought the extreme cold regions like polar areas, glaciers and deep seas were lifeless. That is the place that hosts unique microorganisms called psychrophiles. They thrive in sub-zero conditions. These microbes produce cold-adapted enzymes(CAEs) as a survival mechanism that enables vital metabolic functions despite low temperatures. These enzymes are now considered valuable biocatalysts for sustainable industrial applications.

Scientists and researchers are exploring microbial species like Pseudomonas that are isolated from Antarctic, Himalayan Glaciers and Arctic soils, which are being explored for novel cold-active lipases, amylases, proteases and exopolysaccharides. These enzymes are expected to create a massive revolution in sectors like detergents, textiles, food, and the biopharmaceutical sectors.

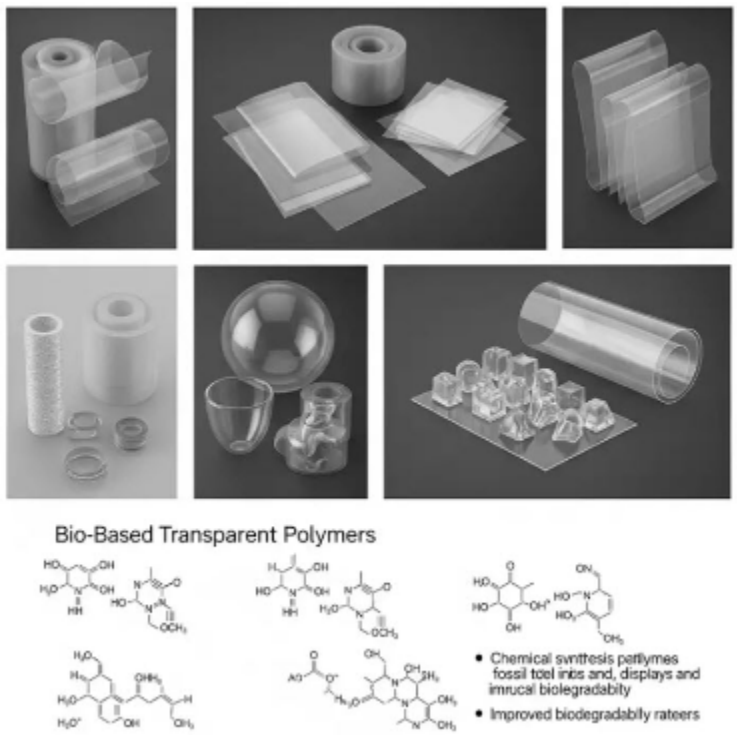
Takeaway:

Cold-adapted enzymes are not just a scientific curiosity; they are powerful agents for global chemical, textile, pharmaceutical and food industries. These agents function at low temperatures, thus reducing energy requirements, emissions and opening doors to new bio-based production pathways. As synthetic biology and protein engineering continue to evolve, they are becoming more commercially viable, robust and growing. Overall, industries should learn to embrace the innovations from the earth's coldest regions to bring in a warmer and more sustainable future in industrial chemistry.

Bio-Based Transparent Polymers Ushering in a Clear Era of Sustainable Chemistry

Team Chemical Market

Introduction:



Have you heard of bioplastics? They are typically plastics that are manufactured from bio-based polymers. This stands tall and makes a significant contribution to sustainable commercial plastic life cycles as part of a circular economy. The virgin polymers are made from renewable or recycled raw materials. These bio-based transparent polymers have emerged as compelling alternatives to conventional fossil-derived plastics, as they outperform their counterparts. Do you know that in the packaging industry, they want to ensure their product integrity over anything? Biopolymer does that for them while reducing plastic pollution and landfill waste. In this article, we have explored the role of bioplastics in different sectors of the chemical industry. Let's begin!

The Green Revolution in Clear Plastics: Bio-Based Polymers Take the Lead

There are myriad advantages in using bioplastics compared to those that are manufactured using fossil fuels. The bio-based plastics possess a lower carbon footprint and exhibit advantageous material properties that end-use industries draw much of their benefits from. Likewise, they are compatible with the existing recycling streams, while some of them offer biodegradation at the end-of-life scenario; nevertheless, that has to be performed under controlled or predictable environments.

However, there are some challenges as well, which include trade-offs like negative agricultural impacts, competition with food production, unclear EOL management and rising costs.

These challenges can be dealt with by utilizing some of the emerging chemical and biological methods that help transform the waste materials into new, better-quality products. Those chemical and biological methods include enzyme-based breakdown, microbial processing, chemical depolymerization and catalytic conversion. The system should incorporate bio-plastic identification standards that refer to the codes, symbols and systems that tell people what kind of plastic it is, help both converters and consumers to understand the environmental impact of the product they are converting or using and therefore handle it with appropriate measures. However, the standards must be updated and made consistent across the regions and industries for better understanding.

If the unambiguous government policies and rules are strong and support sustainable plastic production and waste management, then they can be supported with financial incentives such as subsidies, tax breaks, and investment in infrastructure for recycling and bioplastic production. These support and incentives can help to scale the facilities from niche polymers to bio-plastics that are used from small, specialized uses to widespread adoption.

Therefore, to expand the usage of bioplastics and other sustainable materials, especially to be used on a large scale, governments need to put supportive laws and financial support in place.

Replacing synthetic polymers with biopolymers in textile finishing:

The conventional, oil-based chemicals are replaced with natural and biodegradable materials in the textile industry during textile finishing and other fabric treatments, which helps in reducing environmental pollution and supports global sustainability goals. Key manufacturers and players in the textile industry utilize significant ways to treat fabrics using eco-friendly, plant-based materials instead of harmful synthetic chemicals. Furthermore, biopolymers not only help the planet but also add important benefits to textiles such as fire

safety, sun protection and hygiene.
There are quite a few innovations that demonstrate these natural polymers can replace fossil-fuel-based chemicals that reduce carbon emissions and promote eco-friendly manufacturing. Recent innovations refer to the latest research and technology improvements in using biopolymers. These improvements replace petroleum-based chemicals, lower carbon emissions and encourage greener manufacturing processes.

For instance, Polylactic Acid is a bio-based polyester derived from renewable resources like corn starch and sugarcane. This polyester is replacing petroleum-based coatings such as polyurethane and polyvinyl chloride in outdoor and performance textiles.

However, these conventional coatings emit volatile organic compounds during the processing and are non-biodegradable, thereby contributing to pollution, long-term landfill burden and so on. PLA, on the other hand, offers similar durability, water resistance, and thermal stability while being compostable under industrial conditions. There are outdoor brands in the U.S and Japan which have adopted PLA-based finishes for rain jackets, sports gear and reusable shopping bags.

The PLA-based production emits approximately 60-70% less carbon dioxide compared to traditional plastic coatings. Companies like Toray Industries have integrated PLA in their textile coatings, thereby promoting it under their sustainable material portfolios.

Since modern customers prefer greener products, and they are becoming overly eco-conscious buyers, these biopolymers can meet both functional and ecological demands in the textile segments. This proves that the shift is happening towards bio-based coatings, not only curbs the carbon emissions, but it also strengthens the industry in aligning them with the circular and green economy principles.

The food packaging sector, where PLA and PHA are replacing the traditional plastics:

In the food packaging sector, there is notable progress in replacing the conventional plastics such as polystyrene(PS) and polyethylene(PE) with bio-based alternatives such as PLA(Polylactic acid) and PHA(Polyhydroxyalkanoates).

Since PLA is obtained from the starch of sugarcane, it offers good transparency and rigidity like PET, yet it adds the benefit of industrial compostability. A multinational food company, Danone, replaced their traditional petroleum-based plastic cups with bio-based, compostable plastic PLA for their yogurt packaging in Germany. This packaging breaks down in industrial composting facilities into natural elements, thereby leaving no toxic residues. Since Germany is a country with strong environmental policies and infrastructure for composting and recycling, this adoption has received strong appreciation.

Danone has pioneered the first major commercial shift to bio-based plastic packaging in Europe and demonstrated that scalability is possible in using compostable bioplastics in mass-produced consumer goods. It aligned with the European regulations on reducing plastic waste and promoted consumer acceptance of greener packaging.

The paints and coatings industry is turning towards bio-based polymers:

The paints and coatings industry is also turning towards bio-based polymers as a sustainable alternative to conventional petroleum-derived materials. The conventional acrylic and vinyl-based binders have dominated the sector, especially in the decorative and industrial paints. The industry is now facing growing environmental awareness, coupled with health concerns over volatile organic compounds. This factor has accelerated the shift towards renewable and biodegradable options. The industry thus uses alkyd resins derived from plant oils such as soybeans and linseed. These two products have gained traction, and the natural oils are chemically modified to produce alkyds, which match the performance of synthetic binders without creating much environmental impact.

The paints and coatings industry is celebrating the standout innovations, such as eco-certified wall paints and natural wood coatings that use bio-based alkyds. These coatings are intensively used for indoor use, such as children's rooms, schools and healthcare environments, as they possess low toxicity in the market and have minimal VOC content.

In addition to these products, starch and cellulose-based binders are used in specific niche segments such as heritage building restoration and artist paints, as in these areas, biodegradability and natural composition are highly regarded.

Big paint manufacturers such as PPG Industries, Sherwin-Williams have labelled their eco-paint product lines with "Green label" as these incorporate bio-based emulsions. The products still represent a niche within the broader market, and they have fully replaced their synthetic alternative in certain use cases where sustainability and safety are prioritized.

Overall, the paints and coatings sector is slowly gravitating towards bio-based polymers, and the manufacturers are not just lowering their carbon footprint; they are addressing health and environmental concerns while aligning their operations with global

sustainability goals and green building standards.

Takeaway:

The bio-based transparent polymers are more than material innovation; they mark a fundamental transformation in how the chemical industry understands sustainability, waste management, product design, and other aspects. Bio-plastics are not limited to niche alternatives; they are viable, scalable solutions that serve as both ecological and commercial goals. They add value and benefits compared to the conventional ones, especially in the textile industry, they add benefits like UV protection, antimicrobial effects and water resistance. These are characteristics that are much appreciated in the industry. Meanwhile, they support green manufacturing, product safety and consumer demand for sustainable goods. Therefore, the bio-based polymers are not just promising, they are necessary tools in the global response to the plastic pollution, climate change and unsustainable resource use. With proper and continued innovation and support, they can redefine material usage across industries, pushing the chemical sector closer to a truly circular and climate-conscious economy.

Beauflor Energizes Metro Atlanta's Largest Generating Rooftop Solar System

Cartersville, GA, U.S.A. – July 18, 2025 – Beauflor USA, an industry leader in flooring manufacturing, is now supporting its operations in Georgia with solar power. Beauflor recently energized Metro Atlanta's largest solar power system by capacity, marking a significant milestone in its sustainability efforts.

"This solar installation represents our commitment to sustainable manufacturing practices while also making sound business decisions," says Emile Coopman, Continuous Improvement Manager. "By partnering with Cherry Street Energy, we're reducing our environmental footprint and stabilizing our long-term energy costs, which benefits both our customers and the planet."

The system boasts an impressive 1,040 kW capacity, surpassing the previous record-holder's 1,034 kW system. Cherry Street's installation will produce enough electricity annually to power over 100 homes or 77 million mobile devices. Each year, it will account for approximately 10 percent of Beauflor's energy usage and reduce carbon emissions by an estimated 920 metric tons, equivalent to 923 acres of forestland absorbing carbon. "The system is built with plans for future expansion. This is the first step towards more renewable energy," said Coopman.

"As Georgia's manufacturers ramp up production amid rising costs for grid energy, sophisticated operators seek ways to quickly and sustainably address their energy needs," says Cherry Street CEO Michael Chanin. "Our core customer group seeks near term solutions to control costs from increasing electricity demand. Cherry Street's solution - on-site solar with no capital expense - delivers just that: reliable, affordable electricity. Simple as sunshine."

Under a 30-year solar energy procurement agreement, Cherry Street invested $1.8 million to build the system while assuming all construction and maintenance costs. The system, with nearly 2,000 solar panels, took less than four months to complete. Beauflor purchases the generated electricity directly from Cherry Street, allowing the manufacturer to realize immediate energy savings without capital expenditure.

"This system demonstrates how far solar technology has come and why Cherry Street leads in its incorporation," says Chanin. "The previous record-holder for metro-Atlanta's largest rooftop solar required over 4,000 panels. We're using less than 2,000 to reliably generate even more power."

Source : Press Relase

The role of modern flame retardants in construction

MUTTENZ, July 16, 2025 - Fire safety in modern construction has become increasingly complex and urgent. From towering steel frameworks to engineered wood systems and high-tech infrastructure, today's buildings must not only perform, they must protect.

Passive fire protection (PFP) is essential to slow fire spread and preserve structural integrity long enough for evacuation and emergency response.

The science behind intumescent coatings

Intumescent coatings, which expand upon heat exposure to form insulating char layers, are widely used to protect steel structures and other materials vulnerable to high temperatures. Steel, for example, begins to lose strength at temperatures above 500°C, so delaying heat transfer is vital to prevent collapse and allow safe evacuation.

These coatings are essential in fire safety strategies for tall buildings, transportation hubs like airports and train stations, commercial centers, and logistics warehouses. Any place where evacuation time is critical, these coatings provide an invisible yet indispensable layer of protection.

At the heart of these systems are flame retardants, chemical agents that can make the difference between containment and catastrophe. Among the materials now leading the way is ammonium polyphosphate (APP), a key flame retardant that initiates the formation of this insulating char layer.

How ammonium polyphosphate (APP) works

Unlike active fire suppression systems such as sprinklers, which require external triggers, APP-based intumescent coatings are designed to activate only when exposed to heat. At high temperatures, these coatings expand into a thick, protective char layer that acts as a thermal barrier.

By slowing heat transfer, this layer prevents structural materials from reaching dangerous temperatures. It also delays fire damage, buying time for emergency responders to contain the situation. Most importantly, in steel structures, APP-based coatings help maintain the integrity of load-bearing frameworks, reducing the risk of collapse. This chemical transformation is a cornerstone of passive fire protection, ensuring that fire damage is controlled and limited in its spread.

Advancing fire safety through innovation

As sustainability standards evolve, flame retardant technologies must do more than perform. They must also meet stringent environmental and regulatory benchmarks. This shift has redefined what is expected of materials like APP.

Traditional flame retardants often relied on halogenated compounds or melamine-based APPs. While effective, these substances have come under increased regulatory scrutiny, particularly in regions like Europe under REACH legislation. Melamine, for example, is now classified as a Substance of Very High Concern (SVHC).

In response, the industry has been moving toward more environmentally compatible alternatives. One such development is next-generation APP, which maintains fire resistance while removing components of concern like melamine.

These modern APPs are engineered to:

- React predictably at target temperatures
- Produce minimal smoke
- Form a strong, stable char layer
- Integrate well into a wide variety of coating binders

Applications in building and construction

Flame retardants are extensively used in a variety of construction materials and systems, including:

- Structural steel coatings: Intumescent coatings using industry-leading APP formulations such as Exolit™ AP flame retardants create a heat-activated char layer

that insulates steel structures, delaying temperature rise and preserving load-bearing capacity during fire exposure.

- Wood and composite materials: Enhancing fire resistance in timber and engineered wood products, supporting safer use of renewable materials in construction.

- Insulation and panels: Improving fire performance of insulation boards and wall panels without compromising environmental standards.

- Cabling and electrical components: Ensuring fire safety in wiring and junction boxes, which is increasingly important as buildings become more electrified and smart technologies proliferate.

This year marks 50 years of innovation behind Exolit AP, Clariant's trusted range of ammonium polyphosphate-based flame retardants, whose expertise continues to drive modern fire protection solutions by balancing performance, safety, and sustainability across evolving applications.

The hidden hero in fire safety

While invisible once applied, APP plays a vital role in modern construction. It quietly strengthens the resilience of buildings, enhances the safe use of sustainable materials, and helps meet strict regulatory demands, all without compromising performance. By preserving structural stability and slowing fire progression, APP strengthens building resilience and enables longer evacuation time and more effective emergency responses.

Driving the future of fire protection

As urban landscapes expand and fire protection standards become more demanding, the role of passive fire protection solutions will only increase. The latest advancements in APP technology, including melamine-free formulations and next-generation intumescent coatings, are paving the way for more efficient, durable, and sustainable fire safety solutions.

The shift toward safer, more sustainable flame retardants is no longer just about regulatory compliance. It's about empowering construction to withstand fire threats without compromising environmental goals. By advancing fireproofing materials, modern chemistry plays a decisive role in building safety.

In a world where fire risks can't be eliminated, silent protectors like APP-based coatings offer essential reassurance. Invisible once applied, their impact becomes undeniable when it matters most.

Source : Press Release

SABIC debuts first FR PBT nano molding material with good bonding & mechanical performance

Bergen op Zoom, The Netherlands, July 17, 2025 - SABIC, a global leader in the chemical industry, introduced today the latest addition to its LNP™ THERMOTUF™ family of specialty compounds. New LNP THERMOTUF WF0087N compound is the industry's first nano molding technology (NMT) material based on polybutylene terephthalate (PBT) that combines excellent flame retardancy (FR) and good mechanical performance. It addresses growing demand across the consumer electronics industry for lightweight and durable metal-plastic hybrid components, such as those used in the middle frame of smartphones. In addition, the material's FR properties can help customers comply with the fourth edition of the IEC 62368-1 safety standard for consumer electronics devices. LNP THERMOTUF WF0087N compound is a 2025 Edison Award winner.

"As smartphones achieve new milestones in design, wireless connectivity and charging speed, the industry needs advanced materials that can keep pace," said Jenny Wang, Director, Formulation & Application, APC, SABIC Polymers, Specialties business. "Our new flame-retardant, nano molding LNP THERMOTUF compound demonstrates SABIC's strong focus on the consumer electronics market. With breakthrough materials, we support customer efforts to increase the performance, safety, manufacturability and compliance of smartphones and other devices."

Expanding the Benefits of NMT

Nano molding technology is a

manufacturing process in which plastic resin is injected into a chemically treated metal surface to produce a tightly bonded, hybrid material. This process can help manufacturers achieve lightweight, thin-wall designs, radio frequency transparency, excellent aesthetics and streamlined processing vs. die casting and insert molding. Further, NMT helps protect electronic devices from water and dust.

To these benefits, LNP THERMOTUF WF0087N compound adds thin-wall FR (UL94 V0 @ 1.0mm) while maintaining good bonding strength and mechanical properties, such as impact resistance. In fact, its tight bond with metal is about 60 percent stronger than that of typical FR PBT resins. This property helps designers meet the stringent IP68 standard for water and dust protection.

The new grade also offers robust chemical resistance to harsh anodizing treatments and custom colorability for attractive aesthetics. Its dielectric properties help ensure high signal performance in devices with multiple antennas.

Potential applications for the new compound include antenna splitters and other structural components in smartphones, tablets, smart watches and laptops. The Edison Awards are an annual, global competition honoring excellence in new product and service development, marketing, design and innovation. The 2025 winners were announced on April 2, 2025.

Source : Press Release

L&T Energy GreenTech to set up India's largest green hydrogen plant for IndianOil

L&T Energy GreenTech Ltd (LTEG), a wholly-owned subsidiary of Larsen & Toubro (L&T), will set up India's first largest green hydrogen plant at Indian Oil Corporation Ltd's (IOCL) Panipat Refinery in Haryana.

The plant, to be developed on a build-own-operate (BOO) basis, will supply 10,000 tonnes of green hydrogen annually to IOCL for 25 years, supporting Government of India's National Green Hydrogen Mission.

The plant will operate round the clock using renewable energy, aligning with IOCL's broader strategy to decarbonise its refining operations and contribute to India's net-zero ambitions. It will produce the green hydrogen using high-pressure alkaline electrolysers manufactured at L&T Electrolysers Ltd's state-of-the-art facility in Hazira, Gujarat.

The initiative marks a significant milestone in India's energy transition and reinforces L&T's leadership in delivering sustainable, scalable clean energy infrastructure. With this development.

LTEG becomes a pioneer in India's green hydrogen ecosystem, setting a precedent for industrialscale adoption across refineries, fertiliser plants, and other hard-to-abate sectors.

Commenting on this, Subramaniam Sarma, Deputy Managing Director & President, L&T, said: "The decision to set up India's maiden green hydrogen plant validates our strategy to lead the nation's energy transition. This long-term project not only deepens our partnership with IOCL but also reinforces our capability to deliver large-scale clean energy solutions. As a first mover in India's green hydrogen space, we are proud to lay the foundation for cleaner industrial processes at scale."

Complementing him, Derek Shah, Head – Green Manufacturing & Development, L&T, added: "This project reflects our end-to-end green energy capabilities — from electrolyser manufacturing to execution and operation. With cutting-edge technology and a skilled team, we are confident of delivering a high-performance, zero-emission plant that sets new industry benchmarks. The initiative also supports India's Aatmanirbhar Bharat mission by deploying indigenously manufactured electrolysers — central to self-reliant clean-tech solutions and long-term decarbonisation goals."

Source : Indian Chemical Nerws

EVENTS AND CONFERENCES

ASIA PACIFIC COATING SHOW

Date : Oct, 28-30, 2025

City : Messe Frankfurt

Country : Germany

Website : https://www.cphi.com/europe/en/home.html

Description : Join our global network of pharma professionals year-round through our online platform and take it to the next level at CPHI Frankfurt. Connect with thousands of industry leaders and expand your network with endless opportunities to learn, innovate, and collaborate online and in-person. CPHI facilitates opportunities for you to grow your business and develop meaningful connections at the heart of pharma.

PAINT EXPO EUROSIA

Date : Oct, 1-3, 2025

City : Istanbul Expo Center

Country : Turkey

Website : https://paintexpo.com.tr/en/

Description : PaintExpo will host industry professionals from October 1-3, 2025, at the Istanbul Expo Center. Renowned as the leading meeting point for the industrial coating sector, PaintExpo stands out as an event where technological innovations are showcased, trends are set, and global collaborations are forged. Exhibitors will discover the latest solutions in coating technologies, while visitors will have the opportunity to explore ideas and applications shaping the future of the industry.

INACOATING 2025

Date : Nov, 5-7, 2025

City : Foire Internationale de Casablanca Expo Center, Casablanca – Morocco

Country : Morocco

Website : https://dyechem-morocco.com/

Description : 1. The 49th Dye+Chem Morocco 2025 International Expo is a Comprehensive International Exhibition featuring Worldwide Dyestuff and Fine & Specialty Chemical Manufacturers, focusing on the entire Textile, Apparel & Leather Industries of Morocco and Africa – the new & future market. 2. The manufacturing sector in Morocco has been expanding, with the country becoming a hub for producing various types of Textiles, Apparel, and Leather. The industry has attracted both domestic and foreign investments. The country is now Europe's eighth-largest textile and clothing supplier. 3. Morocco's strategic location, close to European markets, provides it with a competitive advantage in terms of logistics and transportation. This proximity allows for shorter lead times and cost-effective delivery to European customers. it has served as a very important Business hub between Europe, Africa, and the Middle East. 4. The Moroccan government has been actively supporting the manufacturing industry through policies and incentives. This support includes measures to attract investments, improve infrastructure, and enhance the competitiveness of the sector. 5. Morocco's status as a trade hub is bolstered by its trade

agreements with the Persian Gulf, Mediterranean, and African nations, the United States of America, and the European Union. 6. Morocco currently has duty-free access to a market of 55 countries representing more than one billion consumers and 60 percent of world GDP. 7. Participate in the 49th Dye+Chem Morocco 2025 International Expo. Meet, network, explore new business partnerships and opportunities with potential buyers through the Expo from Morocco and Africa.

SAUDI ARABIA COATING SHOW

Date : Aug 26-28, 2025

City : COEX, Seoul

Country : Korea

Website : https://www.cphi.com/korea/en/home.html

Description : CPHI Korea is a dynamic meeting place where pharmaceutical suppliers, purchasers and decision makers get together for three days 1of uninterrupted business. Exhibiting companies showcase products from across the entire pharma supply chain: from ingredients and contract services, through to machinery and biopharmaceuticals.

DYE+CHEM BANGLADESH INTERNATIONAL EXPO

Date : Sept 10-13, 2025

City : Bangladesh–China Friendship Exhibition Center, Purbachal, Dhaka

Country : Bangladesh

Website : https://bd.cems-dyechem.com/

Description : Bangladesh - A Global Textile and Apparel Powerhouse: As one of the world's largest garment exporter, Bangladesh is a key market for textile chemicals and dyestuffs. The 48th DyeChem Bangladesh 2025 Expo provides a direct pathway to connect with a $47 billion textile and apparel industry that continues to grow year-on-year. Exclusive Focus on Dyestuffs and Specialty Chemicals: DyeChem is Bangladesh's only international exhibition of the region, dedicated solely to dyestuffs and fine & specialty chemicals. It's the most targeted platform for global manufacturers to showcase their products to a niche and highly relevant audience Access to Decision-Makers and Industry Leaders: The event attracts top executives, procurement managers, and decision-makers from leading textile and apparel manufacturers in Bangladesh and across the globe. It's a prime opportunity to build relationships with those who influence purchasing decisions. Strong Market Demand for Sustainable Solutions: Bangladesh's textile sector is increasingly focusing on sustainability, creating a demand for eco-friendly dyes, chemicals, and innovative technologies. Manufacturers offering sustainable solutions will find a receptive market eager to adopt cutting-edge products. Part of the Prestigious Textile Series of Exhibitions: Organized by CEMS Global USA, the DyeChem Series Expo is a key event in the Textile Series of Exhibitions held across three continents, which has a proven track record of success. It draws participants and visitors from over 30 countries, offering a truly global platform to enhance brand visibility and credibility. Unmatched Networking Opportunities: With thousands of industry professionals under one roof, the 48th DyeChem Bangladesh 2025 International Expo is the ideal venue for networking, collaboration, and forming strategic partnerships. From seminars to live product demos, there are numerous ways to engage directly with potential customers and collaborators. High ROI and Business Potential: Exhibitors at DyeChem Bangladesh benefit from a highly targeted audience, ensuring cost-effective marketing and sales efforts. Whether it's generating leads, building brand recognition, or signing contracts, this event delivers tangible business outcomes.

A Brighter Tomorrow How Indian Solar Companies Can Build a Greener Future

Vinodhini Harish

Introduction:

In what ways could an integrated solar plant—from sand to panel—reshape India's manufacturing landscape? Can this reduce costs, create jobs, and boost innovation? Well, there are great chances for that. Reliance Industries Ltd. (RIL) is one of the biggest and most trusted companies, and they are stepping into the renewable energy space in a big way. This project is a part of the company's bigger plans to reach net-zero emissions by 2035. What can others learn from their plans and strategies? What are all involved in their strategies, and how to grow in this sector? In this article, we have explored just that. Please read on to know more about the news. Let's begin.

From Sunlight to Self-Reliance: Reliance's Big Bet on Solar Manufacturing:

Reliance is getting ready to start making solar panels at a new factory in Jamnagar, Gujarat, within this financial year 2026. This is an important step in their plan to cut carbon emissions to zero by 2035. Reliance Industries Ltd. is all set to begin its operations at its solar cell manufacturing facility in the third quarter of this fiscal year, which will be sometime between July and December. This is an important milestone in RIL's journey toward building a fully integrated solar value chain in India. The company is aiming to achieve energy self-sufficiency and decarbonization. India has always been relying on solar imports from China for key components like cells and modules. Therefore, RIL is on their mission to reduce this dependency and support India's broader push for energy independence by producing solar cells domestically. It is also helping the country to prepare for its future growth in renewable energy demand. Since Reliance Industries has always been known for its oil and petrochemical business, this would be a dramatic shift for the company towards clean energy. By doing this, the company positions itself as a forward-thinking player in the global energy transition, while aligning itself with the country's climate targets and net-zero commitments.

RIL has selected a strategic location in Jamnagar, Gujarat, which is a key industrial hub for them. Jamnagar already houses RIL's massive oil refining and petrochemical plants, and it's a site with established infrastructure, logistics, and workforce. Therefore, the company has decided to place solar plants there and add strategic value, thereby allowing itself to leverage existing assets to speed up development and reduce operational costs.

Gujarat is known for its high solar irradiance and is considered one of the most solar-friendly regions in India. The state has supportive policies for renewable energy and a strong industrial base that make it ideal for such a project.

Just imagine the advantages of choosing Jamnagar- every part of solar panels, from raw materials to finished modules, is produced in one place. With integrated manufacturing right at the source, reliance ensures faster supply, lowers risks from global disruptions and a stronger, self-reliant solar industry for India.

Furthermore, at the heart of RIL's solar initiatives is the creation of a "sand-to-module" value chain. This means that every stage of the solar panel manufacturing process, right from extracting polysilicon from sand to assembling complete solar modules, will take place within Reliance facilities. The stages include making polysilicon- the base raw material, forming ingots and wafers – making thin silicon slices, assembling the cells, producing modules and manufacturing solar glass, which is the outer protective layer.

By doing this, a level of vertical integration gives reliance control over quality, cost and production timelines. This also reduces the risks related to supply bottlenecks and import restrictions.

This initiative is critical to build a robust domestic solar industry and fulfill their national ambitions, such as "Make in India" and "Atmanirbhar Bharat". If the initiative becomes successful, then this could make the company a global benchmark in solar manufacturing, while strengthening its standing in the international green energy market.

What is new with the solar modules?

Reliance has already begun manufacturing high-efficiency solar modules using Heterojunction Technology – HJT. HJT modules combine two types of silicon- crystalline and amorphous that enhance the conversion of sunlight into electricity. Therefore, higher efficiency is achieved. The conventional modules like PERC or Polycrystalline use only crystalline silicon, but HJT can capture more sunlight and convert it into electricity more efficiently, especially under challenging conditions. Conventional panels suffer from temperature-related

drops in performance, but the HJT ones are more reliable and provide consistent power generation throughout the day or year.

The HJT panels degrade more slowly, and thus they lose less capacity every year. After 25 years, they will be able to produce over 90% of their original power. Whereas the conventional panels degrade about 0.5-0.7% every year. Since these HJT panels degrade slowly, you get a longer lifespan and higher return on investment.

RIL's HJT panels come in larger sizes, up to 720W, whereas the conventional modules range between 300 and 550W. Since these panels are larger, we need fewer panels, thus saving space, installation, time and cost. Thus, they are valuable for utility-scale solar farms.

Let's explore Reliance's strategies and plans:

Reliance Industries is a giant company with a very strong financial background. They make about INR 10 lakh crore in one year, and it is close to 120 billion USD. Therefore, they are capable of investing in big clean energy projects like solar manufacturing. They are well-trusted across the globe and capable of forming partnerships and attracting international investments in green energy. They stand in a very good place as they were considered a good place to work according to Forbes and LinkedIn. This is important because building a new energy business needs smart and skilled people, and good companies attract the best talent.

The company is expecting to begin operations at this new facility next year. The company is also planning to develop battery manufacturing and electronic systems for power regulation and distribution. Battery storage is essential for round-the-clock renewable energy. Microelectronics are needed for smart grid management. These capabilities support distributed generation, rural electrification and energy reliability. However, the battery and electronics unit will go live after the solar plant. Therefore, they are adding more depth to their portfolio. This shows that reliance isn't investing in isolated pieces, but building a complete clean energy stack, right from generation to storage to control systems. Thereby providing end-to-end energy solutions.

What can others do to strategize?

Companies should move forward and beyond PERC and polycrystalline technologies. They must explore HJT, TOPCon, and Bifacial modules to stay competitive in terms of efficiency, performance and lifespan. They should develop their indigenous technologies and avoid overdependence on foreign patents, especially Chinese.

Self-reliance and cost control are crucial in this sector; the government may prefer domestic tech for subsidies.

Other solar companies in India should look at Reliance's new project and think about how to build smarter strategies. One way is to manage more parts of the supply chain themselves, such as making the solar cells and also handling the installation. This can help save money and reduce risks. Reliance is doing just that. If this is not possible for smaller companies, they must focus on special areas such as rooftop solar, powering farms, and solar systems for rural areas. This way they don't have to compete with the giants and yet build trust through good service, long warranties and local support. These aspects make a huge difference because Indian customers care more about reliability, customer service and help after the purchase than cutting-edge tech.

The companies must plan their growth, and they should keep in mind that the setup might require a lot of investment, and smaller companies can't afford it. The competition might get tougher, and that can reduce profits and push some players out of the market. On top of that, there's a lack of skilled workers for new solar technologies; therefore, the companies should invest in training people. In addition to this, advanced solar systems can take longer to recover

their cost, which might make customers hesitate unless the government or companies offer good support or incentives. Therefore, the companies should learn to plan wisely and not stretch beyond their limitations.

Final thoughts:

India stands on the edge of a solar revolution. The nation is chasing the ambitious target of 500 GW of renewable energy by 2030, and the path forward isn't just about scaling up, but it is about smart, sustainable, and inclusive growth. Every solar company in India has a part to play. While not everyone can build massive end-to-end solar factories, all of them can lead in their way! The way is to focus on customer trust, service reliability, and affordable innovation. While large players have set the tone with integrated manufacturing and advanced technologies, this is a powerful call for other companies, big or small, to rethink their roles. With innovation, adaptability, and a people-first mindset, they too can shape a cleaner and energy-secure India.

Why Global Petrochemical Giants Are Closing Plants

Team Chemical Market

Introduction:

One of the biggest shake-ups is happening in the global petrochemical industry. Major companies like Dow, ExxonMobil, Shell, BP, and other factories are selling their older assets off, and they are rethinking their long-term strategies. Why? Some of the chemical producing processes are harder and less profitable, especially in Europe. Therefore, it doesn't make sense to continue the business that way. Some of the crucial pressures, such as high energy prices, strict environmental rules, weaker demand and much more, are making it even more difficult. We have discussed the topic in detail in this article. Do you want to know what the strategy followed by these companies is? What's changing? What are the lessons? Please read the article. Let's begin.

Why cost efficiency is now the top priority for chemical players.

The current crisis and change in the petrochemical industry. The plants are shutting down and are selling off their assets due to weak profitability. Some companies are reassessing their risk and ROI in certain markets. China has added significant capacity in petrochemicals, especially ethylene, propylene and polyethylene, which has resulted in oversupply and price pressure across the globe.

Meanwhile, Europe is facing elevated energy prices along with added carbon compliance costs, aging infrastructure, and thereby making production less competitive.

EU is facing the worst face of the crisis, with multiple plant shutdowns and asset sales. The U.S and Middle East can benefit from access to cheap feedstocks such as natural gas liquids, such as ethane, and other aspects such as modern infrastructure and export-oriented strategies. Asia, on the other hand, is cutting their capacity, but is being more cautious and therefore relying on integrated refining complexes and domestic demand.

The post-Ukraine war energy crisis has rendered European petrochemical production economically unsustainable, while the Middle East maintains cost leadership due to abundant cheap oil and gas.

Case studies:

DOW Inc., one of the largest chemical producers globally, announced in mid-2024 that it will be shutting down its upstream chemical sites in Europe and idling a cracker in the Netherlands. This decision is a strategic response to the shifting economics of the European chemical sector. "Upstream" facilities refer to feedstock and base chemical production, especially ethylene, which is the fundamental building block for downstream products such as polyethylene, vinyl chloride and siloxanes. Ethylene is produced through steam cracking, which requires immense energy, and this makes it highly sensitive to electricity and fuel prices. Since there is an ongoing energy crisis in Europe, the cost of operating such facilities has skyrocketed post-Ukraine war, which has led to declining profit margins.

Dow's three plants that are located in Bohlen and Schkopau, and Barry manufacture chemicals that are used in plastic products, buildings and cars. Whereas in Europe, consumers are showing little interest in these products due to rising prices, interest rates are up, and the economy is slowing down. Therefore, the demand for these products has dropped, and that is affecting the need for the chemicals made at these plants. Overall, Dow's decision to maintain its profitability in an increasingly competitive and volatile market by scaling down in high-cost regions and potentially reallocating resources to the U.S, Gulf coast or Middle East, Dow is protecting shareholder value while preparing for a more sustainable and operational model.

ExxonMobil (USA):

The financial stress faced by the European petrochemical producers has caused ExxonMobile to permanently

shut down its stream cracker and related chemical production at Gravenchon, France. According to the company's statement, Gravenchon facility has incurred losses that exceeded about 500 million euros since 2018, and that is approximately $582.75 million!

Now, stream crackers are notoriously capital and energy-intensive, and they require high operational uptime and low feedstock costs to maintain margins. Since the gas prices are low in the U.S and Gulf Coast, or the Middle East, the steam crackers can be efficient and profitable. To prevent further loss on chemical earnings, they have decided to shut down Gravenchon, which is considered a rational decision.

On the other hand, this shutdown is a part of a small plan, which is to run their factories in locations like Texas or Asia. In these places, the cost of production is much lower, and it's more efficient to make chemicals. Even some people see this as giving up on Europe, but the company is making moves that make sense.

Shell (UK):

Shell sold their big chemicals and energy site in Singapore in 2024. This wasn't just a time sale; it is a part of their bigger strategy. They are in the process of figuring out how they are running their chemical businesses across the globe, especially in Europe and the U.S. Shell is reviewing their older chemical plants because they are making less profit. There are some major reasons for that. Running those plants has become expensive, and the chemicals produced there, such as ethylene and propylene, have less market demand. And this old infrastructure is making more pollution, which goes against their environmental ethics and regulations.

Therefore, Shell wants to move away from these older and high-pollution factories and start to invest in cleaner technologies such as bio-based chemicals, hydrogen, carbon capture and so on. Selling the Singapore site gives Shell some money that can be used later on for cleaner projects.

BP(UK):

In 2024, BP decided to sell its old chemical and oil site in Germany. Running pants in Gelsenkirchen are expensive, create pollution, and it's harder to make money with the old equipment. Therefore, they wanted to sell the site and invest in cleaner energy, cut down on carbon-heavy businesses. The company wants to focus on areas such as electric car charging, hydrogen fuel and eco-friendly fuels.

Time to wake up to reality:

The big chemical companies like Dow, ExxonMobil, Shell, BP and others are closing plants, selling sites or delaying their projects. Their strategy is to maintain their profitability and invest in cleaner projects. After the Ukraine war, the energy prices in Europe went up a lot, and it made it very expensive to run factories. Due to strict environmental rules, it is even costlier to upgrade or maintain older plants. Countries like China have built petrochemical plants and caused global oversupply of basic chemicals such as ethylene and polyethylene. At the same time, the demand is slowing down, especially in sectors like construction, cars and consumer goods. Whereas in the Middle East and the U.S, things are doing better. They have cheaper oil and gas, and this makes it cheaper for them to make chemicals there. Additionally, they have newer and more efficient plants there as well. In this modern economy, companies are changing their strategies; they are now focusing on newer, cleaner technologies such as bio-based chemicals and hydrogen. They are trying to become environmentally friendly and profitable in the long term.

As far as we see and observe, experts suggest that relying on old factories or old business models is not practical and companies should strive to adapt to the changes in energy costs, climate rules and global competition. The companies have realized that producing chemicals in high-cost areas like Europe is risky; thus, they are shifting their operations to places where it is cheaper and easier to do business.

The companies are also shifting from producing basic chemicals like ethylene, since when there are too many chemical plants producing the same thing, then the prices drop and profits shrink. It is important to balance supply with demand. The companies are now making more efforts to move toward low-carbon and eco-friendly technologies because it is not good for the planet, and it is not smart business as well. The companies have now understood that flexibility always wins. They are quicker to shut down or sell the loss-making assets and reinvest in better opportunities that are more likely to

MUMBAI MARKET PRICE AS ON 11/08/2025

Name of Chemical	Current Price	Location
Acetic Acid-Imported Repack	38	Mumbai
Acetic Acid-Domestic Intact	50	Mumbai
Acetic Acid-Domestic Repack	39	Mumbai
Acetone-Imported Repack	74	Mumbai
Acetone-Domestic Intact	90	Mumbai
Acetone-Domestic Intact	74	Mumbai
Acetonitrile-Imported Intact	150	Mumbai
Acetonitrile-Domestic Intact	165	Mumbai
Acetonitrile-Domestic Repack	142	Mumbai
Acrylonitrile-Imported Intact	150	Mumbai
Acrylonitrile-Imported Repack	170	Mumbai
Aniline-Imported Intact	135	Mumbai
Aniline-Domestic Intact	137	Mumbai
Benzene-Domestic Repack	80	Mumbai
Cyclohexane-Imported Intact	96	Mumbai
Cyclohexane-Domestic Intact	94	Mumbai
Cyclohexane-Domestic Repack	89	Mumbai
Cyclohexanone-Imported Intact	115	Mumbai
Cyclohexanone-Imported Repack	112	Mumbai
Cyclohexanone-Domestic Intact	118	Mumbai
Cyclohexanone-Domestic Repack	137	Mumbai
C9 Solvent (99.99% purity)-Imported Repack	105	Mumbai
C9 Solvent (Arham Petrochem)-Imported Repack	104.75	Mumbai
Dibutyl Phthalate-Domestic Intact	117	Mumbai
Dioctyl Phthalate-Domestic Intact	121	Mumbai
Ethyl Acetate-Domestic Intact	76	Mumbai
Ethyl Acetate-Domestic Repack	73	Mumbai
Formaldehyde(37%)-Domestic Repack	18.5	Mumbai
Methanol-Imported Repack	36	Mumbai
Methyl Ethyl Ketone-Imported Intact	119	Mumbai
Methyl Ethyl Ketone-Imported Repack	103	Mumbai
Methyl Isobutyl Ketone-Imported Intact	123	Mumbai

Methyl Isobutyl Ketone-Imported Repack	110	Mumbai
Methyl Methacrylate-Imported Intact	125	Mumbai
Mixed Xylene-Imported Repack	84	Mumbai
Mixed Xylene-Domestic Repack	84	Mumbai
Monoethylene Glycol-Imported Repack	59	Mumbai
Monoethylene Glycol-Domestic Intact	63	Mumbai
Monoethylene Glycol-Domestic Repack	60	Mumbai
Iso propyl Alcohol-Imported Repack	92	Mumbai
Iso propyl Alcohol-Domestic Intact	103	Mumbai
Iso propyl Alcohol-Domestic Repack	92	Mumbai
nButanol-Imported Repack	95	Mumbai
nButanol-Domestic Intact	105	Mumbai
nButanol-Domestic Repack	95	Mumbai
Ortho Xylene-Imported Repack	92	Mumbai
Phenol-Imported Repack	99	Mumbai
Phenol-Domestic Intact	105	Mumbai
Phenol-Domestic Repack	102	Mumbai
Phthalic Anhydride-Imported Intact	94	Mumbai
Phthalic Anhydride-Domestic Intact	94	Mumbai
Styrene Monomer-Imported Repack	91	Mumbai
Toluene-Imported Repack	76	Mumbai
Toluene-Domestic Repack	76	Mumbai
Vinyl Acetate Monomer-Imported Repack	77	Mumbai

Note-Above prices have been collected from experts and experienced outsources of the industry.Kindly verify from your end as well.

INTERNATIONAL MARKET PRICES AS ON 11/08/2025

Product	Regions	Current prices
Feedstock Prices $/unit		
Crude Oil ($/barrel)	WTI CRUDE	63.36
	BRENT CRUDE	66.15
	MARS US	71.56
	OPEC BASKET	69.49
Natural Gas	New York	2.91

Gasoline	RBOB	2.06
Heating Oil	US	2.24
Ethanol	US	1.78
Naphtha	FOB US Gulf	490.4
	European	555
	CFR Far East Asia	570
Propane	New York	0.67
Aromatics prices $/MT		
Benzene	FOB Korea	730
	CFR Japan	740
Styrene	CFR Japan	890
	CFR South East Asia	920
	CFR China	890
	FOB Korea	880
Toluene	CFR China	675
	CFR South East Asia	730
	FOB Korea	665
	CFR Japan	675
Iso-Mix Xylene	CFR South East Asia	715
	CFR Taiwan	710
	FOB Korea	685
MEG	CFR China	520
	CFR South East Asia	530
Methanol	CFR China	269
	CFR Korea	320
	CFR South East Asia	333
	CFR Taiwan	315
Solvent-MX	CFR South East Asia	725
	FOB Korea	675
	CFR China	725
Ortho Xylene	CFR South East Asia	845
	FOB Korea	825
	CFR China	825
Para Xylene	CFR South East Asia	825
	FOB Korea	805

	CFR Taiwan	825
Propylene	FOB Japan	735
	FOB Korea	735
	CFR China	770
	CFR South East Asia	725
Propylene Glycol	FOB Korea	820
	CFR China	850
Ethylene	CFR North East Asia	815
	CFR South East Asia	825
	FOB Japan	765
	FOB Korea	770
EDC	CFR Far East Asia	185
	CFR South East Asia	195
Butadiene	CFR China	1065
	CFR South East Asia	945
	FOB Korea	1045
Benzene	FOB Rotterdam	720
Methanol	FOB Rotterdam	270
Ortho Xylene	FOB Rotterdam	1095
Para Xylene	FOB Rotterdam	845
Solvent-MX	FOB Rotterdam	800
Styrene	FOB Rotterdam	995
Toluene	FOB Rotterdam	810
Benzene C/G	FOB US Gulf	271
Toluene C/G	FOB US Gulf	282
Styrene C/LB	FOB US Gulf	42.1
Para Xylene $/MT	FOB US Gulf	880
Mix Xylene C/G	FOB US Gulf	271
Methanol C/G	FOB US Gulf	98
Intermediates prices $/MT		
Acrylonitrile	CFR Far East Asia	1110
	CFR South East Asia	1110
	CFR South Asia	1060
VCM	CFR Far East Asia	520
	CFR South East Asia	545

MTBE	FOB Singapore	655
	FOB US Gulf C/G	200.6
Phenol	CFR China	760
	CFR South East Asia	820
	FOB US Gulf	1097
	FOB Rotterdam	762
Acetone	CFR China	605
	CFR South East Asia	665
	CFR Far East Asia	600
	FOB US Gulf	992
	FOB Rotterdam	579
Caprolactum	CFR Far East Asia	1255
	CFR South East Asia	1260
Caustic Soda	FOB North East Asia	380
	CFR South East Asia	440
Ethyl Acetate	FOB US Gulf	1343
	FOB Rotterdam	950
	FD North West Europe(Euro/mt)	920
Butyl Acetate	FOB US Gulf	1566
	FOB Rotterdam	1158
	FD North West Europe(Euro/mt)	1100
MEK	FOB Rotterdam	1262
	FD North West Europe(Euro/mt)	1190
IPA	FOB US Gulf	1154
	FOB Rotterdam	1077
	FD North West Europe(Euro/mt)	1030
NBA	CFR China	865
	CFR South East Asia	895
	CFR Far East Asia	860
Octanol	CFR China	970
	CFR South East Asia	980
	CFR Far East Asia	965
DOP	CFR China	1095
	CFR South East Asia	1110

	CFR Far East Asia	1090
Phthalic Anhydride	CFR China	885
	CFR South East Asia	920
	CFR Far East Asia	880
PTA	CFR Far East Asia	620
	CFR South East Asia	640
Acetic Acid	CFR Far East Asia	400
	CFR South East Asia	385
	CFR South Asia	341
	FOB China	280
VAM	CFR China	845
	CFR South East Asia	735
	CFR South Asia	775

Shipping term		Description
FOB	Free on Board	The seller quotes a price including the cost of delivering goods to the nearest port. The buyer bears all the shipping expenses and is responsible to get the products from that port to its final destination. In simple terms, FOB price means the buyer has to bear the shipping costs completely. This is one of the most used shipping terms by international buyers and sellers.
EXW	Ex-Works	The seller has no involvement with the transportation costs and risks. The buyer has to collect the goods from the seller's site and get them to the final destination. All the costs and risks are borne by the buyer. It is advisable that the buyer purchases insurance since the goods can get damaged in transit. EXW is ideal when the buyer and seller are in the same country or region.
CFR	Cost and Freight	The seller pays the loading and freight costs from his premises up to the destination port. Then, the buyer has to arrange for the goods to be transported from the port to his premises. The seller is only responsible for the cost of shipping the products to the destination port. CFR is used for products transported by sea or inland waterways only. The seller does not bear the risk of loss or damage during transit.
CIF	Cost, Insurance, and Freight	If the buyer opts for CIF price, the seller pays for the loading and freight costs right from his premises up to the destination port as well as insurance. In the case of damage or loss, the seller bears the risk completely. The buyer has to arrange for transportation of the goods from the port to his premises. CIF is a safer option than CFR since the goods are insured by the seller up to their arrival at the destination port.
DAP	Delivered at Place	It was previously known as DDU, Delivery Duty Unpaid. In this case, the seller is responsible for getting the goods from his own factory up to the premises of the buyer. He also bears the risk in the case of loss or damage of the goods right until the products are delivered to the buyer. The buyer only has to pay the import duties or custom clearance charges.

DDP Delivery Duty Paid

The seller is responsible for shipping the goods from his factory to the destination address provided by the buyer, usually his factory or warehouse and is also liable for any damage or loss of goods during transit. The seller also takes care of the customs, VAT, or import duties levied on the products. The buyer only has to receive the products at the destination. In most cases, most sellers only offer DDP for small shipments.

FD North West Europe	**Free Delivered**	**Free Delivered North West Europe**	**Free Delivered North West Europe**	**Free Delivered North West Europe**
Countries Groups	Southeast Asia is composed of eleven countries: Brunei, Burma (Myanmar), Cambodia, Timor-Leste, Indonesia, Laos, Malaysia, the Philippines, Singapore, Thailand and Vietnam.	Far East Asia:The following countries are considered to be located in the Far East: China, Hong Kong, Macau, Japan, North Korea, South Korea, Mongolia, Siberia, Taiwan, Brunei, Cambodia, East Timor, Malaysia, Laos, Indonesia, Myanmar, Singapore, Philippines, Thailand, and Vietnam.	South Asia: The region consists of the countries of Afghanistan, Pakistan, India, Nepal, Bhutan, Bangladesh, the Maldives, and Sri Lanka	Northwestern Europe usually consists of the United Kingdom, the Republic of Ireland, Belgium, the Netherlands, Luxembourg, Northern France, Northern Germany, Denmark, Norway, Sweden, and Iceland.

OPENING PORTS PRICE (RS/KG) OF CHEMICALS AS ON 11/08/2025

USD Exchange Rate: 87.54 INR

Producers	Current Prices (INR/kg)	Prices in USD/mt Equivalent to INR/kg	Location
Acetic Acid	33.5	382.68	Ex-Kandla
Acetic Acid	34	388.39	Ex-Mumbai
Acetonitrile-imported intact	150	1713.50	Ex-Bhiwandi
Acetone	65.5	748.23	Ex-Mumbai
Acrylic Acid	101	1153.76	Ex-Mumbai
Acrylonitrile	99	1130.91	Ex-Kandla
Adipic Acid	117	1336.53	Ex-Bhiwandi
Aniline Oil	105	1199.45	Ex-Kandla
Benzene	63	719.67	Ex-Vizaz
Butyl Acetate	81	925.29	Ex-Kandla
Butyl Acrylate Monomer	115.5	1319.40	Ex-Kandla
Butyl Glycol	94	1073.79	Ex-Kandla
C10	90	1028.10	Ex-Kandla

C9	74	845.33	Ex-Kandla
Caustic Soda Lye	35.5	405.53	Ex-Dahej
Chloroform	10	114.23	Ex-Dahej
Citric Acid-ANHYD	72	822.48	Ex-Bhiwandi
Citric Acid-Mono	66	753.94	Ex-Bhiwandi
Cyclohexane	77	879.60	Ex-Hazira
Cyclohexanone	99.5	1136.62	Ex-Kandla
DMF	57	651.13	Ex-Bhiwandi
DEG	63.5	725.38	Ex-Hazira
EDC	18	205.62	Ex-Kandla
Epoxy Resin	188.5	2153.30	Ex-Nhava Sheva
Ethyl Acrylate	130.25	1487.89	Ex-Kandla
Formic Acid	65	742.52	Ex-Bhiwandi
Glycerine	110	1256.57	CIF Nhava Sheva
N-Heptane	205	2341.79	Ex-Bhiwandi
Hexane	73	833.90	Ex-Kandla
Hydrogen Peroxide-50%	28	319.85	Ex-Bhiwandi
Isobutanol	81	925.29	Ex-Kandla
IPA	82	936.71	Ex-Kandla
IPA	83	948.14	Ex-Mumbai
LAB	155.5	1776.33	Imported
Maleic Anhydride-Drum	92.5	1056.66	Ex-Mumbai
MDC	32	365.55	Ex-Dahej
MEG	52.5	599.73	Ex-Mumbai
MEK	95	1085.22	Ex-Kandla
Melamine	83.25	950.99	Imported
Methanol	29.5	336.99	Ex-Kandla
Methanol	29.5	336.99	Ex-Mumbai
MIBK	96	1096.64	Ex-Hazira
Mix Xylene-Solvent Grade	72.5	828.19	Ex-Kandla
Mix Xylene-Solvent Grade	75	856.75	Ex-Mumbai
MMA	119	1359.38	Ex-Hazira
N-Butanol	89	1016.68	Ex-Kandla
N-Propanol	86	982.41	Ex-Kandla
NPAC	83	948.14	Ex-Kandla

Octanol	98.5	1125.20	Ex-Kandla
Ortho Xylene	82	936.71	Ex-Kandla
Phenol	89	1016.68	Ex-Kandla
Phenolic Resin	165	1884.85	Ex-Indore
Phthalic Anhydride	94	1073.79	Ex-Mumbai
Propylene Glycol	90	1028.10	Ex-Kandla
Sodium Nitrate (50Kg Bag)	61	696.82	Ex-Make-Lasons
Soda Ash Light	35	399.82	Ex-Bhiwandi
Styrene Monomer	83.5	953.85	Ex-Kandla
Styrene Monomer	85.5	976.70	Ex-Mumbai
Sulphuric Acid	14.25	162.78	Ex-Vapi
Tio2 (Anatase Grade)	220	2513.14	Ex-Bhiwandi
Tio2 (Rutile Grade)	245	2798.72	Ex-Bhiwandi
Toluene	67	765.36	Ex-Kandla
Toluene	67	765.36	Ex-Mumbai
VAM	70	799.63	Ex-Kandla
VAM	71	811.06	Ex-Hazira

PRODUCER PRICES (RS/KG) OF CHEMICALS AS ON 11/08/2025

Producers	Current Price (INR/Kg)	Import parity Price in USD/MT	Location
Accord-Ethyl Acetate	63.75	728.24	Ex-Maharashtra
Arham Petrochem-C9	73.75	842.47	Ex-Kandla
Arham Petrochem-C9	74.75	853.90	Ex-Ahmedabad
Arham Petrochem-C10	89.5	1022.39	Ex-Kandla
Arham Petrochem-C10	89	1016.68	Ex-Ahmedabad
Arham Petrochem-C10 (Imported Repack)	95.75	1093.79	Ex-Bhiwandi
Arham Petrochem-MTO/White Spirit (KL)	59.65	681.40	Ex-Kandla
Arham Petrochem-MTO/White Spirit (KL)	60.65	692.83	Ex-Ahmedabad
Arham Petrochem-De-Aromatised D40	130	1485.04	Ex-Kandla
Arham Petrochem-De-Aromatised D40	131	1496.46	Ex-Ahmedabad
Arham Petrochem-De-Aromatised D60	139	1587.85	Ex-Kandla
Arham Petrochem-De-Aromatised D60	140	1599.27	Ex-Ahmedabad
Andhra Petrochemicals-Iso-Butanol	77	879.60	Ex-Vishakhapatnam
Andhra Petrochemicals-N-Butanol	89	1016.68	Ex-Vishakhapatnam
Andhra Petrochemicals-Octanol	99	1130.91	Ex-Vishakhapatnam

BASF-Adipic Acid	132	1507.88	Imported
BPCL-2-Ethyl Hexanol (B)	95.9	1095.50	Ex-Kochi
BPCL-2-Ethyl Hexanol (P)	106.4	1215.44	Ex-Kochi
BPCL-2-Ethyl Hexyl Acrylate (B)	121	1382.23	Ex-Kochi
BPCL-2-Ethyl Hexyl Acrylate (P)	131	1496.46	Ex-Kochi
BPCL-Acrylic Acid (B)	95.5	1090.93	Ex-Kochi
BPCL-Acrylic Acid (P)	104.5	1193.74	Ex-Kochi
BPCL-Benzene	67.5	771.08	Ex-Mumbai
BPCL-Butyl Acrylate (B)	113.5	1296.55	Ex-Kochi
BPCL-Butyl Acrylate (B)	116	1325.11	Ex-Kandla
BPCL-Butyl Acrylate (P)	123.5	1410.78	Ex-Kochi
BPCL-Hexane (KL)	75.6	863.61	Ex-Mumbai
BPCL-Hexane (MT)	13.93	159.13	Ex-Mumbai
BPCL-Iso-Butanol (B)	76.7	876.17	Ex-Kochi
BPCL-Iso-Butanol (P)	87.7	1001.83	Ex-Kochi
BPCL-MTO (KL)	84.65	966.99	Ex-Mumbai
BPCL-N-Butanol (B)	85.1	972.13	Ex-Kochi
BPCL-N-Butanol (B)	86.6	989.26	Ex-Kandla
BPCL-N-Butanol (P)	96.1	1097.78	Ex-Kochi
BPCL-Paraffin Wax	105	1199.45	Ex-Delhi
BPCL-Sulphur (Molten)	28.68	327.62	Ex-Mumbai
BPCL-Toluene	67.5	771.08	Ex-Mumbai
Deepak Phenolics-Acetone	62.5	713.96	Ex-Dahej Gujarat
Deepak Phenolics-IPA	80.25	916.72	Ex-Dahej Gujarat
Deepak Phenolics-Phenol	84	959.56	Ex-Dahej Gujarat
GACL-Caustic Soda Lye	37	422.66	Ex-Dahej Gujarat
GACL-MDC	32	365.55	Ex-Bharuch Gujarat
GNFC-Acetic Acid	34	388.39	Ex-Bharuch Gujarat
GNFC-Aniline Oil	110	1256.57	Ex-Bharuch Gujarat
GNFC-Ethyl Acetate	66	753.94	Ex-Bharuch Gujarat
GNFC-TDI Drum	185	2113.32	Ex-Bharuch Gujarat
Grasim-MDC	32	365.55	Ex-Gujarat
GSFC-Cyclohexane	77.5	885.31	Ex-Gujarat
HOCL-Acetone	87.5	999.54	Ex-Kochi
HOCL-Phenol	106	1210.88	Ex-Kochi

IOCL-Banzene	66	753.94	Ex-Vadodara Gujarat
IOCL-DEG	59.1	675.12	Ex-Odisha(Paradip)
IOCL-DEG	60.2	687.69	Ex-Panipat
IOCL-LAB	160	1827.74	Ex-Gujarat
IOCL-MEG	56.4	644.28	Ex-Odisha(Paradip)
IOCL-MEG	57.9	661.41	Ex-Panipat
IOCL-Paraffin Wax	105	1199.45	Ex-Delhi
Jubilant-Ethyl Acetate	66	753.94	Ex-Maharashtra
Laxmi-Ethyl Acetate	69.25	791.07	Ex-Maharashtra
Meghmani-Caustic Soda Lye	37.25	425.52	Ex-Bharuch Gujarat
Meghmani-MDC	32	365.55	Ex-Ankleshwar Gujarat
NIRMA-LAB	150	1713.50	Ex-Vadodra
Reliance-Caustic Soda Lye	37	422.66	Ex-Gujarat
Reliance-DEG	58.5	668.27	Ex-Jamnagar
Reliance-LAB	160	1827.74	Ex-Vadodra
Reliance-MEG	56	639.71	Ex-Jamnagar
Reliance-Mix Xylene	71	811.06	Ex-Jamnagar
Reliance-PTA	74.1	846.47	Ex-Dahej Gujarat
Reliance-Toluene	65	742.52	Ex-Jamnagar
SI GROUP-Phthalic Anhydride	91.5	1045.24	Ex-Navi Mumbai
TATA Chemicals-Soda Ash light	34	388.39	Ex-Bhiwandi

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survive or grow.

Take away:

The petrochemical industry is in a period of transition. The profit is shrinking and environmental pressures are rising. Therefore, the companies are forced to make tough choices. Europe, which was once a powerhouse for chemical production, is now turning into a nightmare due to higher energy costs and outdated factories. The U.S and the Middle East are gaining ground, thanks to cheap fuel and export-oriented strategies. The global balance is shaken also because of China's rapid expansion, and the country is flooding the market with basic chemicals. Therefore, the future of petrochemicals lies with innovation, efficiency, and environmental responsibility. The companies must understand this and act now to have the best chance in the next era of global chemical production.

The Tariff Twist How India Can Lead in Global Specialty Chemical Exports

Vinodhini Harish

Introduction:

U.S tariffs - their strength and long-lasting effect are creating big news in the global chemical sector, especially in countries like China. These tariffs are just slices of a larger plan to reduce the dependency on foreign suppliers and boost local manufacturing. This has created some trade tensions and uncertainty, but it has also opened up some opportunities for countries like India. Especially Indian specialty chemical exporters can focus on their chances due to these changes. Some exporters are facing cost pressures, while others are benefitting as global companies are looking for more stable and tariff-neutral suppliers. India is growing in its manufacturing base, and its strong presence in chemicals is well positioned to step up. In this article, we have explored how U.S tariff policies are influencing global trade and what Indian businesses can do to take advantage of this changing landscape.

U.S tariffs- are they reshaping export strategies?

Tariffs are significantly reshaping export strategies, especially for specialty chemicals. Indian exporters are presented with both challenges and opportunities. They are navigating increased tariffs on goods from countries like China and Vietnam.

Some segments are facing reduced competitiveness due to higher costs, and others are capitalizing on the shifting global landscape by becoming more reliable.

The global trade landscape is experiencing uncertainty once again, due to reasons such as firm impositions of tariffs, truces and renegotiations. The U.S administration is taking a stronger and more aggressive stance on its trade policy compared to the previous efforts. By increasing the tariffs, the U.S aims to reduce their dependency on foreign suppliers, especially in critical sectors such as semiconductors, EVs or pharmaceuticals. This also aligns with their broader goals of economic resilience.

Sweeping tariffs act as a bargaining tool to push the trade partners into renegotiating the trade terms or addressing their long-standing grievances such as intellectual property theft, forced technology transfer or unfair subsidies.

Higher tariffs make imports more expensive, and this factor is encouraging domestic industries to scale up production. This also ties into job creation and political promises to rebuild the manufacturing sector. The strategic shift in the U.S trade policy is transforming from reactive tariff use to a proactive, sustained approach that aims at reshaping global trade relations. The new normal hints at a future where tariff-driven industrial policy becomes a long-term feature of economic governance, not a temporary fix.

What is happening in global trade due to U.S tariffs?

There is a turbulent and unstable global trade environment, and this reflects a recurring pattern, which means one country imposes tariffs and the other nations retaliate. This is followed by negotiations and the cycle resumes. Since 2018, the U.S.-China trade war has been happening, and the countries have engaged in tit-for-tar tariffs on steel, aluminum, chemicals and tech products. Even allies like EU, Canada and India have occasionally found themselves on the receiving end of U.S tariffs. This back and forth leads to policy volatility, cost unpredictability and shifts in trade volumes.

Thus, we can conclude that the trade policies are not seen as an economic tool, but used at a geopolitical level. The business firms are facing difficulties in doing their long-term planning

due to frequent changes in the rules. The emerging economies like India can exploit these gaps caused by the disruptions if they are agile. Earlier U.S governments were using tariffs to create short-term pressure. But now, the U.S government is turning tariffs into a permanent strategy to change how global trade works.

U.S government is applying tariffs on a broader basket of goods, targeting not only China but also key allies when the national interest is cited. The changes are signalling a goal of structural change in the global supply chains that are away from adversarial or dominant countries like China. From the perspective of securing U.S economic security, the ultimate aim of imposing tariffs is to restore production, build domestic capacity, and re-evaluate long-standing supply partnerships. Nevertheless, India is not the primary target here. It is viewed as a neutral and friendly supplier.

Tariff policies are rooted in internal concerns such as loss of manufacturing jobs, trade deficits, and inflation, but all of these have significant global consequences. The companies are seeking to circumvent tariffs as they are shifting their sourcing and production. To avoid tariffs, the firms are relocating their production hubs to more friendly and tariff-neutral countries like Vietnam, Mexico or India. Although Logistics, customs and certification systems must evolve rapidly.

How is India benefiting, especially in the specialty chemicals sector?

India stands to benefit strategically from these trade tensions, particularly in Specialty chemicals, where China has traditionally dominated. The disruption offers India a Chance to capture the market share. Global customers are looking for China +1 strategies, and India is the most prominent alternative for chemicals. India already has a strong base in pharmaceutical intermediates, agrochemicals, dyes, pigments, and contract manufacturing. With rising ESG pressures, environmental, social, governance in China and strict pollution controls, Indian exports are becoming more attractive for end-users.

Indian companies are expanding their capacity and forming supply partnerships with Western firms. India's specialty chemicals market is expected to grow 3 times over the next decade. Moreover, government policies such as PLI schemes, infrastructure parks, such as PCPIR and single-window clearances are accelerating readiness. There are other risks that the country should address, including infrastructure bottlenecks, compliance delays, and skill gaps, to fully seize this opportunity.

Overall, although global trade is becoming quite unstable with the tariffs, retaliation, and negotiation cycles, businesses are facing unpredictability. India can step ahead into these gaps and win the situation. We can be sure that the U.S is serious about using the long-term tariffs to reshape the trade structure. We observe that global firms are shifting their production bases, and India is a top alternative. Specialty chemicals in India are standing to gain, and buyers are seeking new partners. This is the time India should scale, meet the compliances and invest in quality R&D.

India is not starting from scratch, as it is already a recognized player in the global chemical value chain. With the strategic investments in the infrastructure, policy support and R&D, India can scale up while reducing dependency on imports. India has tremendous strength in contract manufacturing, and this is the key to capturing relocated demand from multinationals that are seeking fast, compliant and flexible partners. India's contract manufacturing sector is expected to grow with 12-15% CAGR by 2030.

Although Indian production is slightly costlier due to raw material imports or energy prices, the tariff penalties on Chinese products help level the playing field or even tilt it in India's favour. For instance, a Chinese chemical with a 20% tariff and no IP transparency or an Indian chemical that costs 5-10% more but avoids tariffs and offers better compliance. The Indian product becomes more competitive. The tariffs are artificial price equalizers, that is helping India gain traction in segments where it couldn't undercut China earlier.

Behaviour of international customers in specialty chemicals sector:

The trade policies, tariffs and evolving expectations of international customers in the specialty chemicals sectors are quite different. The global buyers are now looking beyond just "lower costs." Price was a major driver in sourcing decisions, and others were usually left behind in consideration. However, now, the consumers are considering other strategic priorities that have become more important. Those priorities include: supply reliability, ESG compliance, long-term partnerships, and so on. These factors elaborate on the qualitative expectations of the global buyers, such as predictability that includes regular delivery timelines and fewer supply disruptions. Maintaining environmental standards, such as ESG-conscious buyers expect chemical producers to limit pollution, reduce emissions and follow sustainable processes. On the other hand, they are also expecting IP protection that is important for the western innovators outsourcing custom synthesis, and India must ensure data integrity and non-infringement.

How can India capitalize on this moment?

Indian players must evolve on three fronts – making the transitions help them lead to a strategic roadmap for India to become a global specialty chemical powerhouse.

- Capacity building: The demand is shifting from China and India, and there is a strategic opportunity to respond. China's falling appeal gives India an opening to absorb demand. This requires rapid scaling of infrastructure and production capacity. India needs world-class chemical parks, with waste management, effluent treatment, and logistics pre-arranged.

- Strategic partnerships: collaborations with global MNCs can give the Indian players a competitive edge. The global firms bring technology, brand trust and access to new markets. These partnerships are focusing on the technology transfer, process optimization and product development. They are especially valuable in niche segments such as high-performance polymers or semiconductor-grade chemicals. The high-end applications require technical sophistication and precision; therefore, the partnerships in these areas allow India to develop know-how that would otherwise take decades to build organically.

- Policies and incentive support: Government backing through PLI schemes, single window clearances, and bilateral trade agreements will be vital in maintaining the momentum.

Takeaway:

This is a critical time in global trade and is considered a massive turning point. Isolated tariffs are becoming a strategic reset, and India, with their expanding specialty chemicals ecosystem, has a rare chance to rise as a global manufacturing and innovation hub. The success depends on policy agility, infrastructure and industry readiness. But the firms must understand that trust is sustainable; tariff-driven demand is not. Therefore, they have to build a position that doesn't rely on the short-term tariff wins but long-term trust. Likewise, high-end buyers don't like to negotiate on consistency in quality; therefore, the firms must ensure that they make on-time deliveries, product consistency and after-sales services intact, while aligning with the global standards and compliance norms such as REACH, GHS, FDA and ESG standards. Overall, this change might seem like a warning for the chemical sectors, but it also offers ample opportunities to become the leader.

Molybdenum The Next Big Leap in Advanced Semiconductor Manufacturing

Team Chemical Market

Introduction:

Molybdenum is an evolving vital element in the global tech race, especially in the semiconductor industry. Once it was known mainly for strengthening steel, it is now used in the production of advanced memory and logic chips. The technologies like AI, 5G and high-performing computing are evolving, and that has made these semiconductor manufacturers shift their procedures from traditional metals like tungsten to molybdenum. Therefore, the shift originates from the surging demand, driving growth across sectors like mining, refining, and high-purity material production. This article explores all the reasons why molybdenum is gaining so much traction and what the current market trends indicate. Please read the article to

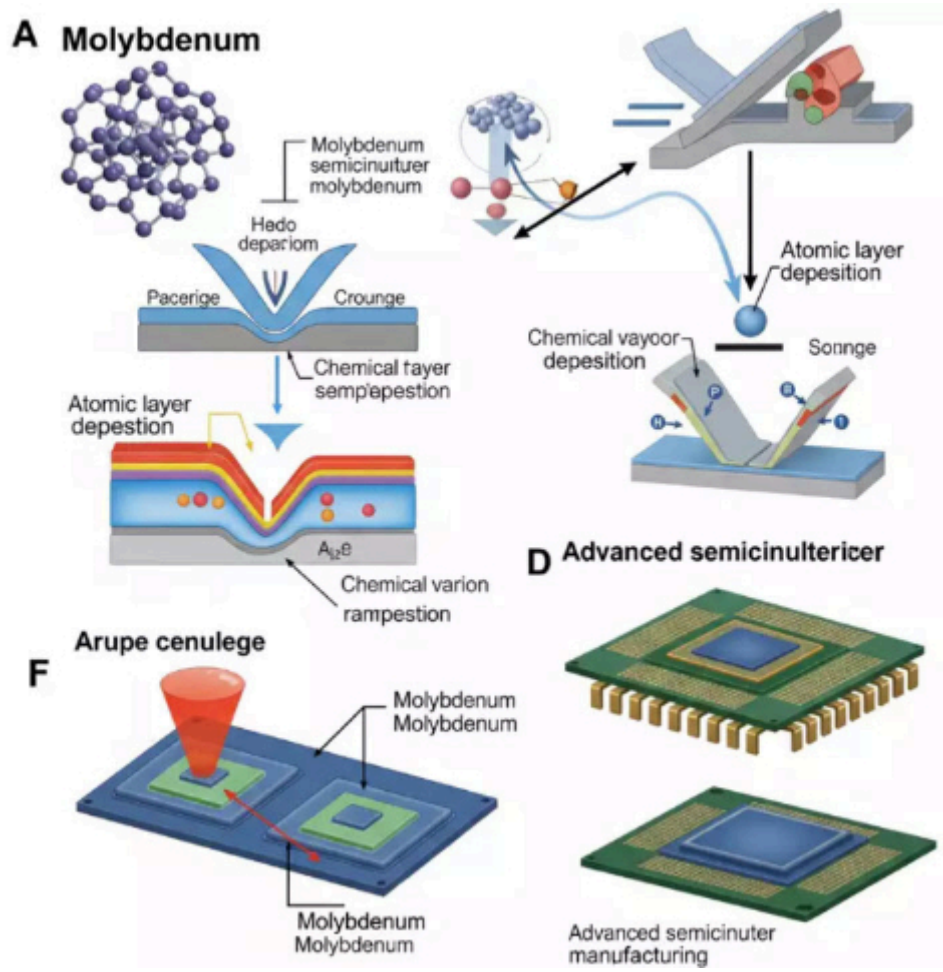
know how the companies can capitalize on the situation and grow.

What all do you know about the world's largest molybdenum manufacturing plant?

The scalability makes the achievement a very important one in the semiconductor industry, especially for producing advanced computer chips. Air Liquide has officially started its operations at its new molybdenum manufacturing plant in Hwaseong, South Korea. Hwaseong is an important location because of its proximity to major technology companies like Samsung, which makes it easier to supply easily and work closely. This location that Air Liquide has chosen has reduced their transportation time and costs as they build stronger partnerships with the chip makers. Air Liquide is a global company and is known for providing gases and high-performance materials for industrial purposes. Therefore, the location of the new plant allows them to stay close to some of the biggest semiconductor customers. This also shows the company's commitment to supporting the fast-growing semiconductor sector. The location exhibits a higher demand for new and advanced materials like ultra-high purity molybdenum that are used in the latest types of computer chips.

The chips made out of these ultra-pure molybdenum are used in new technologies like artificial intelligence, 5G networks, and powerful memory systems. As these manufacturers make them smaller, they become more powerful, like those being made at the 3-nanometer and 2-nanometer levels. They need special materials that can handle high-speed performance without overheating or causing electrical problems.

Conventionally, Tungsten was utilized for the manufacturing of chips, but now that has been replaced with molybdenum, which is now considered



a better choice for these tiny chip structures. Therefore, the goal of the molybdenum plant is not just to make more molybdenum, but to help the tech world move forward. Air Liquide is playing a key role in this change by making sure there's enough of this high-quality material available for the companies that build next-generation chips.

Subleem™ is a product that meets the exact needs of the computer chips manufacturing companies:

The plant has planned to supply Subleem™ to the chip makers. This Subleem™ is a special product that is developed by Air Liquide, as it includes both ultra-pure molybdenum and special equipment needed to safely and precisely deliver it to chip-making machines. This is very important because of the necessity of keeping the semiconductor factories extremely clean. Even the smallest dust or impurity can damage a chip. This Subleem™ is made with extreme purity and delivered using specially designed systems that keep it clean all the way to the production process. The system controls things like temperatures, pressures and vaporization so that the material arrives exactly how the chipmakers need it. Renowned companies like Samsung, SK Hynix, and TSMC use these kinds of materials to build the most advanced chips for their electronic products. The chips have tiny features, thus they need kinds of materials that work well even at such small sizes. Therefore, Subleem™ doesn't stop being a new product, but it works well for the tech companies to make faster, smaller and more powerful chips.

Subleem™ is a special molybdenum product that is created by Air Liquid to meet the exact needs of the computer chips manufacturing companies. The

product is developed by working closely with the chip manufacturers to make sure that it fits perfectly into their production processes. Subleem™ works well during the deposition process, thereby helping form the tiny metal parts inside a chip. The chip manufacturers place very thin layers of materials on the silicon wafers, and this process has to be done carefully. Subleem™ works efficiently than other conventional materials. Subleem™ is considered a unique product due to its delivery system. Air Liquide has created a special delivery system that keeps the molybdenum ultra-pure and stable while moving it from the factory to the chip-making equipment. The systems also control temperature and pressure so that the material works just right when used. This full setup, pure material plus smart delivery, makes Subleem™ one of a kind.

Why is Molybdenum taking over the semiconductor industry?

Molybdenum is becoming an important material for making new and advanced computer chips. In the past, chip makers were using tungsten, and they are switching to molybdenum because it works well in many ways. One big advantage is that molybdenum is easier to shape and remove during the chip-making process. During the "Etching" process, molybdenum gives better control. Since it has lower electrical resistance, electricity can flow through it more easily, and this helps chips run faster and use less power.

In recent times, chip makers are using a unique process called "Atomic layer Deposition" or ALD. This method is used to carefully place ultra-thin layers of materials on the chip with great accuracy. Molybdenum is quite useful in the newest kind of chips. They are built in vertical 3D layers instead of flat surfaces. These 3D chips are used in memory devices like DRAM and NAND, and even in AI chips. Therefore, the chips are getting smaller and more complex.

Leading semiconductor companies are now relying more on molybdenum because it makes them better, faster and smaller chips. As technology grows, especially in artificial intelligence, smartphones, electric cars, and data centres, the manufacturers of the chips are expecting the chips to work faster with less energy. To do this, the manufacturers are looking for better materials that help them build tiny parts inside the chips. Molybdenum is one of those materials.

Compared to conventional materials like Tungsten, molybdenum helps with better performance, more stable connections, and supports smaller chip features. Molybdenum also helps in reducing heat and improving how the electricity flows in the tiny chip circuits. In today's world, chips are getting smaller and more complex, and every detail matters – even the materials used at the atomic level.

Molybdenum is compatible with the newer chip-making processes like Extreme UltraViolet lithography. This process is used to make the most advanced chips. The companies need reliable and ultra-high purity molybdenum to avoid contamination without damaging the chips. That is why the suppliers like Air Liquide are developing special high-purity molybdenum solutions.

Factors that all Semiconductor companies must understand:

The global molybdenum market is expected to cross USD 7 billion by 2028 with a CAGR of 7%. Rapid expansion in semiconductor manufacturing (AI, 5G, HPC), rising molybdenum use in electric vehicles (battery casings, power electronics) and rising demand in aerospace, nuclear, and green hydrogen technologies are accentuating the market demand. The companies are now focusing on producing molybdenum with ultra-low contamination levels for semiconductor-grade use. They are setting up plants near chipmaking hubs like South Korea, Taiwan, the U.S and Japan to reduce the delivery time and costs.

They are also collaborating with leading semiconductor companies to co-develop molybdenum-based materials that are tailored for specific technologies. Therefore, the companies that are growing must understand these strategies and drive their production accordingly.

The manufacturers must work closely with the material suppliers to develop cleaner and more reliable supply chains. They are investing in local refining units, automation and real-time quality checks. The chip technology is moving towards extreme ultraviolet and smaller nodes; therefore, having a top-quality molybdenum becomes critical.

Take away:

The molybdenum industry is at its turning point. The semiconductors are becoming more complex and powerful; therefore, molybdenum's role is enabling reliable and high-performance chips to become even more crucial. It has superior properties and the ability to meet the rigorous demands of next-gen electronics, making it a smart choice for chipmakers across the world. The demand is expected to rise steadily, and the companies involved in molybdenum extraction, purification, and supply must now prioritize innovation, scalability, and sustainability. Those who act quickly—investing in ultra-pure production, building strong customer partnerships, and staying close to semiconductor hubs—will be best positioned to lead in this fast-growing, future-ready market.

NUS researchers develop novel material for water quality monitoring device

SINGAPORE, July 3, 2025 / PRNewswire/ -- Clean, safe water is vital for human health and well-being. It also plays a critical role in our food security, supports high-tech industries, and enables sustainable urbanisation. However, detecting contamination quickly and accurately remains a major challenge in many parts of the world. A groundbreaking new device developed by researchers at the National University of Singapore (NUS) has the potential to significantly advance water quality monitoring and management.

Taking inspiration from the biological function of the oily protective layer found on human skin, a team of researchers led by Associate Professor Benjamin Tee from the Department of Materials Science and Engineering in the College of Design and Engineering at NUS translated this concept into a versatile material, named ReSURF, capable of spontaneously forming a water-repellent interface. This new material, which can be prepared through a rapid micro-phase separation approach, autonomously self-heals and can be recycled. The researchers incorporated the material into a device known as a triboelectric nanogenerator (TENG), which uses the energy from the movement of water droplets to create an electric charge. The resulting device (ReSURF sensor) can be applied as a water quality monitor.

"The ReSURF sensor can detect various pollutants, such as oils and fluorinated compounds, which are challenging for many existing sensors. This capability, together with unique features such as self-powered, self-healing, reusability and recyclability, positions ReSURF as a sustainable solution for real-time, on-site, and sustainable water quality monitoring," said Assoc Prof Tee.

The team's design of the ReSURF material and performance of the novel water quality sensor were published in the scientific journal Nature Communications on 1 July 2025.

Rapid and sustainable water quality sensing

Existing water quality monitoring technologies such as electrochemical sensors, optical detection systems, and biosensors are effective in certain specific applications, such as detecting heavy metals, phosphorus, and microbial pollution.

However, these technologies often face limitations including slow response, high costs, reliance on external reagents or power sources, limited reusability, and the need for bulky laboratory equipment or specialised instrumentation.

The ReSURF sensor developed by the NUS team effectively overcomes these challenges, particularly in on-site real-time water quality sensing. The self-powered device has demonstrated the ability to detect water contaminants in approximately 6 milliseconds (i.e. around 40 times faster than a blink of the eye).

Additionally, the ReSURF sensor is designed to be self-healing and recyclable, making it a sustainable and low-maintenance solution. Being stretchable and transparent, the material can be easily integrated into flexible platforms, including soft robotics and wearable electronics, setting it apart from conventional sensing materials.

Furthermore, the ReSURF material applied as a sensor offers an environmentally friendly solution as it can be easily recycled due to its solubility in solvents, enabling it to be reused in new devices without suffering a loss in performance.

ReSURF sensor: How it works

The ReSURF sensor monitors water quality by analysing the electrical signals generated when analytes — such as salts, oils, or pollutants — in the water droplets, contact its surface. When water droplets containing analytes strike the water-repellent surface of the sensor, they spread out and slide off quickly, generating electric charges within milliseconds. The magnitude and characteristics of the signal generated would vary according to the composition and concentration of the analytes present. By monitoring these signals in real time, the ReSURF sensor can rapidly and accurately assess water quality without the need for external power sources.

To demonstrate its capabilities, the researchers tested the ReSURF sensor on a pufferfish-like soft robot in detecting oil in water and perfluorooctanoic acid – a common contaminant found in water sources. The test produced promising results with both contaminants producing different voltage signals, providing a proof-of-concept that the ReSURF sensor can be used in early surveillance of possible contamination.

Safeguarding water quality

The ReSURF sensor offers broad application potential. It can be deployed in rivers, lakes, and reservoirs to enable early surveillance of pollutants, allowing

for quick response to water contamination emergencies. In agriculture, it is capable of monitoring water safety in areas like rice fields. In industrial settings and sewage treatment plants, the ReSURF sensor could provide valuable insights for wastewater management.

Next steps

The research team hopes to optimise the ReSURF sensor by enhancing the specificity of pollutant detection, integrating wireless data transmission capabilities, and scaling the system for long-term or large-scale environmental monitoring. Additionally, the researchers plan to explore more eco-friendly material alternatives to enhance sustainability and align with evolving environmental regulations.

"Future iterations could integrate additional sensing modalities or machine learning–based signal analysis to enable more precise identification and classification of pollutants. We envision this platform as a foundation for the development of more intelligent and responsive water quality monitoring systems," said Assoc Prof Tee.

Source : National University of Singapore

High flowability, easy processing and good colorability: PPA for small and color-stable E&E parts

- Ultramid® T6000 (PA66/6T) bridges gap between polyamide 66 and polyphthalamide (PPA)
- Excellent, UL-tested flammability values for RTI and CTI
- Pre-colored compounds in black, grey and durable orange
- Improved, backwards-integrated PA66/6T, immediately available in all regions

For many electric and electronics (E&E) components, where stiffness and strength of polyamide 66 (PA66) reach their limit, BASF customers can now choose from a tailored portfolio of PA66/6T compounds: Ultramid® T6000 is a high-temperature polyamide outperforming PA66 in mechanical and dielectric properties in presence of humidity and at elevated temperatures. At the same time, its lower moisture absorption ensures good dimensional stability, thus closing the gap to BASF's Ultramid® Advanced (polyphthalamide: PPA) portfolio. Ultramid® T6000 allows for easy processing at low mold temperatures similar to standard PA66. Due to its good colorability, compounds with different white shades can be manufactured, in addition to durable orange and grey. The flame-retardant grades are equipped with a non-halogenated flame retardant. Ultramid® T6000 are improved, backwards-integrated PA66/6T compounds, which BASF acquired from Solvay in 2020, and are immediately available.

Its good flowability makes Ultramid® T6000 ideal for producing small and complex E&E components, e.g. high-voltage connectors and miniature circuit breakers (MCB) as well as parts in electric powertrains and consumer electronics. E.g., Ultramid® T6340 G6 can be used in high-voltage connectors for electric vehicles to provide a safe and reliable connection between battery and inverter or the power distribution and e-motor even at elevated temperatures. Ultramid® T6000 thus helps to transfer power in the most efficient and safe way; even high power surges during swift acceleration can be reliably handled during the whole lifetime of the vehicle, while ensuring an optimum component design in terms of compact, flexible geometry, weight and cost.

UL cards for e.g., Ultramid® T6340G6 show outstanding flame-retardant values: It has a V-0 rating at 0.4mm and is characterized by a high CTI (Comparative Tracking Index) of 600 (acc. to IEC 60112): This supports miniaturization of E&E parts by lower creepage and better insulation than standard PA66. The PPA provides an excellent electrical RTI (Relative Temperature Index) of 150°C at 0.4mm and a GWFI (Glow Wire Flammability Index) of 960°C at 0.8mm. This ensures functionality for

small wall thicknesses, even at high operating temperatures.
"Our Ultramid® T6000 bridges the gap between PA66 and PPA for E&E applications", says Andreas Stockheim from PPA business development at BASF. "Tests have proven that mold temperatures from 90°C to 110°C have no significant influence on its good mechanical properties and surface appearance: Thus, manufacturers can use their existing PA66 equipment like water cooling for molds - they can even save energy in comparison to manufacturing PPAs. We are looking forward to working together with customers and unlocking the full potential of Ultramid® T6000 for innovative E&E components in many colors."

As the market leader for polyamides, BASF with Ultramid® T6000 is currently the only company to offer pre-colored PA66/6T compounds in durable orange (RAL 2003), which meet the criteria of color stability at high temperatures over a long time. They thus enable long-lasting color coding, which is safety-relevant for high voltage applications. The use of tailor-made pigments and non-halogenated flame retardants counteracts electro-corrosion, especially in humid and warm environments. Besides pre-colored compounds in black, grey, orange and white, UL-certified masterbatches are available for self-coloring. For fuel cell components, the high-purity Ultramid® T6300HG7 without flame retardants can be used.

Source : BASF

Plasmatreat Introduces HydroPlasma®: A Sustainable Breakthrough in High-Performance Surface Cleaning

STEINHAGEN, Germany, July 25, 2025 /PRNewswire/ -- Plasmatreat GmbH, the global leader in atmospheric plasma technology, has unveiled HydroPlasma®, an innovative, eco-friendly solution for ultra-precise cleaning of glass and metal surfaces. Combining the proven effectiveness of Openair-Plasma® with the reactive power of ionized water, HydroPlasma® sets a new benchmark for removing stubborn organic and inorganic contaminants, including fingerprints, oils, salts, and grease, without chemicals.

Revolutionizing Cleanliness in High-Tech Industries and Processes

In sectors like automotive, electronics, aerospace, and medical manufacturing, even microscopic contaminants can compromise adhesion in critical processes such as bonding, coating, printing or sealing. Traditional cleaning methods often rely on solvents or wet-chemical treatments, but HydroPlasma® delivers a chemical-free, sustainable alternative using only compressed air, electricity, and water. This advanced technology not only enhances cleaning efficiency but also supports environmentally responsible production.

How HydroPlasma® Works: Science Meets Sustainability

HydroPlasma®'s patented process injects water into a plasma jet, where it ionizes into a highly reactive cleaning stream. A precision nozzle directs this stream onto surfaces, dissolving residues with a detergent-like effect—no harsh chemicals required.

Unlike conventional methods, HydroPlasma®:

- Removes previously stubborn contaminants (e.g., fingerprints, inorganic residues)
- Preserves delicate substrates with a cooling effect that prevents thermal damage
- Boosts surface energy for improved wettability in downstream processes

Complementing Openair-Plasma® for Unmatched Flexibility

While Openair-Plasma® remains ideal for light organic contaminants (dust, oils), HydroPlasma® extends capabilities to challenging inorganic residues. Together, they offer a VOC-free, scalable

cleaning suite for industries demanding zero-compromise cleanliness.

Applications Across Industries

HydroPlasma® integrates seamlessly into existing production lines, including automotive manufacturing, electronics, and precision optics. Its gentle yet powerful cleaning is ideal for:

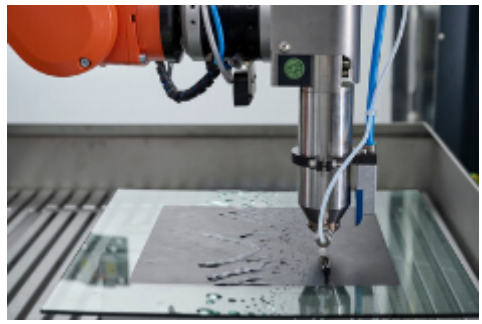
- Automotive: Ensuring flawless coating adhesion and structural bonding
- Medical Devices: Meeting sterile surface standards
- Aerospace: Preparing critical components for coatings

Sustainability at the Core

By eliminating solvents and reducing waste, HydroPlasma® helps manufacturers cut carbon footprints while maintaining workplace safety and process reliability.

What is Openair-Plasma®?

Plasma is also known as the fourth state of matter, alongside solid, liquid and gas. When additional energy is added to a gas, it becomes ionized and enters the



energetic plasma state. Whether plastic, metal, glass or paper, plasma technology is used to change the properties of the surface according to the requirements of the process.

Source : Plasmatreat GmbH

L&T Energy GreenTech to Establish India's Largest Green Hydrogen Plant

L&T Energy GreenTech Ltd (LTEG), a wholly-owned subsidiary of Larsen & Toubro (L&T), will set up India's first largest green hydrogen plant at Indian Oil Corporation Ltd's (IOCL) Panipat Refinery in Haryana.

The plant, to be developed on a build-own-operate (BOO) basis, will supply 10,000 tonnes of green hydrogen annually to IOCL for 25 years, supporting Government of India's National Green Hydrogen Mission.

The plant will operate round the clock using renewable energy, aligning with IOCL's broader strategy to decarbonise its refining operations and contribute to India's net-zero ambitions. It will produce the green hydrogen using high-pressure alkaline electrolysers manufactured at L&T Electrolysers Ltd's state-of-the-art facility in Hazira, Gujarat.

The initiative marks a significant milestone in India's energy transition and reinforces L&T's leadership in delivering sustainable, scalable clean energy infrastructure. With this development.

LTEG becomes a pioneer in India's green hydrogen ecosystem, setting a precedent for industrialscale adoption across refineries, fertiliser plants, and other hard-to-abate sectors.

Commenting on this, Subramaniam Sarma, Deputy Managing Director & President, L&T, said: "The decision to set up India's maiden green hydrogen plant validates our strategy to lead the nation's energy transition. This long-term project not only deepens our partnership with IOCL but also reinforces our capability to deliver large-scale clean energy solutions. As a first mover in India's green hydrogen space, we are proud to lay the foundation for cleaner industrial processes at scale."

Complementing him, Derek Shah, Head – Green Manufacturing & Development, L&T, added: "This project reflects our end-to-end green energy capabilities — from electrolyser manufacturing to execution and operation. With cutting-edge technology and a skilled team, we are confident of delivering a high-performance, zero-emission plant that sets new industry benchmarks. The initiative also supports India's Aatmanirbhar Bharat mission by deploying indigenously manufactured electrolysers — central to self-reliant clean-tech solutions and long-term decarbonisation goals."

Source : L & T

Solving critical oil field challenges: Clariant's innovative chemical solutions in action

HOUSTON, TX, July 24, 2025 - Delivering on Clariant's purpose »Greater chemistry - between people and planet«, this story is an example of how Clariant delivers on its purpose-led strategy.

In the demanding world of oil production, operators face complex challenges that threaten both operational continuity and asset integrity. From severe corrosion in high-stress environments to sudden and unexpected scale formation in high-temperature "dry" production wells, these issues require sophisticated, timely chemical solutions tailored to specific field conditions. Clariant Oil Services has demonstrated how innovative chemistry, and customized approaches can overcome these critical challenges, extending equipment life and ensuring production reliability even in the most demanding environments.

Combating Corrosion Under Extreme Conditions

When a major operator in the Asia Pacific region discovered alarming corrosion rates in their subsea water injection system, they faced a potential crisis. The high-shear stress conditions threatened the pipeline's integrity, with failure projected within months. With replacement components unavailable for immediate installation, an interim solution was urgently needed.

The challenge was particularly complex due to the extreme operating conditions: the pipeline's exposure to high shear stress meant that conventional corrosion inhibitors would likely be stripped away, leaving the metal surface vulnerable. Additionally, the remote offshore location limited chemical storage capacity, requiring a solution that would be effective at minimal dosage rates.

Innovative Chemistry Delivers Exceptional Protection

Clariant responded with a specialized corrosion inhibitor designed specifically for high-shear environments. Laboratory testing confirmed its effectiveness under the challenging conditions present in the field. When deployed, the solution significantly reduced the corrosion rate, meeting the operator's protection targets.

"What makes this achievement particularly noteworthy is the inhibitor's performance under such extreme shear stress," explains Sal Pradhan, Head of Oil Services Asia Pacific. "Most conventional treatments would fail under these conditions, but our solution maintained its protective film even at these challenging parameters."

Post-treatment inspection confirmed the comprehensive protection provided. The solution's high efficiency at low concentrations also addressed the logistical constraints, minimizing storage requirements while maximizing protection.

Tackling Sudden Unexpected Ultra-Harsh Scale Formation in Dry High-Temperature Wells

Scale formation presents another critical challenge for oil producers, especially when it unexpectedly manifests during dry oil production. In a recent case involving a prolific high-temperature chalk field, sudden calcium carbonate scale appeared at wellhead choke valves despite the absence of free water in test liquid samples - a situation complicated by the field's high CO2 content.

Fast-track chemical selection identified an inhibitor for rapid field-wide implementation, just in time as scaling events increased across the field. When subsequent downhole scaling occurred months later, a second technology review and scale squeeze pilot program were initiated.

The scenario presented multiple complexities: limited historical data, no previous scale treatments in the field, rapidly changing production dynamics including increasing water cuts, minimal reservoir information, and urgency due to the spreading scaling events. The successful solution drew upon extensive experience with scale prevention treatments implemented across major oil-producing regions globally.

Customized Approach Delivers Sustainable Results

Clariant developed a specialty squeeze scale inhibitor specifically formulated for challenging high-temperature applications. Rather than applying a standard treatment protocol, Clariant's technical team developed a customized deployment approach tailored to the well conditions and operational constraints.

"The key to success in these complex scenarios isn't just the chemical formulation - it's understanding the unique dynamics of each production system and designing a treatment program accordingly," comments Alex Thornton, Global Innovation Manager, Scale, Oil Services. "Our approach

combines innovative chemistry with application expertise."

The treatment effectively prevented calcium carbonate scale formation throughout the target lifetime, with no evidence of formation damage - a critical consideration in maintaining reservoir productivity. Operators also observed improved overall system reliability.

Driving Operational Excellence Through Chemistry Innovation

These case studies highlight how specialized chemical solutions can address critical challenges in oil production environments. By developing inhibitors specifically designed for extreme conditions, whether high shear stress or elevated temperatures - Clariant enables operators to protect valuable assets and maintain production even when facing severe operational challenges.

The approach goes beyond simply providing chemicals; it involves comprehensive problem analysis, laboratory validation under field-representative conditions, and customized application strategies. This combination of innovative chemistry and application expertise delivers solutions that address immediate challenges while supporting long-term operational goals.

Future-Proofing Oil Production Through Advanced Chemistry

As oil production increasingly moves into more challenging environments, such as deeper waters, higher temperatures, more complex fluid chemistries, the role of specialized chemical solutions becomes increasingly critical. Clariant's ongoing innovation in this space focuses on developing treatments that can withstand these extreme conditions while meeting evolving environmental and operational requirements.

"The oil industry continues to push boundaries in terms of production environments," observes Kevin Mutch, Global Head of Marketing & Application Development, Oil Services. "Our focus is on staying ahead of these challenges while developing chemical solutions that enable safe, reliable operations even under the most demanding conditions."

Through this commitment to innovation and customized problem-solving, Clariant continues to deliver on its purpose of creating greater chemistry between people and planet - helping customers overcome critical challenges while supporting operational continuity and asset integrity.

Source : Press Release

BASF Battery Materials and CATL sign a framework agreement for cathode active materials

- Both parties will cooperate on advanced and innovative cathode active material
- BASF will support CATL through its global production network

BASF and Contemporary Amperex Technology Co., Ltd. (CATL) have signed a framework agreement for cathode active materials. Under the agreement, BASF will cooperate with CATL on a global scale.

CATL has selected BASF as its important supplier. BASF will support CATL's global layout through its global production network.

"We are proud to work with CATL, a global market leader in battery technology. Our diversified and local production footprint for innovative cathode materials will support CATL's global business development," said Dr. Daniel Schönfelder, President of BASF's Battery Materials division. "We are committed to the global battery industry and continue leveraging partnerships like the one between CATL and BASF Battery Materials."

Source : BASF