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No	**Exibitions**	**Date**	**Place**
1	CPhI North America	June 2-4, 2026	Pennsylvania Convention Center, Philadelphia
2	CPhI Frankfurt	TBD	Messe Frankfurt
3	CPhI Middle East & Africa	May 11-13, 2026	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 25 - 27, 2026	COEX, Seoul, Korea
7	CPhI India	Nov 23-25, 2026	IICC, Yashobhoomi, Dwarka, Delhi
MECS (Coating Show)			
1	Asia Pacific Coatings Show	Aug 26-28, 2026	Indonesia
2	Saudi Arabia Coatings Show	Jan 17-19, 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 3-5, 2026	Morocco
2	51st Dye+Chem Sri Lanka International Expo	March 5-7, 2026	Colombo Sri Lanka
3	Dye+Chem Bangladesh International Expo	Sept 2-5, 2026	Bangladesh, Dhaka
4	50th Dye+Chem Brazil International Expo	TBD 2026	Brazil
Red Carpet Events			
1	Bangladesh Int'l Dyes, Pigments and Chemicals Expo	TBD	
Turkey (Arkim Group)			
1	InterDye Textile Printing Eurasia	Nov 25-27, 2026	Istanbul, Turkey
2	Paint Istanbul TURKCOAT	June 17-19, 2026	Istanbul
3	Paint Expo Germany	Apr 14-17, 2026	Karlsruhe, Germany
Other Exhibitions			
1	Paint India	Feb 19-21, 2026	Bombay Exhibition Centre, Mumbai
2	India Paint and Coating Expo	Apr, 13-15, 2026	Bangalore Exhibition Centre, 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

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CHEMICAL MARKET

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

Chemicals in Transition: Industry Trends and Our Digital Evolution in 2026

As we step deeper into 2026, the global chemical industry stands at a fascinating intersection of resilience, reinvention, and rapid transformation. After navigating years of supply chain disruptions, geopolitical uncertainties, and shifting regulatory landscapes, the sector is now demonstrating renewed stability coupled with strategic recalibration.

Several trends are defining the year ahead. Sustainability is no longer a peripheral initiative—it has become a core business imperative. From bio-based feedstocks and circular chemistry to carbon capture integration, companies are accelerating investments in greener processes. Regulatory pressures, particularly around emissions, PFAS, and hazardous substance management, continue to reshape product portfolios and R&D priorities.

Digitalization, meanwhile, is moving from pilot programs to enterprise-wide adoption. AI-driven demand forecasting, predictive maintenance, digital twins, and automated procurement workflows are redefining efficiency and competitiveness. Specialty chemicals and performance materials remain strong growth areas, fueled by demand from energy transition technologies, semiconductors, advanced coatings, and life sciences.

At the same time, global trade flows are subtly reconfiguring. Regional manufacturing hubs are strengthening, while buyers increasingly seek diversified supplier networks to mitigate risk. Transparency, speed, and reliability are becoming decisive differentiators in business relationships.

Against this evolving backdrop, we have remained committed to strengthening ChemicalMarket.net as a trusted, efficient, and user-centric platform for the chemical community.

Over the past months, our primary focus has been on enhancing the portal's UI and UX to better align with how buyers and suppliers actually work. One of the most significant improvements has been the simplification of the "Add Buy Enquiry" process. We recognized that users value speed and clarity, so we streamlined form structures, reduced friction points, and optimized workflows. The result is a faster, more intuitive experience that allows buyers to submit enquiries with minimal effort.

Equally important, we have made replying to enquiries considerably easier. Suppliers can now respond through cleaner interfaces, improved notification mechanisms, and more structured response flows. This reduces delays, improves communication quality, and increases the likelihood of meaningful commercial engagement.

Another key update is the redesigned pricing page. We have integrated magazine advertising options alongside Leads Platform offerings, enabling companies to view their visibility and lead-generation strategies holistically. Instead of treating branding and enquiries as separate investments, businesses can now plan integrated outreach more effectively—combining targeted leads with sustained brand presence through magazine ads.

Beyond functionality, we have invested heavily in overall interface refinement. Navigation flows are clearer, layouts are cleaner, readability has improved, and user actions now feel more logical and predictable. Every enhancement has been guided by a simple principle: reduce complexity while increasing value.

In parallel, we continue to expand opportunities for companies through our Content Distribution Partnership. In an industry where credibility and visibility are paramount, consistent, high-quality content can be a powerful differentiator. Through this partnership, organizations can share insights, innovations, case studies, product developments, and thought leadership with a global audience of buyers, technologists, and decision-makers.

This is more than marketing—it is strategic positioning. Well-crafted content builds authority, fosters trust, and keeps your brand top-of-mind in a competitive marketplace. In a digital-first world, those who communicate expertise effectively often gain a decisive advantage.

We would also like to remind our readers that major industry events and exhibitions are continuously updated on the Chemical Market Events page. Trade shows, conferences, and expos remain vital for networking, partnerships, and market intelligence, and we encourage you to leverage this resource to plan your participation.

As always, our mission remains unchanged: to build a genuine, growth-oriented ecosystem where chemical companies connect, collaborate, and thrive.

Thank you for being part of this journey.

— Editorial Team
Chemical Market Magazine

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[sugar-grade]	50Kgs	178.00
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Ammonium Nitrate	50Kgs	30.00
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D D Turpentine	200Litrs	145.00
Diacetone Alcohol	195Kgs	120.00
Diethylene Glycol	230Kgs	67.00
Dimethyl Formamide	195kgs	80.00
Dioctyl Phthalate	200Kgs	122.00
Di-Pentene	200Litrs	125.00
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EDTA Disodium	25Kgs	188.00
EDTA Tetrasodium	25Kgs	188.00
Ethyl Acetate	185Kgs	82.00
Ethylene Dichloride	200 Kgs	65.00
Ethylene Glycol-mono	230Kgs	65.00
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Hexamine – Tech	50Kgs	105.00
n-Hexane	160Litrs	60.00
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Isopropyl Alcohol	160Kgs	120.00
Isopropyl Alcohol (Refill)	160Kgs	98.00
Maleic Anhydride	25kgs	105.00
Methyl Ethyl Ketone	166Kgs	112.00
Methyl Isobutyl Ketone	160Kgs	130.00
Methyl Isobutyl Ketone (Refill)	160Kgs	120.00

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Methylene Dichloride	250Kgs	45.00
Methylene Dichloride (Refill)	250Kgs	40.00
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Monochloro Phenol	50Kgs	120.00
Nitrobenzene	200Kgs	102.00
Octanol (2-ethylhexanol)	160Kgs	128.00
Oleic Acid	50 kg	128.00
Oxalic Acid (Punjab)	50Kgs	62.00
Paraffin Wax (White)	50Kgs	120.00
Para formaldehyde 91%	25Kgs	96.00
Perchloroethylene	320Kgs	89.00
Phenyl Liquid	230Kgs	105.00
Phthalic anhydride	25Kgs	105.00
Pine Oil 22%	200Litrs	155.00
Pine Oil 40%	200Litrs	190.00
Polyethelene Glycol 400	230Kgs	120.00
Polyethelene Glycol 600	230Kgs	155.00
Propylene Glycol	215Kgs	104.00
Poly Aluminium Chloride	25kgs	34.00
Red Lead	50kgs	220.00
Renine	180Kgs	72.00
Rosin	17Kgs	125.00
Sodium Acetate	50Kgs	38.00
Sodium Benzoate	50Kgs	108.00
Sorbitol	250Kgs	50.00
Stearic Acid (cosmetic)	50Kgs	150.00
Styrene Monomer	185Kgs	115.00
Terpineol Perfumery	25Litrs	230.00
Thiourea	25Kgs	175.00
Toluene	200Litrs	86.00
Trichloroethylene	280Kgs	90.00
Triethanolamine	210Kgs	110.00
Vinyl Acetate Monomer	185Kgs	110.00
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BUY INQUIRIES

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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**

Pusan National University Researchers Develop Light-Activated Tissue Adhesive Patch for Rapid, Watertight Neurosurgical Sealing

BUSAN, South Korea, Jan. 16, 2026 / PRNewswire/ -- Durotomy is a common neurosurgical complication involving a tear in the dura mater, the protective membrane surrounding the brain and spinal cord. Damage can cause cerebrospinal fluid (CSF) leakage, leading to delayed healing, headaches, and infection, making a reliable watertight dural closure essential.

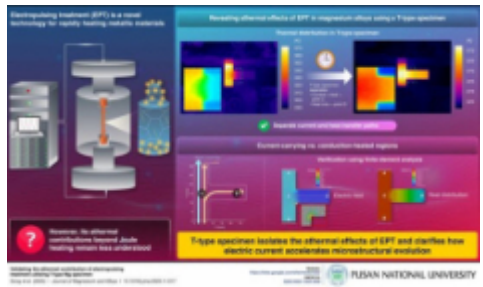
Tissue adhesives are being explored as more robust alternatives to suturing for dural closure, but many glue-based sealants swell excessively, causing mass effect, unwanted adhesion, and postoperative complications. Janus tissue patches, with one adhesive surface and one anti-adhesive surface, offer a potential solution; however, most rely on multiple materials and complex fabrication processes, limiting their clinical practicality.

In a breakthrough study, a research team from South Korea led by Professor Seung Yun Yang from the Department of Biomaterials Science at Pusan National University has developed an innovative light-responsive, monolithic Janus dural patch using photocurable hyaluronic acid (HA) through a simple approach. "Made from natural biopolymer hyaluronic acid, our dural patch provides strong wet adhesion, along with a lubricating surface that prevents unwanted tissue adhesion, after exposure to non-toxic visible light," explains Prof. Yang. Their study was made available online on December 16, 2025, and published in Volume 527 of Chemical Engineering Journal on January 01, 2026.

The researchers selected HA because of its excellent biocompatibility as well as its intrinsic anti-adhesive and lubricating properties. To enable light activation, HA was chemically modified with photocrosslinkable groups—methacrylate (MA) and 4-pentenoate (PA). The resulting HA-based solution was then lyophilized to form a patch with two distinct surfaces: a dense surface with a high polymer concentration and a porous surface with a lower polymer concentration. To further enhance conformal adhesion to wet tissues, the patch was compressed to a thickness of approximately 0.2 mm.

Laboratory tests showed that the patch could fully seal the wounds within five seconds using low-energy visible light. The dense outer surface exhibited strong wet adhesion, achieving high burst pressure and approximately 50% lower friction than conventional dural sealants. Notably, the adhesion strength was up to ten times higher than that of commercially available tissue adhesives. Meanwhile, the porous surface efficiently absorbed fluids and helped prevent unintended tissue adhesion. The patch also demonstrated minimal swelling and a reduced mass effect—less than 200% swelling and an approximately 0.1 g increase in weight—along with high stretchability, flexibility, and excellent biocompatibility.

The team also tested the developed patch in a rabbit durotomy model, where it achieved rapid and effective dural



closure without causing damage to the surrounding skull, dura mater, or brain tissue. The photocurable dural patch has been transferred to biotech company SNvia, which has established large-scale manufacturing facilities for photocrosslinkable hyaluronic acid. Nonclinical studies are expected to conclude in the first half of 2026, with a medical device clinical trial application to South Korea's Ministry of Food and Drug Safety planned for the same year.

Prof. Yang notes that the technology enables rapid wound sealing, reducing the risk of postoperative cerebrospinal fluid leakage. Importantly, the study provides practical evidence supporting the clinical safety and applicability of photocrosslinkable hyaluronic acid (HAMA-PA). Its strong adhesion to wet tissues also suggests broader potential for drug-delivery patches, cell-laden constructs, and artificial tissues.

Read the full report : https://www.pusan.ac.kr/eng/Main.do

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BASF Color Report: Green and gray redefine the 2025 automotive color landscape

- Green with highest increase among the chromatic colors worldwide
- Within the achromatic palette, gray grows significantly

In 2025, the global automotive color landscape reflects a clear shift toward individuality and nature-inspired aesthetics as consumers continue to move away from traditional favorites, as analyzed by BASF Coatings in the latest Color Report for Automotive OEM Coatings. Green emerges as the strongest growing chromatic signal worldwide, continuing its steady rise and making it into the Top 3 led by blue and red. Once dominant, both colors decline year after year. Blue drops by one percentage point and red sees an even steeper decrease, marking only three percent of the total market share. This defines a clear retreat from classic chromatic norms.

Gray records a significant increase of two percentage points, strengthening its position as a modern-elegant choice. White shows a slight decline, and black remains strong but with fewer solid finishes, as overall solid colors shrink to just 18 percent of the market. This development underscores a global trend that combines timeless elegance with expressive diversity, with green leading the shift toward a more individual and sustainable color palette.

EMEA: From silver to green – a new chapter for automotive colors

In the EMEA region, the green upward trend continues. Green has overtaken red and established itself as a sign of individuality and sophistication. Silver continues to decline in importance, while black and gray reinforce their positions within the achromatic palette. White shows a slight decrease but adds more nuances to the neutral color range.

"The green trend was already making waves in EMEA a few years ago. Different shades have been featured in our Automotive Color Trends collection, hinting at the huge variety of shades we see fitting to this movement today," said Florina Trost, head of Design EMEA at BASF Coatings.

Americas: Chroma comeback with individual nuances but green in the lead

In the American automotive color world, 2025 presents a mixed picture: gray is slightly below its 2024 level but still well above 2023. Silver is gaining importance again, while white continues to decline. The share of colored car paints has risen by almost two percentage points, showing a stronger preference for expressive colors. While red and blue have historically led in the Americas, shades like green, beige, brown, and violet are now gaining momentum, highlighting a shift toward nature-inspired and diverse aesthetics.

"In 2021, brown and beige have been key colors of our trend collection. The sales now validate these early predictions and illustrate, how long-term trends continue to shape the market," said Mark Gutjahr, global head of Automotive Color Design at BASF Coatings.

Asia Pacific: Gray strengthens as green expands its horizon

In 2025, the Asian Pacific region continues to lean toward achromatic dominance, with gray showing a clear upward trend, while white declines. Black and silver remain stable, reinforcing the enduring appeal of classic neutrals.

Green is steadily gaining popularity among chromatic colors, while blue has dipped slightly. Green's range now spans from light, fresh tones to more traditional, natural shades, reflecting a shift toward sustainable and renewal-focused palettes. Though the overall share of chromatic colors has decreased, the variety of hues still demonstrates the preference for individuality in Asia Pacific.

"In our past trend forecast, we have introduced a solid-like gray with subtle color interference and highlighted an urban nuance green for adaptability. Today, gray strengthens while green expands across the region," said Chiharu Matsuhara, head of Automotive Color Design for Asia Pacific.

The Color Report for Automotive OEM Coatings by BASF Coatings offers an in-depth exploration of color distribution in the automotive industry, analyzing preferences on both global and regional levels. The data referred to in the report was calculated by BASF Coatings on the basis of the available information regarding global automotive production and paint application to passenger cars. Together with the annual trend forecast, Automotive Color Trends®, the report complements BASF Coatings' expertise in color and design.

Read the full report : https://www.basf.com/global/en/media/news-releases/2026/01/BASF-Color-Report-2025

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Inside India's Soda Ash and Sodium Bicarbonate Industry: Demand, Trade, and Technology

Team Chemical Market

Introduction:

India's soda ash and sodium bicarbonate industry is transforming due to structural demand growth, shifting end-use patterns, and increasing integration with global supply chains. Since bulk alkali chemicals have moved beyond commodity status, they are finding critical applications across glass manufacturing, detergents, chemicals, pharmaceuticals, food processing and so on. Soda ash has always been a backbone material for India's fast-growing flat glass, container glass and solar glass sectors. On the other hand, sodium bicarbonate is experiencing rising demand from pharmaceutical formulations, food grade applications, flue gas treatments and so on. Therefore, there is a broader evolution in the country's chemical sector; the country has changed from volume-driven growth to value-added and quality-focused production. Thus, in this article, we have explored the soda ash and sodium bicarbonate industry production dynamics, demand drivers, and trade flows in detail. Let's begin.

Indian Soda Ash Market Trends and the Expanding Role of Sodium Bicarbonate

India is becoming a significant sodium bicarbonate supplier in Asia due to its strong production bases and quality or trade standards.

India is growing in its production infrastructure, and access to soda ash is growing as well. The cost-effectiveness and other aspects are making the country stand at the forefront in supplying technical and food-grade products to high-growth Asian markets like Indonesia, Vietnam, and China.
India is focusing on building its production facilities, and the country is investing in modern plants and large-scale facilities that enable higher output.

Sodium bicarbonate plays a critical, non-substitutable role in dialysis therapy, especially in hemodialysis and peritoneal dialysis. The growing number of patients with impaired kidney functioning means that the body is unable to adequately excrete acids generated through metabolism. This led to the condition called metabolic acidosis. This condition leads to acceleration of muscle wasting, bone demineralization, cardiovascular complications, and overall disease progression. The condition for CKD patients requires long-term or lifelong dialysis, thereby making bicarbonate demand structural rather than cyclical. This segment sustained the demand for pharmaceutical-grade sodium bicarbonate, rather than lower-cost industrial variants.

On the other hand, sodium bicarbonate serves as a critical pharmaceutical excipient, which is critical in injectable drug products such as certain antibiotics, oncology therapies and emergency medicines.

Primary function in these formulations is precise pH adjustment, which is essential for maintaining chemical stability, solubility and bioavailability of active pharmaceutical ingredients (APIs).

From a geographic perspective, Europe and North America are dominating the current demand, as they have built structured healthcare infrastructure, they have large dialysis patient populations, and Patients in those regions are consuming drugs and are benefitting from pharmaceutical manufacturing ecosystems. Therefore, the regions also have stringent regulatory oversight, which sustains demand for premium, pharmacopeia-compliant sodium bicarbonate grades.

Thus, the Asia-Pacific region represents the fastest growing market that is driven by rising healthcare expenditure, expanding access to dialysis and hospital care. In the past decade, countries like India and China have been strengthening their positions as global suppliers of pharmaceutical ingredients, which has naturally increased the domestic and export-oriented demand for high-quality excipients like sodium bicarbonate.

This shift positions the Asia-Pacific as a key growth engine, even as Western markets remain volume and value anchors.

The global sodium bicarbonate active pharmaceutical ingredient (API) market established a market direction, and the steady growth indicates neither speculative hype nor stagnation. Cross-sector usage, such as pharma, food and personal care, has reduced dependency on one industry and improves long-term resilience. The number of producers in the country is adding capacity rather than shutting plants. This shows that the country is moving towards long-term

Continued on page 39

GOODENOUGH ENERGY COMMISSIONS INDIA'S LARGEST 7 GWH BATTERY STORAGE SYSTEM

Team Chemical Market

Introduction:

Moving on to the decisive phase, India's clean energy transition is entering a phase where large-scale energy storage is no longer optional but essential. As solar and wind power capacity expand rapidly, the ability to store excess electricity and deliver it reliably during periods of low generation has become a critical requirement for grid stability. Addressing this need, Good Enough Energy has commissioned India's largest Battery Energy storage system with an initial capacity of 7 GWh. This milestone marks a significant leap in domestic manufacturing capability, reflecting India's growing confidence in developing advanced energy storage solutions at scale. Beyond its technological significance, the project aligns closely with national priorities, such as Atmanirbhar Bharat, the goal of achieving 500GW of non-fossil fuel power capacity by 2030.

India Gets Its Largest Battery Energy Storage System as GoodEnough Energy Goes Live

GoodEnough Energy has launched the largest battery energy storage system in India. This was a defining moment for the country's clean energy transition. The development cannot be simply termed as corporate achievement, but it represents a structural shift in how the country plans, stores, and distributes renewable energy at scale. The country is aggressively expanding its solar and wind power capacity, and large-scale battery storage has become a critical missing link. This GoodEnough Energy project directly addresses the gap.

Given that these renewable energy sources, such as solar, are inherently intermittent, the modern power grids are becoming the most crucial part in the energy generation, and battery energy storage systems are becoming more essential than ever because of that. Energy generation fluctuates with these renewable energy generation setups; solar generation peaks during daytime, and wind patterns fluctuate unpredictably. Therefore, efficient storage of energy is becoming more essential, especially since an excess of energy is produced during the peak generation hours, during daytime, solar generation peaks. The fossil fuel must still be relied upon to meet demand during low-generation periods.

Good Enough energy is enabling India to store surplus renewable power by commissioning a 7 GWh battery storage system. The storage energy can be deployed when needed, which increases grid stability and reduces curtailment, and lowers the dependence on coal-based backup power.

A 7 GWh storage capacity is massive for Indian standards, and that places the facility among the largest operational battery systems in the country. Such a huge capacity helps the grid to absorb a much higher share of renewable electricity without compromising reliability.

The facility is expected to support peak-load management, frequency regulation, emergency backup, and other functions that are essential for a fast-growing economy with a rising electricity demand. Therefore, we can consider this as a new level of maturity in India's energy infrastructure.

This also highlights the importance of domestic manufacturing. For years, India has been relying on imported battery cells, modules, and storage systems, especially from China and other East Asian countries. The dependence has raised concerns around supply chain vulnerability, cost volatility, strategic autonomy, especially as the batteries are now considered a critical component of energy security.

Good Enough's example of coming up with the success demonstrates that Indian companies are capable of designing, manufacturing, and deploying advanced battery storage solutions at a scale within the country. This also strengthens domestic value chains and supports the government's broader vision of Atmanirbhar Bharat,

or self-reliant India.

The capacity size and expansion ambitions are highlighted in the synopsis, which highlights scalability, which is crucial in evaluating the long-term impact of such projects. The company's background and founding timeline emphasize how rapidly domestic startups are evolving into industrial-scale players.

India's target is to achieve 500 GW of non-fossil fuel power capacity by 2030, and the project can be directly linked to such national goals. Therefore, it frames the initiative as a part of a coordinated national effort rather than an isolated private investment. In this way, the synopsis sets the stage for deeper analysis while ensuring clarity and accessibility.

Strategic location – Uttar Pradesh:

The decision to locate the 7GWh battery energy storage system in Uttar Pradesh is because it is India's most populous state, and it is a major electricity consumption centre. Historically, it has faced challenges related to power shortages, grid congestion, and distribution losses. Therefore, establishing a large-scale battery storage facility in the region can easily address the challenges by enabling better load balancing and reducing stress on transmission infrastructure. Proximity to high-demand areas minimizes transmission losses and improves response time during peak demand or grid disturbances.

Uttar Pradesh has been actively developing in manufacturing infrastructure, industrial corridors, logistics networks, and so on. The state's improving ease-of-doing-business environment, availability of skilled labor, and connectivity to northern and central India make it a logical choice for such a large facility.

The commissioning of a 7GWh system in Uttar Pradesh also signals confidence in India's regulatory and policy ecosystem for energy storage. There are several support frameworks in India, such as the National Energy Storage Mission, Production-Linked Incentive (PLI) schemes, that support advanced chemistry cell manufacturing and policy recognition of energy storage as a standalone asset class. These measures have reduced the investment risks and encouraged private players such as GoodEnough Energy to commit significant capital and technological resources.

From a grid Integration standpoint, experts understand that large battery systems such as this one are crucial for enabling higher penetration of renewable energy without destabilizing the grid. As India is adding more solar and wind capacity, grid operators face challenges related to variability, frequency control, and reserve margins.

The scale of Good Enough Energy's system allows it to perform these functions at a level that can meaningfully influence the grid behavior rather than serving as a pilot or demonstration project.

Broader implications of this development extend beyond electricity alone. Large-scale battery manufacturing and deployment create ripple effects across the economy, generating skilled employment, fostering research and innovation, and enabling cleaner energy use in high emission sectors such as manufacturing, infrastructure, and transportation. Therefore, reduced reliance on fossil fuels and imported energy technologies, India strengthens both its environmental sustainability and economic reliance.

In summary, Good Enough Energy's commissioning of India's largest battery energy storage system represents a convergence of scale, technology, policy alignment, and strategic intent. It demonstrates that our nation is moving decisively from ambition to execution in clean energy storage. The project strengthens the national grid, supports renewable integration, reduces import dependence, and positions the country as an emerging force in advanced energy storage. far from being a standalone achievement, it marks a critical step in building a cleaner, more reliable, and self-reliant energy future for the country.

Takeaway:

The commissioning of GoodEnough Energy's 7 GWh battery energy storage system represents a turning point in India's clean energy journey. It demonstrates that the country is moving beyond the pilot projects toward industrial-scale deployment of advanced storage technologies that can support renewable integration, grid availability, and emissions reduction. By strengthening domestic manufacturing, reducing dependence on imports, and enabling large-scale adoption of clean power, the project reinforces India's strategic vision for energy security and sustainability. As capacity expands toward 25 GWh in the coming years, initiatives like this will play a crucial role in positioning the country as a global leader in grid-scale battery storage and in building a resilient, low-carbon energy future.

SYENSQO AND AXENS LAUNCH JV 'ARGYLIUM' TO BOLSTER EUROPE'S SOLID-STATE BATTERY PRODUCTION

Syensqo and Axens have launched Argylium, a joint venture focused on scaling the production of advanced materials for solid-state batteries within Europe. This partnership aims to bolster the continent's battery supply chain by accelerating the commercial demonstration of high-performance components for next-generation energy storage.

This new venture merges Syensqo's advanced material leadership with Axens' process design and plant operations, enhanced by IFPEN's deep inorganic chemistry expertise, especially in oxides/sulfides, to accelerate next-gen battery material development, creating a comprehensive force for innovation in solid-state batteries.

"The creation of Argylium represents an important step forward in bringing solid-state battery materials to market readiness," said Thomas Canova, Head of R&I at Syensqo. "By joining forces with Axens and IFPEN, we are enhancing the chances of successfully scaling up Syensqo's pilot innovations and contributing to advance Europe's electrification and energy storage ambitions."

"With over 50 years experience in scaling up technologies to the commercial levels, in partnership with IFPEN and aligned with our strategy to develop industrial assets in Europe for the production of advanced battery materials for cathodes (CAM) and recycling of Black Mass, our association with Syensqo aims to lay the groundwork and build a robust ecosystem for the commercialization of solid electrolytes by 2030," said Fabrice Bertoncini, Axens Group's Executive Vice President in New Development and Transformation.

Argylium will strengthen collaboration with leading European research institutions, automotive OEMs, advanced battery manufacturers and energy technology partners to drive innovation and market readiness, contributing to Europe's ambition of building a sustainable and competitive solid-state battery industry. Building on Syensqo's successful operation of a solid-state battery pilot line in La Rochelle, and over a decade of technology development at its State-of-the-art Paris laboratory (Aubervilliers), Argyilum will focus on accelerating the industrialization of next-generation Sulfide Solid Electrolyte materials to the next-generation All-Solid-State Batteries (ASSB).

Source : Indian Chemical News

ROCKWELL AUTOMATION TO POWER LUCID'S EV MANUFACTURING FACILITY IN SAUDI ARABIA WITH ADVANCED SOFTWARE SOLUTIONS

DAMMAM, Saudi Arabia, Jan. 21, 2026 /PRNewswire/ -- Rockwell Automation, Inc. (NYSE:ROK), the world's largest company dedicated to industrial automation and digital transformation, today announced a deepened collaboration with Lucid, maker of the world's most advanced electric vehicles, to support the automaker's expanding manufacturing facility in the Kingdom of Saudi Arabia. The facility, located in King Abdullah Economic City (KAEC), marks a historic milestone as the country's first vehicle manufacturing site.

Lucid will deploy Rockwell Automation's enterprise software solutions, including its FactoryTalk® manufacturing execution system (MES) software, to manage and optimize production operations across all major shops: general assembly, paint, stamping, body, and powertrain. The FactoryTalk MES platform will provide Lucid with real-time visibility, traceability, and control across its operations, helping enable production of the company's future midsize vehicles.

"Lucid's adoption of FactoryTalk MES is a strategic move that will deliver measurable outcomes in operational efficiency, quality, and scalability," said Ahmad Haydar, country leader for Rockwell Automation in Saudi Arabia. "Our software will help Lucid meet its ambitious production goals while ensuring seamless integration with global supply chains and compliance with local

standards. This is a proud moment for Rockwell Automation and a testament to our commitment to supporting the Kingdom's Vision 2030 through advanced manufacturing technologies and workforce development."

In addition to software, Rockwell's local team in Saudi Arabia will deliver instructor-led and virtual training programs. By equipping local Saudi talent with cutting-edge EV manufacturing expertise through tailored training, this partnership will cultivate a skilled workforce that will drive sustainable industrial growth and help power the Kingdom's Vision 2030 objectives.

"Rockwell Automation has been a trusted partner throughout our journey, from our Arizona factory to our expansion in Saudi Arabia," said Faisal Sultan, president of Middle East at Lucid. "Their software solutions and local expertise will help us scale production while maintaining the highest standards of quality and innovation our customers have come to expect. We're excited to continue this collaboration as we expand world-class electric vehicle manufacturing in the region."

Source : Rockwell Automation, Inc.

EVE ENERGY BECOMES WORLD'S FIRST LIGHTHOUSE FACTORY IN CYLINDRICAL BATTERY SECTOR

EVE Energy's flagship facility has been inducted into the Global Lighthouse Network by the World Economic Forum and McKinsey & Company, marking it as the world's first lighthouse factory in the cylindrical battery sector.

The recognition, a hallmark of global excellence in smart and digital manufacturing, highlights EVE Energy's leadership in end-to-end smart transformation, powered by 40+ deployed digital solutions.

EVE has built a fully integrated digital system spanning R&D, production, and sales, launching China's first 300ppm high-speed cylindrical battery line, capable of producing 300 batteries per minute per line.

"Physical simulation and AI integration enable intelligent outcome prediction and process-parameter optimization in seconds, reducing 75% of R&D experiments," the company said. Key production processes are 100% automated, with an AIoT-driven predictive equipment health system keeping operations running 24/7 and boosting maximum overall equipment efficiency (OEE) to 95%.

On the sales front, an APS intelligent scheduling system analyzes global orders in seconds, cutting lead-time response by 50%.

A full-process intelligent quality control system ensures 97%+ first-pass yield and improves cell voltage consistency by 70% through real-time monitoring and AI optimization. AI vision inspection achieves 100% coverage with zero missed judgments in 0.3 seconds per cell, while a full-lifecycle battery data space allows quality issues to be traced and addressed in seconds.

EVE Energy has also made major strides in sustainability. From 2022 to 2025, the company achieved 60%+ reductions in per-unit carbon emissions and 55%+ reductions in product energy consumption.

"Real-time optimization via an AI-driven energy management model targets high-consuming systems, while the innovative 'Battery Passport' system provides each battery with a unique digital identifier, encompassing 200,000+ supply chain nodes to enable precise recycling," EVE explained. Renewable energy, recycled materials, and energy-saving upgrades have cut the full-lifecycle carbon footprint by 15%.

EVE is pushing human-machine synergy to new heights. "AR training and remote expert guidance accelerate skill development for key roles from months to days, empowering operators to oversee advanced algorithms," the company said.

A 360° air-ground security platform integrates over 1,000 intelligent sensors and UAV inspections, achieving zero production accidents with AI real-time risk warnings.

EVE Energy demonstrates how digital technologies can drive simultaneous advancements in manufacturing efficiency and green performance, setting a blueprint for industry peers to follow in high-quality, low-carbon production.

Source : Indian Chemical New

PRI FILES AMICUS BRIEF IN MAJOR SUPREME COURT CASE THAT COULD UPEND FUTURE MEDICAL INNOVATION NATIONWIDE

SACRAMENTO, Calif., Jan. 16, 2026 /PRNewswire/ -- California-based free market think tank the Pacific Research Institute announced today that it has filed an amicus curiae brief urging the U.S. Supreme Court to hear two cases challenging the federal government's new prescription drug pricing program enacted under the Inflation Reduction Act.

The cases, Janssen Pharmaceuticals, Inc. v. Secretary of the United States Department of Health and Human Services and Bristol Myers Squibb Co. v. Secretary of the United States Department of Health and Human Services, involve the federal government's authority to impose government-set prices on prescription drugs purchased through Medicare and Medicaid.

At issue is a provision of the Inflation Reduction Act that allows the Centers for Medicare and Medicaid Services to force drug manufacturers to sell certain medicines at sharply reduced prices. Those who refuse face punitive taxes or exclusion from Medicare and Medicaid, programs that together account for nearly half of all prescription drug spending in the United States.

PRI's brief, authored by noted constitutional scholar and attorney Richard Epstein, along with Ben Flowers of the law firm Ashbrook Byrne Kresge Flowers LLC, argues that the federal drug pricing program violates core constitutional protections by coercing drug manufacturers into surrendering their products at prices far below fair market value.

Rather than engaging in genuine negotiation, the brief explains, the government uses its dominant position as the largest purchaser of prescription drugs to impose take-it-or-leave-it price controls that manufacturers cannot realistically refuse.

PRI's brief explains that companies would be given only the illusion of choice, as refusal triggers crushing penalties that make participation in the program unavoidable. The result, the brief argues, is not negotiation but confiscation by coercion.

The brief further warns that allowing the program to stand would undermine long-standing constitutional limits on government power and set a precedent allowing federal agencies to bypass the Takings Clause simply by labeling forced transfers as 'voluntary.'

Beyond its constitutional flaws, PRI's brief cautions that the program threatens future medical innovation by reducing the financial incentives that drive the development of new and life-saving treatments. Drug development is an expensive and high-risk process, and government-imposed price controls reduce the ability of companies to recover those investments.

Allowing the program to proceed, the brief concludes, would send a chilling signal to innovators across the pharmaceutical industry and ultimately limit patient access to future breakthroughs.

The Pacific Research Institute (www.pacificresearch.org) champions freedom, opportunity, and personal responsibility through free-market policy ideas. Follow PRI on Facebook, Twitter, and LinkedIn.

Source : Pacific Research Institute

PIRAMAL PHARMA SOLUTIONS INTRODUCES TABLET-IN-CAPSULE CAPABILITIES

- Piramal Pharma Solutions continues to lead its advanced dosage form expertise by successfully developing and commercializing a tablet-in-capsule product across its integrated drug product sites in Pithampur and Ahmedabad, India.
- The project involved seamless technology transfer and close collaboration between both site teams, highlighting the strength of Piramal's integrated capabilities.
- By implementing tablet-in-capsule capabilities, Piramal reinforces its commitment to Patient Centricity.

MUMBAI, India, Feb. 2, 2026 / PRNewswire/ -- Piramal Pharma Solutions, a leading global Contract Development and Manufacturing Organization (CDMO) and part of Piramal Pharma Ltd. (NSE: PPLPHARMA | BSE: 543635), is pleased to announce the successful development, scale-up, and commercialization of a tablet-in-capsule drug delivery system at its drug product facilities in Pithampur and Ahmedabad,

India. With expanded tablet-in-capsule capabilities now in its toolkit, Piramal can offer partners and patients more flexible and customizable dosing options for critical oral drug therapies, including modified release drug delivery.

The project was initiated at the Piramal Pharmaceutical Development Services (PPDS) site in Ahmedabad. Within just five months, the site team completed a successful tech transfer to Piramal's commercial manufacturing site in Pithampur inclusive of development of the three tablets to be encapsulated.

Piramal's extensive experience with integrated programs was essential to this project's success. The tech transfer teams at Ahmedabad and Pithampur supported a seamless transition throughout development and scale-up, while integrated program managers ensured any obstacles to timing were overcome. Collaboration among quality control and validation teams at both sites guaranteed the product's safety and efficacy, ultimately helping deliver an innovative therapy to patients in need.

Traditional capsules contain a mixture of active pharmaceutical ingredient(s) (API) and excipients in a two-piece hard shell, typically in bead, pellet, or powder form. While these capsules offer fast absorption and ease of use, they often limit patient dosing flexibility and control, making them less suitable for therapies with complex delivery mechanisms.

Tablet-in-capsule technology offers developers a unique solution wherein different active ingredients are formulated into their own separate tablets or minitablets. The tablets are then placed together into a single capsule shell. By applying distinct coatings to minitablets, drug developers can achieve versatile release profiles of the same or different drugs. This approach also allows incompatible active ingredients to be combined into one capsule, providing patients a simplified way to limit dosing frequency and improve medication adherence.

"By enabling dual actives in the same capsule or dual-release profiles within a single capsule, our tablet-in-capsule technology provides unmatched dosing flexibility and release control, accelerating timelines for developers and simplifying dosing for patients," said Brad Gold, Ph.D., Head of Global Formulations R&D at Piramal Pharma Solutions and Member of Piramal's Science Collective. "Because each drug is optimized in its own tablet or minitablet, this technology can also enhance formulation stability and medicine personalization."

Tablet-in-capsule technology has transformed the way the pharmaceutical industry has tailored drug product development toward meeting patient needs. By incorporating this approach into its formulation offering, Piramal further demonstrates its commitment to patient-centric solutions.

Source : Piramal Pharma Solutions

MITSUBISHI CHEMICAL CORPORATION DEVELOPS TECHNOLOGY TO COAT PAPER PACKAGING MATERIAL WITH GAS BARRIER RESIN SOARNOL SOLUTION—OIL RESISTANCE MAKES SOARNOL AVIABLE PFAS SUBSTITUTE—

Mitsubishi Chemical Corporation (Head Office: Chiyoda-ku, Tokyo; President: Manabu Chikumoto; hereinafter "MCC") hereby announces the development of a technology that coats paper substrates with a solution of the SoarnoL™ resin used in food packaging materials to impart gas barrier properties and oil resistance.

SoarnoL™ is an ethylene vinyl alcohol copolymer (EVOH) developed using proprietary MCC technology that offers high gas barrier performance, oil resistance, and transparency. Used as films, sheets and other food packaging materials by being combined with other resins and thermoformed, SoarnoL™ helps preserve food flavor and quality longer, thereby contributing to reduce food loss.

The technology developed by MCC enables the formation of a stable barrier layer by simultaneously coating paper substrates with SoarnoL™ solution and an anchor coating agent. This technology imparts SoarnoL™'s excellent gas barrier properties and oil resistance to the paper .

While PFAS* are commonly used to enhance the oil resistance of paper packaging materials, this new technology achieves oil resistance surpassing that of PFAS-based packaging materials even under high temperatures and foldling. SoarnoL™ meets the high hygiene standards required for direct food contact, making it suitable for food packaging applications such as fried chicken and hamburgers. With PFAS regulations tightening globally, demand for PFAS-free oil-resistant paper is expected to grow, so MCC will be seeking assessments from customers and others as it aims for adoption sometime in fiscal year 2026.

MCC plans to exhibit this technology at the New Functional Materials EXPO 2026 to be held at Tokyo Big Sight from January 28 to 30, 2026.

MCC's "KAITEKI Vision 35" management vision identifies "food quality preservation" as a business focus area. By providing environmentally conscious materials that support food quality preservation, MCC will be contributing to societal sustainability.

* Per- and polyfluoroalkyl substances: a general term for organic fluorine compounds formed by the bonding of carbon and fluorine. While widely used for their water and oil repellency as well as heat and chemical resistance, these compounds are persistent and bioaccumulative and have long-range transport potential, prompting regulatory and risk management initiatives in numerous countries. Source : Mitsubishi Chemical Corp.

DEEPLY ROOTED IN THE HYDROGEN ENERGY SECTOR AND DRIVING INDUSTRY TRANS-FORMATION, SHPT IS SET TO DEPLOY ITS NEW FUEL CELL SYSTEMS IN A HYDROGEN-POWERE D UAV INSPECTION PROJECT

HANGHAI, Jan. 20, 2026 /PRNewswire/ -- As a high-tech enterprise in the fuel cell sector, Shanghai Hydrogen Propulsion Technology Co., Ltd. (abbreviated as "SHPT") has upheld its corporate vision of "Hydrogen Powers the World, SHPT Leads the Future" since its establishment in 2018. The company is dedicated to the R&D and industrialization of hydrogen energy technologies, advancing the high-quality and sustainable development of hydrogen energy technology. Leveraging years of technical expertise and innovative breakthroughs, SHPT has built vertically integrated capabilities for independent R&D and large-scale production, covering Membrane Electrode Assemblies (MEA), fuel cell stacks, fuel cell systems, as well as vehicle

powertrain integration and customized development. It has emerged as one of the few high-tech enterprises in China to achieve end-to-end independent manufacturing across the entire industrial chain. With its technical strength and market position firmly secured in the industry's top tier, vehicles equipped with SHPT systems are currently undergoing fuel cell vehicle demonstration operations in 32 cities across 18 Chinese provinces, including Shanghai, Beijing, Guangdong, Jiangsu, Inner Mongolia and Shaanxi.

Amidst the intense competition of the hydrogen energy industry, SHPT—as a top-tier player in the fuel cell sector—has not rested on its existing advantages in the automotive market, even while facing challenges of accelerated technological iteration and intensifying application segmentation. Instead, the company has adopted a two-pronged approach: on one hand, it continues to deeply cultivate core scenarios such as commercial and passenger vehicles to consolidate its market leadership; on the other hand, it is breaking the boundaries of application scenarios to extend its technological expertise into a wider range of non-automotive fields. This dual-drive strategy—combining steady operations with transformative innovation—opens up vast new possibilities for the commercialization of hydrogen technology across diverse sectors.

This visionary diversification strategy has quickly yielded results in global markets. Recently, SHPT's independently developed new low-power closed-loop air-cooled fuel cell system was shipped from Shanghai to overseas customers. Set to be deployed in a 25kg-class hydrogen-powered UAV inspection project in Germany, this product marks a crucial step in SHPT's strategic expansion from the automotive transportation sector to the low-altitude economy. Currently, industrial UAVs are spearheading the development of the low-altitude economy with exponential growth. Critical applications—including power grid inspection, oil and gas station equipment inspection, water conservancy patrols and forest fire prevention—impose stringent requirements for equipment endurance, service life and environmental adaptability. Compared to traditional lithium battery solutions, fuel cells are injecting strong impetus into UAV technological innovation and scenario-based applications by virtue of their advantages in service life and endurance. Targeting the industrial UAV niche market that demands long endurance and extended service cycles, SHPT has launched its F-series fuel cell products, developing a comprehensive hydrogen-powered solution that injects new momentum into the high-quality development of the low-altitude economy.

As a strategic new product for SHPT's expansion into the low-altitude economy , the F-series fuel cell products feature a system power range flexibly scalable from 1kW to 60kW. These products are perfectly compatible with various UAV models including multi-rotor and vertical take-off and landing (VTOL) fixed-wing UAVs weighing between 10kg and 500kg and comprehensively cover the high-frequency operational demands of industrial UAVs in scenarios such as large-scale equipment inspection, logistics transportation, and emergency fire-fighting. The F-series products have achieved multiple breakthroughs in technical R&D, focused on overcoming key challenges in endurance, lightweight design, spatial arrangement, and low-temperature adaptability, which redefining industry technical standards for hydrogen-powered UAVs with superior performance.

In terms of core performance, each single-module F-series system boasts a rated power of 6kW and incorporates an innovative closed-loop air-cooled design, which quadruples the service life compared with traditional open-loop air-cooled alternatives. In terms of environmental adaptability, it enables UAVs to start up normally and operate stably within a wide temperature range of -20℃ to 40℃, completely eliminating operational limitations caused by extreme weather conditions. Another key highlight is the enhanced refueling efficiency: hydrogen refueling for UAVs takes only 3–5 minutes, effectively addressing the pain points of prolonged downtime and low operational efficiency in industrial UAV operations.

Lightweight design is a core competency of the F-series products. SHPT has adopted titanium alloy bipolar plates in stack R&D, reducing weight by over 30% compared with graphite-based plates. The stack's mass power density is expected to exceed 1400 W/kg, an industry-leading level that creates more possibilities for boosting UAV endurance and enabling flexible hydrogen storage system configurations.

At present, SHPT has jointly developed a 25kg-class hydrogen-powered UAV with partners, which will be deployed in scenarios such as photovoltaic equipment inspection in Inner Mongolia. Boasting an endurance of over 1 hour—more than three times that of lithium battery solutions—and a 3-minute refueling turnaround time, this UAV is capable of multiple functions including logistics, patrols and aerial photography.

Building on its full industrial chain technical advantages, SHPT is accelerating the in-depth expansion of application scenarios with a broader perspective. It is focusing on the technological transformation and value extension of complex operational scenarios, such as large-scale

infrastructure and industrial equipment inspection, long-distance heavy-haul logistics, comprehensive emergency rescue and forestry security. Meanwhile, the company is actively exploring diversified applications in two-wheelers, construction machinery, hydrogen power generation, shipping and aviation.

Through the deep integration of technological breakthroughs and commercial scenario innovation, SHPT is continuously expanding its business footprint while consolidating the foundation for sustainable development, demonstrating the strategic resolve of a leading enterprise in the hydrogen energy industry. Looking ahead, SHPT will strengthen international cooperation, actively integrate into the global hydrogen energy supply chain, and prioritize layout in key regions including Europe, the Middle East, Southeast Asia, North America and South America. Leveraging localized market resources and advantages, SHPT aims to share China's fuel cell industry chain with global partners, jointly building cross-regional technical collaboration models, business models and a hydrogen energy ecosystem.

Source : Shanghai Hydrogen Propulsion Technology Co., Ltd.

NEW PRODUCTS

IN HELLONATION, PAINTING EXPERTS ROXANNE AND JEFF ECKLUND OF BRASELTON EXPLAIN HOW SUSTAINABLE COATINGS PROTECT HOMES FROM HEAT AND HUMIDITY

BRASELTON, Ga., Jan. 23, 2026 / PRNewswire/ -- What are the benefits of sustainable coatings for new homes in Braselton, GA? According to a HelloNation article, Painting Experts Roxanne and Jeff Ecklund of Rhino Shield by Georgia Coatings, Inc. share how sustainable coatings protect Braselton homes from heat and humidity while supporting long-term durability and environmental care. Their insights show how ceramic-based coatings are helping homeowners maintain beauty, efficiency, and strength in Georgia's demanding climate.

Braselton continues to grow as one of Georgia's most desirable homebuilding communities. With new neighborhoods surrounded by scenic landscapes, builders and homeowners want those homes to stay as fresh as the day they were completed. Yet Georgia's climate presents ongoing challenges. Heat, sunlight, and humidity can degrade exterior finishes over time, causing fading, cracking, or moisture damage. Without effective protection, these conditions can shorten the lifespan of even high-quality materials.

In the HelloNation feature, the painting experts explain that sustainable coatings provide a reliable defense against these harsh conditions. Made with advanced ceramic-based technology, they seal out moisture, reflect ultraviolet light, and resist mold growth. The Ecklunds emphasize that this blend of performance and environmental responsibility allows homeowners to protect their properties while minimizing waste and long-term maintenance.

Traditional paint systems often need frequent touch-ups or full repainting every few years. Each cycle adds cost, labor, and material waste. Sustainable coatings, by contrast, can last for decades with minimal upkeep. Their formulation allows them to retain color and gloss longer than standard latex or acrylic paints. Because they reflect sunlight, these coatings also reduce surface heat, improving energy efficiency during Georgia's long summers.

A sustainable ceramic coating protects both the home and the environment. By reducing the need for repeated repainting, these coatings lower the use of solvents, packaging, and transportation resources tied to ongoing maintenance. Builders and homeowners who choose sustainable finishes make an investment that balances financial sense with environmental responsibility.

The Ecklunds explain that the science behind these coatings relies on inorganic compounds that resist breakdown under stress. When applied to surfaces such as stucco, brick, siding, or trim, the coating forms a protective shield that prevents water intrusion while still allowing the surface to breathe. This balance helps maintain structural health and prevents blistering, mold, or other moisture-related problems common in Braselton's humid conditions.

Durability is only one part of their appeal. Sustainable coatings also

preserve a home's curb appeal much longer than paint alone. Their reflective surface helps keep pigments from fading under direct sunlight, maintaining a clean and vibrant look throughout the seasons. For homeowners who value aesthetics as much as protection, this combination delivers lasting satisfaction and peace of mind.

Builders across Braselton are increasingly adopting sustainable coatings as part of their commitment to quality construction. By applying these finishes during or shortly after building, they ensure each home achieves higher standards of endurance and energy performance. This proactive approach reduces warranty claims and strengthens customer confidence in the long-term value of their work.

Homeowners also see benefits that go beyond visual appeal. Sustainable coatings resist mildew and mold, require less maintenance, and reduce the need for strong cleaning agents. This helps preserve both the home's appearance and the health of its materials. In Georgia's climate, where moisture and heat are constant, this level of protection offers a practical solution that extends the life of every surface.

The HelloNation article also highlights the energy performance of reflective coatings. By lowering surface temperatures and reducing heat absorption, these coatings contribute to modest energy savings during the hottest months. While results vary by home design and exposure, the overall effect supports a more sustainable and efficient living environment.

In the long run, sustainable coatings deliver clear financial and environmental advantages. Their extended lifespan means fewer resources used and less waste generated. This longevity supports a circular approach to construction and maintenance, one focused on quality materials built to endure rather than be replaced. The Ecklunds note that this philosophy aligns with Braselton's growing emphasis on responsible development and community pride.

As Braselton's neighborhoods continue to expand, sustainability has become more than a design choice. It reflects a shared commitment to building homes that protect both residents and the environment. Sustainable coatings demonstrate that durability and environmental care can work hand in hand, helping every new home remain strong, efficient, and visually appealing for decades.

SOURCE HelloNation

INEOS LAUNCHES NEW RECYCL-IN GRADE WITH 70% RECYCLED CONTENT FOR GREENER COSMETICS PACKAGING

- Innovative new product enables brands to boost the sustainability of contact-sensitive cosmetics packaging without compromising on quality or performance
- Recycl-IN grade contains 70% recycled material and delivers a 35% lower carbon footprint, with ease of processing, mechanical strength, and optical properties comparable to virgin polymer
- True drop-in solution, ideal for manufacturing a range of stiff, coloured or translucent cosmetics packaging component

INEOS Olefins & Polymers Europe announces the launch of a new Recycl-IN hybrid polymer grade containing 70% recycled material, designed to boost the sustainability of contact-sensitive cosmetics packaging without brands needing to compromise on quality or performance.

Recycl-IN hybrid polymers deliver the strength, aesthetics, and processing ease customers expect - while significantly increasing recycled content and reducing CO2 emissions. This is achieved by combining high levels of mechanically recycled plastic with advanced 'booster' polymers.

This new innovative product is a natural colour polypropylene homopolymer designed for thin-walled injection moulding and fibre extrusion, making it ideal for manufacturing stiff, coloured or translucent components such as:

- Screw caps, jars, and lids
- Mascara reservoirs and caps
- Deodorant roller balls
- Spray-over caps and dispenser parts

The key attributes of the new grade, rPP1025C, are:

- Stiffness for shape retention, premium feel, and reliable functionality
- Heat resistance for product stability and shelf life

Like all the INEOS Recycl-IN grades, rPP1025C is a true drop-in solution for demanding applications as the ease of processing, mechanical strength, and optical properties remain comparable to the qualities of virgin polypropylene, while delivering a 35% lower carbon footprint.

To ensure safety and compliance, the recycled materials are covered by an FDA No Objection Letter (NOL) and certified as Post-Consumer Recyclate (PCR) by RecyClass, in line with ISO

14021 environmental labelling standards.

This launch marks the second Recycl-IN hybrid grade that INEOS have developed for cosmetics packaging, building on the success of rPP2030C. INEOS offers a range of Recycl-IN hybrid ready-made polyolefin compounds for rigid and flexible applications in sectors such as automotive, construction, drainage systems, packaging, sports stadiums, storage and textiles.

In full: rPP1025C attributes & benefits

- Stiffness – Maintains shape, protects contents, delivers a premium feel, and ensures reliable functionality
- Heat resistance (virgin polymer level) – Preserves product stability and extends shelf life under varying conditions
- Natural colour – Cuts costs, simplifies recycling, and provides a neutral base for versatile branding without added pigments
- Scratch resistance – Keeps packaging looking pristine, preserving premium appearance and brand integrity
- Virgin-quality colourability – Enables a full spectrum of shades, from light to dark, for maximum design flexibility

Source : Ineos

MERGERS AND ACQUISITIONS

WHO WILL BE THE FRAGRANCE DIAMOND OF THE SEASON: COTY UNVEILS THE BRIDGERTON FRAGRANCE COLLECTION THAT WILL ENCHANT THE TON

NEW YORK, Jan. 26, 2026 / PRNewswire/ -- As first drop of its new fragrance incubator COTYLAB, the global beauty leader COTY is partnering with Netflix and Shondaland to unveil the first seasonal fragrance collection inspired by the world of Bridgerton, the number one globally loved series in 84 countries. With each Eau de Parfum, a new tale of olfactive drama unfolds as whispers of intrigue ripple through the ton: Will Tempting Peach lead the season in sweet seduction? Might Rebel Vanilla defy expectations to become the diamond of the ball? Or shall Graceful Hydrangea steal hearts with quiet intensity? As Queen Charlotte might ask: Who among us will rise as the fragrance diamond of the season?

Tempting Peach opens the story with a juicy flourish as mellow peach, ripe mango, and mandarin intertwine in a Chypre Fruity blend that flirts with the senses. Carefree yet calculated, she is a fragrance who knows precisely the effect she has.

Rebel Vanilla declares herself with confidence. A sultry Ambery Floral composition, she blooms with velvety rose, gardenia and jasmine before surrendering to the addictive pull of gourmand vanilla. Ever the nonconformist, she dances at the edge of propriety.

Graceful Hydrangea is a Floral Woody reverie. She is an innocent debutante at first glance, until blackcurrant and cedarwood awaken a hidden depth, softened by a decadent praline note. Elegant, composed, yet never without mystery.

Fittingly, the campaign will be narrated by Queen Charlotte (actress Golda Rosheuvel), whose voice lends regal presence to the collection and connects back to this jewel of Netflix, which ranks among the top 10 most popular English-language television series of all time.

Beyond the touches of Regency flair, the packaging is a love letter to refinement. Adorned with a spherical gold cap, the clear glass bottle alludes to apothecary bottles from a bygone time. Damask ornamentation appears on both the label and box that suggest a Bridgerton palette, where the tones correspond to the notes. A noble crest reflects the heritage of high society, while subtle flourishes – a diamond, feathers and a mask – nod to masquerade and mischief.

Available in limited quantities as a 50ml Eau de Parfum and a 10ml pen spray, the collection invites fans and olfactive admirers alike to experience Bridgerton through fragrances that are seductive, surprising and steeped in romance.

The collection will be available in the US exclusively at Ulta Beauty. "With the Bridgerton fragrance collection, Coty is redefining how storytelling comes to life through scent," said Coty's UUCANN

President, Amaury de Vallois "As the first launch from COTYLAB, this collection reflects our ambition to fuse cultural relevance, creative innovation and olfactive excellence. We are especially excited to partner with Ulta Beauty as the exclusive US retailer, whose reach and passion for discovery make them the ideal collaborator to introduce this enchanting world of Bridgerton to fragrance lovers nationwide."Linda Suliafu, Vice President of Merchandising, Ulta Beauty further commented, "Bridgerton is a cultural phenomenon, and we are thrilled to collaborate with Coty to bring this fragrance collection to life for our guests. Across all generations, our guests are highly engaged with the category, embracing scent as a form of self-expression and self-care, and as a meaningful way to connect with others to build a community around what inspires them most. Coty's expertise in fragrance creation and storytelling shines through this launch, and we're proud to be the exclusive US retailer offering a limited-edition experience that blends prestige fragrance, romance and pop-culture magic."

Source : Coty Inc.

ELCOGEN, JNK INDIA PARTNER TO DRIVE SOLID OXIDE TECHNOLOGY IN INDIA

Elcogen, a European leader in solid oxide technology for green hydrogen and emission-free power, has signed a Memorandum of Understanding (MoU) with JNK India Limited to explore strategic collaboration opportunities.

This news comes on the heels of Anil Srikar Pavuluri's recent appointment as Elcogen's Business Development Director for India and APAC. Following a productive showing at India Energy Week 2026 in Goa—where Pavuluri and Mikael Jansen, Global Director of Business Development, met with major industry stakeholders—the company solidified its entry into the region. The highlight of the event was an MoU with JNK India Limited, marking Elcogen's first partnership with an Indian EPC provider and a significant milestone in its expansion into the Indian energy market.

Under the MoU, the companies will explore using Elcogen's proprietary solid oxide stacks and modules to recover and utilize waste heat. Focusing on hard-to-abate sectors like green ammonia, urea, and e-fuels, the partnership will also evaluate hybrid systems—combining alkaline and solid oxide technologies—to reduce the cost of green hydrogen production.

"The global energy industry is being transformed by the growth of renewable energy, decarbonisation initiatives, and digital technologies. Green Hydrogen and low-carbon fuels are shaping the design and execution of future energy projects,' said Mr. Dipak Bharuka, Whole Time Director and CEO of JNK India Ltd, adding, "As an Engineering, Procurement, and Construction collaborator, JNK India Limited helps customers adopt the most suitable solutions for their specific requirements. Our collaboration with Elcogen is strategic step towards strengthening the green energy ecosystem and supporting our customers achieve their energy transition goals. Through innovation and collaboration, JNK India Limited will continue to support the global transition towards a sustainable and low-carbon energy future."

The MoU supports Elcogen's efforts to establish a presence in the Indian market, working with JNK India Limited, a company with strong engineering, EPC, and industrial project delivery capabilities in energy and process industries. Through this collaboration, both companies aim to identify opportunities to develop efficient and scalable solid oxide-based solutions that can contribute to India's clean energy transition.

"We are pleased to start this dialogue with JNK India Limited and explore how we can work together," said Elcogen CEO and Founder, Enn Õunpuu. "India's energy sector is moving quickly, and partnerships like this allow us to better understand local needs while sharing our experience in solid oxide technology. This MoU is an important first step, and we're looking forward to seeing how the collaboration develops."

Source : Indian Chemical News

IN HELLONATION, PAINTING EXPERT CHRIS CURTIS SHARES HOW TO KEEP HOA & MULTI-UNIT PROPERTIES LOOKING NEW WITHOUT CONSTANT REPAINTING

JOHNS CREEK, Ga., Jan. 23, 2026 / PRNewswire/ -- How can property managers and homeowner associations in Johns Creek, GA, maintain the appearance of their buildings without repainting every few years? A recent HelloNation article explores this question through the expertise of Chris Curtis of Rhino Shield by Georgia Coatings, Inc. His guidance explains how ceramic coating systems provide lasting protection and visual appeal for communities seeking to reduce long-term maintenance costs.

The HelloNation article begins by describing the persistent challenges faced by HOAs and property managers in Georgia's humid climate. Constant exposure to heat, moisture, and sunlight causes paint to fade, peel, and deteriorate quickly. As a result, many properties are caught in a recurring cycle of repainting that strains budgets and inconveniences residents. Ceramic coatings, according to Chris, are breaking that cycle by offering a stronger, longer-lasting alternative to traditional paint.

In humid regions like Johns Creek, standard exterior paint typically begins to fade or crack within five to seven years. UV rays weaken pigments, and moisture seeps into small cracks that eventually grow larger. Mildew builds up easily on shaded walls, making even well-maintained buildings appear aged. The HelloNation article notes that ceramic coatings solve these problems by creating a thick, weather-resistant shell that protects against both moisture and UV exposure.

Ceramic coatings are designed with microscopic ceramic particles that form a dense, flexible layer over the building's surface. This barrier seals out humidity, prevents blistering, and resists fading even under intense sunlight. As a result, communities can maintain a clean, uniform appearance for fifteen to twenty years, often three times longer than traditional paint. The durability of these coatings translates directly into lower maintenance costs and fewer disruptions for residents.

The article explains that the smoother, nonporous finish of ceramic coatings also helps repel dirt and pollutants. Because less debris clings to coated surfaces, cleaning becomes simple and infrequent. Annual washing is usually enough to keep buildings looking bright and consistent year-round. For Johns Creek's homeowner associations, this means less time spent managing repainting projects and more time focusing on community improvements.

Beyond appearance, ceramic coatings also help improve energy efficiency. The coatings reflect sunlight, keeping exterior walls cooler and reducing heat transfer into buildings. Cooler surfaces reduce strain on air conditioning systems, which can help lower energy use in multi-unit properties. Over time, these reflective qualities contribute to more comfortable interiors and lower shared energy expenses for residents.

Johns Creek experiences wide temperature fluctuations throughout the year. Traditional paint expands and contracts as temperatures shift, leading to early cracking and peeling. The HelloNation article notes that ceramic coatings maintain their flexibility while staying firmly adhered to the surface. This elasticity allows them to move naturally with the building materials, preventing cracks and extending the life of the finish.

For property managers, the reduction in repainting frequency also makes maintenance budgets more predictable. Repainting multiple buildings is costly and disruptive, requiring scaffolding, scheduling, and resident notifications. By switching to a ceramic coating, communities can extend the time between major exterior projects. Funds that once went toward constant repainting can instead support landscaping, facility upgrades, or other resident-focused improvements.

The visual benefits of ceramic coatings also strengthen property value and curb appeal. Buildings stay brighter and more consistent in color, helping neighborhoods maintain an inviting look. As the HelloNation article explains, residents notice that properties coated with ceramic systems maintain their appearance for years without fading. This consistency supports both homeowner satisfaction and real estate value within the community.

Environmental benefits add another layer of value for Johns Creek communities. Ceramic coatings typically contain low levels of volatile organic compounds, reducing the release of harmful emissions during

application. Because the coatings last much longer than paint, they also reduce waste from leftover materials and discarded containers. Combined with their reflective and energy-saving qualities, these coatings offer a more sustainable approach to exterior property care.

Installation requires professional preparation to achieve maximum longevity. Surfaces must be cleaned to remove dirt, mildew, and peeling paint before application. Cracks and gaps are filled, and then the coating is applied in several layers for a smooth, even finish. Once cured, it becomes part of the building envelope, shielding walls from water, UV rays, and pollutants. The HelloNation article points out that with proper preparation, the coating can last up to two decades or more without losing its protective qualities.

Maintenance is equally straightforward. Property managers typically schedule a light rinse once or twice a year to wash away dust and pollen. Because ceramic coatings resist mold growth and staining, there is little need for chemical cleaning or scrubbing. This ease of upkeep further supports cost control for HOAs and multi-unit properties.

In a community like Johns Creek, where both aesthetics and efficiency matter, ceramic coatings offer a reliable path to long-term performance. They reduce repainting frequency, lower energy costs, and maintain a clean, polished look with minimal effort. The HelloNation article concludes that investing in ceramic coating technology gives property owners and managers a practical way to protect their assets while keeping buildings attractive and durable for years to come.

How to Keep HOA & Multi-Unit Properties Looking New Without Constant Repainting in Johns Creek, GA features insights from Chris Curtis, Painting Expert of Johns Creek, GA, in HelloNation.

Source : HelloNation

3TREES UNVEILS CLIMATE-RESILIENT COATING SOLUTIONS AT BIG 5 CONSTRUCT SAUDI, ENHANCING SUSTAINABLE BUILDING STANDARDS IN THE MIDDLE EAST

RIYADH, Saudi Arabia, Jan. 26, 2026 /PRNewswire/ -- SKSHU Paint Co., Ltd., a leading provider of building coating solutions, showcased its latest range of high-performance, climate-adaptive products at Big 5 Construct Saudi, the Middle East's premier construction industry event. The display reflected a broader industry shift toward integrated, sustainable technologies that enhance durability, energy efficiency, and indoor environmental quality.

As construction across the Gulf accelerates, developers face growing pressure to meet higher environmental and performance standards. In response, 3Trees's exhibition introduced three core solutions to address these challenges: weather-resistant stone-effect coatings, odorless interior wall paints, and radiative cooling coatings designed to reduce surface heat loads. The lineup was developed to support developers in achieving greater long-term building resilience and occupant well-being under high-heat, high-UV conditions.

Visitors explored hands-on demo zones that turned technical features into real-world experiences. Thermal imaging demonstrated how radiative cooling coatings kept surfaces cooler than conventional options under the same lighting, pointing to their energy-saving potential and HVAC benefits.

3Trees also highlighted its local customization capabilities, showcasing stone-textured finishes and color treatments shaped by regional design trends. These lightweight materials suit large and high-rise projects, offering efficiency gains that matter for developers balancing performance and cost.

As indoor air quality becomes a growing priority, 3Trees's odorless wall paint drew strong interest for its low-emission, low-odor formula. Designed for quick project turnaround and move-in readiness, it offers a cleaner, more comfortable option for high-end homes, hotels, and commercial spaces.

Beyond individual products, the company focused on its full-system approach, providing support from product selection and color design to technical guidance and on-site application. Each display sample was tailored to local trends, reflecting 3Trees's attention to climate, aesthetics, and compliance in every detail.

The Middle East construction sector is moving toward materials that blend design, strength, and sustainability. 3Trees's presence at Big 5 showcased solutions that support a more sustainable, efficient, and comfortable built environment through ongoing innovation and local collaboration.

Source : SKSHU Paint Co., Ltd.

Continued from page 24

demand confidence and not short-term speculation. API markets are under pressure to improve quality, traceability and cost efficiency, which is forcing modernization.

Recent studies show that the market accounts for over 60% of global production capacity, and this confirms the production concentration. This aligns with the global API dependence trends that are seen across anti-biotics, excipients and intermediates. The economic and policy incentives matter as well.

Raw material access:

Sodium bicarbonate depends on soda ash availability, and the countries with domestic supplies are enjoying supply security; therefore, the proximity of raw materials has reduced the risk as well.

Technology shifts:

There is a shift from batch to continuous production. Continuous processes help in improving consistency, yield, and compliance, which are critical for APIs. There are several advanced purification techniques available, and thus, the quality standards have grown as well. Higher yields have reduced the cost per unit while improving the regulatory acceptance.

The producers have shifted from batches to continuous production, and this has had a positive impact on the overall consistency, yield and compliance.
The supply chains were fragile. API shortages have reshaped COVID and the sourcing strategies across the globe. Companies are avoiding single-country dependencies, and risk mitigation is now the strategic priority.

Tariffs, sanctions, and trade controls are directly impacting API flows. High-purity APIs command premium pricing and higher margins. Thus, green chemistry matters because the regulators and buyers are demanding environmentally responsible APIs. The compliance is expensive, and GMP, FDA, and EMA inspections can potentially increase the cost and barriers.

Growth forecasts:

There is a moderate but reliable growth observed, and CAGR is approximately 4-6%; the growth is consistent with essential healthcare APIs and not speculative biotech.

The industry is expanding its pharmaceutical R&D pipelines, and injectables and specialty formulations require buffering agents like sodium bicarbonate. Therefore, the recommendation follows demand growth, regulatory pressure and supply chain risk.

Major producing countries and regional roles:

The global production landscape is highly concentrated in Asia.

China accounts for approximately 45% of global sodium bicarbonate API capacity, and its dominance is due to economies of scale, domestic raw material sourcing and integrated chemical manufacturing clusters. Large state-owned and private enterprises drive production efficiency and export competitiveness.

India contributes about 25% of the global capacity, and the strength lies in the robust pharmaceutical ecosystem, skilled labour, and export-friendly policies. Indian producers are increasingly positioned as reliable alternatives for regulated markets that are seeking supply diversification.

Other countries such as the United States, Germany and South Korea maintain smaller yet strategically important production bases, and these regions focus primarily on high-purity grades and regulated domestic markets, benefitting from advanced technological expertise but facing higher operating costs.

When we observe some of the recent trade data, we can see that China and India are the leading exporters of sodium bicarbonate API. China exports approximately 15,000 metric tons annually, which represents around 40% of the global export share, and India follows with roughly 60,000 metric tons and a 15% market share. Both Germany and South Korea together contribute about 7% of the global exports, which primarily serve high-purity demand segments.

The trade results expose the demand drivers, which are cost-competitiveness, logistics efficiency, and preferential trade agreements. The risks, such as tariff changes, regulatory barriers and raw material price volatility, continue to shape the trade strategies.

The Asia Pacific is growing at a faster pace and is expected to lead in the upcoming years. Rapid industrialization, expanding healthcare infrastructure, and rising pharmaceutical production underpin the growth.

Countries like China and India are dominating both supply and demand,

while Japan and South Korea contribute through high-value applications and advanced manufacturing. Apart from pharmaceuticals, Asia is expanding their textiles, chemical and environmental treatment industries, where the demand for sodium bicarbonate is growing for buffering, emissions control, and wastewater treatment. These applications and incremental demand strengthen regional consumption.

Takeaway: The global sodium bicarbonate API market offers a resilient and attractive growth trajectory anchored in essential pharmaceutical and industrial applications. The competitive pressures and regulatory complexity present challenges, and they also raise barriers to entry and reward well-positioned players. The success of the market is dependent on technological sophistication, regulatory excellence and supply chain resilience rather than cost leadership alone. The companies are investing early in quality differentiation, sustainable manufacturing and strategic partnerships, and thus they are in a better position to capture value as the demand accelerates through 2030. Therefore, we can conclude that sodium bicarbonate is no longer a simple commodity; it is becoming a strategically important input supporting global healthcare systems, pharmaceutical innovation, and industrial efficiency, making it a cornerstone of the supply chain of the chemical and pharmaceutical industry that is evolving.

HPQ Silicon and Novacium Achieve IEC 62133 Certification - Major Step Toward Global Commercialization of High-Performance Li-Ion Cells

- IEC 62133 certification confirms that HPQ Endura+ and Novacium lithium-ion cells meet the world's leading international safety standard for portable rechargeable batteries
- Combined with existing UN 38.3 (transport) and UL 1642 (U.S.) certifications, this completes the core set of globally recognized safety approvals
- Removes major regulatory barriers and accelerates commercial discussions, customer qualification programs, and market entry with OEMs worldwide

MONTREAL, Jan. 15, 2026 / PRNewswire/ - HPQ Silicon Inc. ("HPQ" or the "Company") (TSXV: HPQ) (OTCQB: HPQFF) (FRA: O08), a technology company focused on innovative materials and next-generation processes, together with its French technology partner Novacium SAS, today announced that their lithium-ion battery cells have received IEC 62133 certification.
IEC 62133 is the most widely accepted international safety standard for portable rechargeable lithium-ion batteries and battery packs. It is mandatory or strongly preferred for market access in the vast majority of countries worldwide (Europe, Asia, and many others). The certification validates electrical, mechanical, and chemical safety under both normal use and reasonably foreseeable misuse conditions.

The certification applies to HPQ and Novacium's cylindrical cells in the widely adopted 18650 and 21700 formats – the dominant sizes used in consumer electronics, power tools, industrial equipment, laboratory instruments, medical devices, and many other applications.

"This is a critical commercial milestone for HPQ and Novacium," said Bernard Tourillon, Chairman, President and CEO of HPQ Silicon Inc. "With UN 38.3, UL 1642, and now IEC 62133 in place, our cells fully satisfy the major safety requirements of regulators, major manufacturers, and end-users globally. We can now move from technical evaluations to serious commercial negotiations, product qualification at customer sites, and integration into international supply chains."

IEC 62133: A Global Benchmark for Battery Safety and Market Access

IEC 62133 is one of the most widely recognized safety standards for

exporting lithium-ion batteries into global markets. Compliance is required or strongly preferred in many jurisdictions and across multiple end-use sectors. The certification validates our cells against a comprehensive series of tests designed to mitigate risks such as overcharging, over-discharging, short circuits, and thermal events, while also confirming proper labeling, documentation, and traceability.

The achievement of IEC 62133 compliance significantly de-risks the product for potential partners and customers, expands addressable market opportunities, and supports HPQ's strategy to rapidly scale production and secure long-term commercial agreements.

"From a business standpoint, IEC 62133 dramatically broadens our market reach," said Derick Lila, M.A., M.Sc., HPQ's Director of Communication and Director of Business Development. "Customers can now confidently advance from testing to procurement and contracts. We are actively increasing engagement with global partners and expect faster progress in qualification programs and initial sales."

Removing Barriers to Commercialization and Global Sales

"Moreover, from a commercialization standpoint, IEC 62133 expands our path to revenue," added Mr. Lila. "This certification gives potential customers the assurance they need to move from technical evaluation to procurement discussions. It positions HPQ and Novacium to pursue opportunities across multiple regions while supporting our strategy to scale production and secure long-term commercial agreements."

The IEC 62133 certification further reinforces HPQ's objective of transitioning from advanced materials development to high value added and market-ready energy storage solutions. With internationally recognized safety validation in place, HPQ and Novacium are now positioned to expand and accelerate customer engagement, advance qualification programs, and support sales discussions across global lithium-ion battery markets.

Source : HPQ Silicon Inc.

Devan Unveils Innovative Textile Solutions to Enhance Comfort during Sleep at Heimtextil 2026

RONSE, BELGIUM – From 13 to 16 January 2026, Devan was exhibiting at Heimtextil in Frankfurt, the world's leading international trade fair for home and contract textiles. The event brought together key players from across the global textile value chain, providing the ideal platform for Devan to present its latest innovations.

At Heimtextil, Devan showcased a range of new textile solutions, meeting the growing demand for products that contribute to better sleep quality and overall well-being.

Devan Comfort: Patented Polymer Technology for thermal comfort all night long

A key highlight at Devan's booth was Devan Comfort, Devan Chemicals' patented polymer technology. Engineered for optimal sleep, Devan Comfort actively cools and manages moisture, ensuring a balanced and comfortable sleep environment. Unlike standard fabrics that trap heat and humidity, often leading to restless nights, Devan Comfort regulates temperature and moisture to create a consistently restful experience.

Well-being technology: boost textiles with a recovery solution and support emotional balance

Devan has expanded its Devan Revital line with two innovative new active ingredients:

- **Recovera:** A synergistic blend designed to soothe, revitalize and support the body's natural recovery processes.
- **Mood Boost:** Transforms everyday fabrics into gentle, mood-enhancing companions, promoting relaxation and better sleep throughout daily life.

Both ingredients leverage Devan's patented micro-encapsulation technology, clinically tested with multiple bioactives and textiles, demonstrating effective delivery through skin contact and/or olfactive inhalation, with controlled capsule release ensuring sustained bioactive performance over time.

95% biobased Flame retardant

Devan is proud to introduce Devan Bioflam, a 95% biobased flame retardant. Made entirely from renewable resources, Bioflam delivers efficient flame retardant protection without halogens (Br, Cl), heavy metals or antimony. This flame retardant is not only highly effective but also preserves the natural handle and feel of the fabric.
Cool comfort technology: Instant cool touch with thermoregulation for Foam

Besides that, Devan Introduced Devan Cool TOC HC 404, an advanced, patented cooling technology specifically designed for foam applications. The innovative technology helps textiles actively dissipate excess body heat, providing an instant cooling sensation while supporting long-lasting thermal balance. By keeping the body in its optimal comfort zone, TOC HC 404 enhances overall comfort and well-being, making it ideal for applications where temperature regulation is key.

100% Plant based Moisture Management

Last but not least, Devan has developed a readily biodegradable moisture management technology, Devan Quickdry - Devatec Wik Bio, based on renewable plant-based raw materials. The bio content is 100%.

Commenting on the innovations showcased at Heimtextil, Devan's CTO, Dr. Roberto Teixeira, said:

"Our goal is to combine science and comfort in ways that genuinely improve everyday life. From active cooling to well-being-enhancing textiles, each innovation we present is designed to help people sleep better, feel better and enjoy fabrics that work as hard as they do. Heimtextil gives us the perfect stage to share these solutions with the global textile community."

Devan's presence at Heimtextil 2026 reaffirmed its commitment to innovation in functional and comfort-enhancing textile finishes, and its role as a trusted partner for the global home textile industry.

Source : Press Release finder

PPG makes bold debut at Guangzhou Design Week, showcasing next-generation coatings

Speciality coatings company PPG has made its debut at the Guangzhou Design Week, unveiling its MASTER'S MARK and TIKKURILA product lines in a bold showcase that fused sustainability with modern living.

Under the theme "Refresh & Sustain," the company delivered an immersive, four-zone experience that brought sustainable design concepts to life while underscoring PPG's purpose to protect and beautify the world.

MASTER'S MARK took center stage with the reveal of its refreshed brand identity and the launch of MASTER'S MARK BALLARD Flat Interior Paint. Positioned as an all-in-one solution, the new product offers superior hiding power, strong adhesion, scrub resistance and stain resistance, reinforcing the brand's focus on performance and durability.

TIKKURILA highlighted its Color Now 2026 trend forecast and showcased collaborations with leading art institutions, emphasizing its leadership in color expertise and sustainably advantaged formulations. The brand also presented its holistic coating solutions, which blend aesthetic impact with practical performance, alongside design-sharing sessions exploring the role of color psychology in interior spaces.

"Consumers today value health, sustainability and long-term quality," said Gao Chunlin, PPG general manager, China, Architectural Coatings. "PPG delivers environmentally conscious, high-performance solutions and collaborates with designers and industry partners to create sustainable, beautiful spaces."

Source : Indian Chemical News

How Gujarat Is Building India's Most Investable Renewable Energy Ecosystem

Vinodhini Harish

Introduction:

Gujarat is actively working to strengthen its renewable energy ecosystem through multiple large investments, with the most prominent being NLC India's INR25,000 crore commitment. Gujarat is already one of the country's top renewable energy states and there is a large public sector investment immediately established scale, seriousness and policy momentum. There is another significant investor named the KP group, to show that not only public enterprises but also private developers are committing capital. Both the public and private investments demonstrate balanced sector participation, and this has reduced dependency on any single funding source. In this article, we have discussed the news in detail.

Let's get into the Structured, investor-relevant details:

NLC India's ownership and the nature of the agreement. The non-binding MoU indicates intent rather than immediate execution, which is standard for early-stage mega projects. The technology mix is planned under the MoU. This includes storage and hybrid systems, where maturity and grid stability are the key challenges in the renewable energy expansion. The estimated financial scale of the project is around INR 25,000 crore, and this shows the investment potential of the country and also shows that it is flexible while communicating seriousness and magnitude. Execution responsibility is assigned to a dedicated renewable subsidiary. Specialised subsidiaries improve the project focus, governance, and investor confidence.

This ties the Gujarat projects to NLC India's national renewable roadmap. This alignment with the long-term corporate targets strengthens credibility and strategic intent. This also introduces the KP group as a private sector counterpart to NLC India. This shows Gujarat's ability to attract diverse capital sources.

There is a clear purpose to the KP group's investment, as the investors believe that the infrastructure growth alongside energy generation ensures long-term project viability. The investment supports the state's vision of becoming a clean energy hub; this intention connects private investment with government policy goals. This reinforces Gujarat's strategic positioning at both national and global levels.

The announcements were made during the Vibrant Gujarat Regional conference in Rajkot. This underscored the state's focus on mobilising large-scale capital and expanding renewable energy capacity. It is also strengthening the role in India's broader energy transition.

NLC India's 25,000 crore renewable energy expansion plan:

State-owned NLC India Limited has signed a non-binding memorandum of understanding with the government of Gujarat. The goal is to explore the development of large-scale renewable energy projects across the state. The processed projects span solar, wind, hybrid renewable systems, and battery storage, with an estimated investment of around 25,000 crore.

The projects will be executed through NLC Indian Renewables Limited, and the company's wholly owned subsidiary of the company dedicated exclusively to renewable energy development. This structure enables focused execution, specialised project management and alignment with

evolving clean energy technologies.

Importantly, the Gujarat projects are closely aligned with NLC India's corporate objective of achieving 10 GW of renewable energy capacity by 2030, marking a strategic shift from conventional power generation toward low-carbon and sustainable energy assets.

The collaboration is strengthening Gujarat's position as a preferred destination for large-scale renewable investments while supporting India's national goals of energy security, decarbonization and expansion of non-fossil fuel-based power capacity.

KP group's INR 4000 crore commitment reinforces private sector confidence.

The KP group has announced an INR 4000 crore investment commitment in Gujarat, and this announcement complements NLC India's large public sector investment. This also reinforces the state's strong appeal to domestic clean energy investors. The proposed investment is aimed at accelerating the development of renewable energy projects, especially in solar and wind power, while also supporting the critical enabling infrastructure, such as power transmission networks, grid connectivity, and energy storage systems.

All of these elements are essential for ensuring efficient evacuation of renewable power and improving grid stability as capacity additions increase.

Their participation in the development underscores the growing importance of private sector leadership in India's energy transition, where public funding alone is insufficient to meet ambitious clean energy targets. By deploying capital across generation and infrastructure assets, the company is contributing to the creation of integrated and future-ready energy systems capable of supporting higher renewable penetration.

The strategic vision of Gujarat is to become a clean energy and sustainable infrastructure hub. This involves capitalising on the state's favourite geography, supporting policy framework, and robust industrial ecosystem.

Economic, employment and supply chain impact:

Beyond expanding renewable energy capacity, the combined investments by NLC India and KP group are expected to deliver substantial economic and social benefits for Gujarat. Large-scale renewable projects planning and development, civil and electrical construction, installation, and long-term operations and maintenance.

These activities create both direct and indirect jobs, supporting skills, semi-skilled and unskilled workers across urban and semi-rural regions.
The investments are likely to stimulate growth in ancillary industries such as local manufacturing of components, engineering and procurement services, logistics and transportation, equipment supply and site support services.

Increased demand for domestically produced materials and services can strengthen local supply chains, reduce dependence on imports, and encourage the development of regional industrial clusters.

Over time, these multiplier effects contribute to broader regional development, higher income generation, and improved economic resilience, especially in renewable-rich areas of Gujarat.

Let's explore some of the Gujarat Renewable Energy Policy provisions:

Gujarat's renewable energy policy framework has played a decisive role in positioning the state as one of India's most advanced and investor-friendly clean energy markets.

Over the past decade, Gujarat has consistently updated its renewable energy policies to reflect technological progress, market realities, and national climate commitments.

The policy provisions provide long-term clarity to the state government and thereby reduce regulatory uncertainty. It has also created a stable environment for large-scale investments such as those announced by NLC India and KP group.

The core of Gujarat's renewable policy is long-term capacity planning.

There are clear targets for solar, wind, and hybrid renewable systems, and energy storage. This ensures that developers can plan their projects with confidence over extended timelines. The policy provisions typically include assured grid connectivity, defined timelines for project commissioning and clarity on power evacuation infrastructure.

This is a forward-looking approach and has helped the state to avoid the stop-start policy cycles that often deter investors in capital-intensive sectors such as renewable energy.

Gujarat's renewable energy policies are integrating sustainability and system-level considerations. Some of their recent frameworks have recognised the importance of hybrid projects and energy storage to manage intermittency and ensure grid reliability.

Overall, we can see that Gujarat's renewable energy policy provisions strike a balance between the investment attractiveness, system reliability, and sustainability objectives. The policy maturity has been instrumental as it

attracts both public sector giants such as NLC India and private developers such as KP group, which reinforces Gujarat's leadership in India's clean energy transition.

How Gujarat manages its land availability:

The way Gujarat manages its land availability is its biggest strength as they develop renewable energy. They manage their large solar and wind projects that need huge stretches of continuous land, which is often difficult to find in crowded states. Gujarat has solved the problem by planning ahead, and the state government identifies suitable land early and brings it all together in large blocks.

They do this through their solar and wind park model. The model works and helps the government and agencies to select the land based on key factors such as sunlight, wind and minimal environmental impact. They also consider the closeness of power grids. Before even the companies move in, the land is already equipped with basic infrastructure such as road, substations, and transmission lines. These all are all the groundwork that is already done and dusted before even the companies can start building projects faster with fewer risks.

A good example of the approach is the Khavda Renewable Energy Park in Kutch. The planned capacity of the project is 30GW, and it is one of the largest renewable energy parks in the world and the region has strong sunlight and wind, with low population density. The ground work has reduced land conflicts as well. The ready-to use infrastructure has attracted major investors such as reliance industries, Adani Green energy and other public and private companies.

Gujarat prefers to lease the property before buying it outright. Longterm leases lower the project costs and avoid disputes. While the landowners receive steady income, they ensure local communities benefit directly from renewable projects. By allowing solar, wind and hybrid projects to operate in same area, Gujarat uses land more efficiently and ensures smoother power supply. Therefore, their strategy is to solve land and infrastructure issues early and remove some of the biggest obstacles to renewable energy growth by making it a top choice for investors.

Single-window clearances and fast approvals:

Renewable energy projects require large investments, long-planning periods and coordination with many government departments. If the approvals are delayed, then the project costs increase and investor confidence is also affected. Gujarat has addressed the challenge by creating a single-window clearance system, which makes the approval processes faster, simpler and more transparent for renewable energy developers.

Under the single-window system, the project developers do not need to approach multiple government offices separately; they can apply for all necessary approvals through one central platform. These approvals usually include land permissions, grid connection approvals and environmental clearances. Therefore brining all these processes under one roof, Gujarat reduces their paperwork, saves time and avoids confusion.

Another important feature is Gujarat's system of time-bound approvals; the state clearly defines how long each approval should take and holds the departments accountable for meeting these timelines.

Therefore, the investors get clarity and confidence, especially for large projects that involve capital investments and complex planning, such as those by NLC India and KP group.

Gujarat has also aligned itself with the National Energy Storage Mission, and it promotes the use of battery storage systems. Since Solar and wind energy depend on weather and conditions, storage is essential to ensure a steady and reliable power supply. The state efforts directly support India's larger goals, including 500 GW of non-fossil fuel power capacity by 2030 and net-zero emissions by 2070. Investments by companies like NLC India and KP group help turn these national targets into reality on the ground.

When state and central policies work together, investors feel more confident, and the clearly aligned policies reduce uncertainty and encourage long-term investments. By matching the state-level action with national vision, Gujarat has built a renewable energy ecosystem that is strong, scalable and closely linked to India's clean energy future.

Takeaway:

We can call the investments by NLC India and KP group a significant milestone in Gujarat's renewable energy journey and as a balanced and resilient approach that is driven by both public and private sector participation. NLC India's INR 25,000 crore commitment brings in scale, institutional strength and alignment with national renewable capacity targets, while KP group's INR4000 crore investment reinforces private sector confidence and underscores the commercial attractiveness of Gujarat's clean energy ecosystem. Also, apart from energy generation, these projects focus on delivering wider economic benefits, including job creation, supply chain development, regional industrial growth and grid challenges and so on. Therefore, Gujarat has come up with a renewable energy model that is scalable, sustainable and future-ready.

PPG's SEM Products, 4PLASTIC introduce texture refinishing system

PITTSBURGH, Jan. 19, 2025 – PPG (NYSE: PPG) today announced that its SEM® Products business, in collaboration with 4Plastic, has unveiled a new generation of texture coatings engineered specifically for the repair of non-painted, textured plastic components.

collision repair industry needs solutions to accurately restore these surfaces after damage," said Larry Trexler, PPG global allied products technical market support manager, Automotive Refinish. "It is a significant challenge for repair shops, insurers and OEM programs, as textured component replacements often do not match the existing faded plastics on a vehicle, so the ability to repair and retexture them has become a high-value capability."

The SEM and 4Plastic texture range directly addresses this need with advanced coatings formulated to replicate the most common OEM textures. Body shops can use the 4Plastic App, available both for iOS and Android platforms, so that the right texture can be easily identified and matched for the repair.

The SEM and 4Plastic texture system demonstrated exceptional durability and performance in internal testing. Accelerated weathering tests verified environmental resistance, with only minor gloss changes that mirror natural OEM aging, confirming an OEM-grade finish built to endure everyday conditions. Adhesion testing confirms a strong, long-lasting bond, while abrasion and solvent resistance tests showed that the coating withstands real-world wear without damage or color transfer.

The products offer fast application, predictable results, and simplified training, allowing even entry-level technicians to achieve consistent finishes. This makes the repair of textured components both operationally efficient and commercially attractive, reducing unnecessary replacement costs and shortening cycle times.

"OEMs have moved decisively toward textured plastics as part of their design and manufacturing strategy, but the repair industry has not had an advanced system to restore those textures accurately until now," said Michael LoPrete, managing director of 4Plastic. "The SEM and 4Plastic range bring together scientific formulation, rigorous testing and practical usability, giving collision centers a true repair-first option for textured components. The ability to restore these parts rather than replace them not only reduces costs but also supports ongoing sustainability initiatives by preventing plastic waste and reducing parts-related emissions."

The SEM and 4Plastic line will be complemented by a range of tools and equipment designed to simplify and speed up plastic parts repair, including an innovative tool designed for pushing out dents and refining bodylines in plastic bumpers. The full line is available across the U.S. and Canadian markets.

Source : PPG

BioBond Launches BioBased Industrial Adhesive for Mobility and Defense Markets

LAFAYETTE, Ind., Jan. 15, 2026 / PRNewswire/ -- BioBond Adhesives, Inc. ("BioBond"), a leader in innovative biobased adhesives and coatings, today announced the launch of BioAdhere™ SUP250, an advanced, high-performance adhesive engineered from plant based materials. Designed specifically for demanding mobility and defense applications, the BioAdhere SUP250 delivers a lighter-weight yet durable and long-lasting bonding

solution.

BioBond is positioning the BioAdhere™ SUP250 as a superior, safer and healthier alternative to traditional industrial glues. This product is safer for industrial use, boasting practically no VOCs or odors, has no microplastic added, and is completely PFAS (forever chemical) free. As a USDA BioPreferred certified product and Made In The USA, the BioAdhere SUP250 is accelerating the industry's transition toward high-performance, sustainable materials.

The BioAdhere™ SUP250 is the latest addition to our rapidly expanding line-up of BioBond adhesive products that are fundamentally free of odors, microplastics, and PFAS chemicals," said Greg Piche, Vice President of Products at BioBond. The defense and mobility markets, including emerging form factors like drones, demand materials that allow for lighter structures, longer flight times, and extreme durability in harsh environments. BioBond's new adhesive meets this challenge head-on.

"We are introducing a true game-changer that will have an immediate and significant impact on the industry," added Marc McConnaughey, BioBond's CEO. "The BioAdhere SUP250 offers excellent performance and highly competitive pricing, enabling high-performance adhesives to now replace traditional attachment methods such as fasteners, screws, and welding."

Dr. Richard Hart, BioBond's Chief Technology Officer, highlighted the company's dual commitment to sustainability and superior performance. "Developing high-performing, cost-effective, and sustainable biobased products that are also safer and healthier is inherently challenging. BioBond's Industrial Adhesive is a high-performance, two-part urethane adhesive developed in our Santa Ana Technology Labs."

Dr. Hart continued, "This launch demonstrates that superior performance and competitive pricing do not have to come at the expense of using plant-based materials, or compromising safety, health, and the environment."

Commitment to Rural America

BioBond is the second portfolio company launched by Big Idea Ventures' Generation Food Rural Partners I, LP (GFRP) Fund. Based in Lafayette, Indiana, the company is dedicated to fostering economic growth in rural communities, with 70% of its funding spent in rural areas of America, creating living wage jobs.

Source : BioBond Adhesives, Inc.

Henkel launches next generation polyurethane potting solution for industrial and power electronics reliability

In today's rapidly evolving industrial and power electronics landscape, manufacturers face increasing pressure to enhance reliability, extend product lifetimes, and ensure stable performance under harsher operating conditions. Systems such as motor controls, power supplies, inverters, battery management units, HVAC control modules, and industrial sensors are exposed to sustained heat, humidity, vibration, and corrosive environments. These conditions increase the risks of corrosion, silver migration, insulation breakdown, and premature failure — driving demand for advanced potting materials capable of delivering robust, long-term protection.

As a global leader in materials innovation for electronics, Henkel is responding to these market challenges with the launch of Loctite STYCAST US 8000 A/B, a next generation two component polyurethane potting compound designed to deliver exceptional electrical insulation, mechanical durability, and long term reliability in demanding environments. This new solution strengthens Henkel's portfolio of high performance encapsulation materials and supports customers seeking enhanced protection for mission critical industrial and power electronics assemblies.

Loctite STYCAST US 8000 A/B is engineered for reliability from the inside out. Its ultra low ionic content (less than 20 ppm) minimizes corrosion and prevents silver migration in high humidity environments — one of the

leading causes of leakage currents and short circuits. With a UL 746 RTI rating of 140°C and UL 94 V 0 flammability certification, the material provides proven thermal endurance and safety. Electrically, its dielectric strength of 24 kV/mm and surface insulation resistance above 10^8 Ω after 500 hours at 85°C/85% RH ensure long term insulation stability even under extreme environmental stress.

Thanks to its low mixed viscosity (3,800–5,800 mPa·s) and standard 4:1 mixing ratio, Loctite STYCAST US 8000 A/B offers smooth, consistent dispensing and excellent flow into narrow gaps and complex geometries — supporting void free encapsulation and efficient high volume manufacturing. Its ability to cure at room temperature or through accelerated heat schedules enables process flexibility and reduced energy consumption. Mechanically, the material delivers a balanced combination of strength and flexibility, with Shore A hardness of 89, 9 MPa tensile strength, and 87% elongation, allowing it to absorb vibration and thermal expansion without cracking or losing adhesion.

"At Henkel we are committed to enabling the next generation of reliable, energy efficient electronic systems. With the launch of Loctite STYCAST US 8000 A/B, we are expanding our advanced protection portfolio to support customers facing increasingly harsh environmental and compliance requirements," comments Eric Zhai, Global Senior Market Strategy Manager for Power & Industrial Automation at Henkel Adhesive Technologies.

With a global innovation network, dedicated electronics laboratories, and deep expertise in materials development, Henkel continues to invest strategically in next generation encapsulation and protection technologies. The company's commitment is reinforced by strong collaboration with OEMs and Tier suppliers to accelerate the adoption of advanced potting materials across critical industrial and power electronics applications.

"Through close partnership with our customers, Henkel is delivering materials that drive reliability, compliance, and long term sustainability," concludes Eric Zhai. "Loctite STYCAST US 8000 A/B is a powerful example of how innovations can rapidly progress from concept to production — helping manufacturers reduce field failures, extend product lifetimes, and meet the growing demands placed on modern electronic systems."

Source : Web Wire

Jeonbuk National University Researchers Develop Novel Dual-Chemical Looping Method for Efficient Ammonia Synthesis

JEONBUK-DO, South Korea, Jan. 21, 2026 /PRNewswire/ -- Ammonia is an essential chemical used across many industries worldwide. Beyond its traditional role as a fertilizer, it is also a promising liquid hydrogen carrier and low-carbon fuel that could help reduce reliance on fossil fuels. However, conventional ammonia production based on the Haber–Bosch (HB) process requires considerable energy and contributes significantly to greenhouse gas emissions, accounting for roughly 1–1.3% of global emissions annually. Given its growing importance, there is an urgent need to reduce the environmental burden of ammonia production.

Recently, chemical looping ammonia synthesis (CLAS) has emerged as a viable alternative method for ammonia production. Specifically, aluminium-oxide (Al2O3)-based chemical looping has shown promise for enabling ammonia synthesis under more energy-efficient conditions.

Building on this concept, a research team led by Assistant Professor Sunghyun Cho from the School of Chemical Engineering, School of Semiconductor and Chemical Engineering at Jeonbuk National University in South Korea, has developed a new dual-chemical looping process combining Al2O3 and iron oxide (Fe2O3). "Our approach combines methane thermal decomposition with

Al2O3- and Fe2O3-based chemical looping cycles," explains Dr. Cho. "This method enables ammonia synthesis without the energy-intensive steps, significantly improving both sustainability and efficiency." Their study was made available online on October 29, 2025, and published in Volume 348, Part B of Energy Conversion and Management on January 15, 2026.

The Al2O3-based chemical loop (A-CL) has two stages: nitrogen fixation and hydrolysis. During nitrogen fixation, Al2O3 combines with nitrogen and solid carbon to generate aluminium nitride (AlN). This is followed by hydrolysis, where AlN interacts with steam to produce ammonia. In the proposed dual-looping process, A-CL is complemented by thermal decomposition of methane (TDM) and an Fe2O3-based chemical loop (F-CL). TDM supplies solid carbon for A-CL, while F-CL provides nitrogen, eliminating the need for additional air separation units. Additionally, carbon monoxide generation within A-CL provides reusable feedstock for F-CL systems. Together, these interactions create a cross-linked circulation of key feedstock materials.

To test practical feasibility, the researchers then conducted a comprehensive energy, exergy, economic, and environmental (4E) analysis of 10 different process configurations, including the proposed dual-looping system and its modified variations, the conventional HB process, and both Al_2O_3-based and Fe_2O_3-based single-chemical looping systems.

Simulation results showed that the proposed configuration outperformed conventional production methods in both energy and exergy efficiencies by 8.4 % and 19.0 %, respectively. It reduced global warming potential by up to 15.85 kg of CO_2-equivalent per kilogram of ammonia produced. It also demonstrated the lowest production costs among all evaluated cases. Sensitivity analysis further confirmed its robustness under varying technoeconomic conditions. Notably, integrating heat exchangers significantly improved energy and exergy efficiencies of all configurations.

"Our dual-looping technology can be applied across industries that require large-scale ammonia production while reducing carbon emissions and maintaining economic feasibility," concludes Dr. Cho. "As the world moves toward cleaner energy systems, this process could support future clean-fuel applications and broader carbon-neutral energy-transition strategies."

SOURCE : Jeonbuk National University

Take your inks to the next level of performance with TEGO® Dispers 695

Evonik Coating Additives introduces TEGO® Dispers 695, a novel hyperdispersant for radiation-curing inks and solventborne polyurethane inks.

- Novel hyperdispersant technology for superior pigment wetting and dispersion, patent filed
- Exceptional performance with even the most challenging pigments – stable over time
- Outstanding viscosity reduction and color strength development for high-quality formulations

Essen, Germany. Evonik Coating Additives introduces TEGO® Dispers 695, a novel hyperdispersant for radiation-curing inks and solventborne polyurethane inks. This innovative solution sets a new performance benchmark for pigment dispersion and formulation stability.

"Our TEGO® Dispers 695 is not just an incremental improvement compared to other dispersing additives – it's a significant technological leap," says Susanne Struck, Global Head of Market Segment Printing Inks at Evonik Coating Additives. "Developed in close collaboration with our customers worldwide, it delivers unmatched performance."

Even with the most demanding organic pigments, TEGO® Dispers 695 ensures shorter grinding times, strong viscosity reduction, fine particle size, and ultimate color strength – all while maintaining stability during storage.

"For all liquid inks, but especially inkjet inks, this stability is a decisive factor - and TEGO® Dispers 695 clearly excels," adds Tommy Guo, Project Manager and Head of Applied Research and Technology at Printing Inks in Asia Pacific.

The additive is highly polymeric, solvent-free, and 100% active, dissolving easily in a wide range of monomers and organic solvents, including alcohols. It enables formulators to achieve higher pigment loadings without thixotropy, reduced grinding times, and enhanced color strength across radiation-curing flexo, litho and inkjet inks as well as PU-based solventborne inks. Suitable for all types of organic and inorganic pigments, TEGO® Dispers 695 is the go-to choice for outperforming, next-generation ink formulations.

Evonik's Coating Additives business offers a comprehensive portfolio of co-binders for inks, along with a wide range of additives for waterborne, radiation-curable, solventborne, and inkjet printing inks.

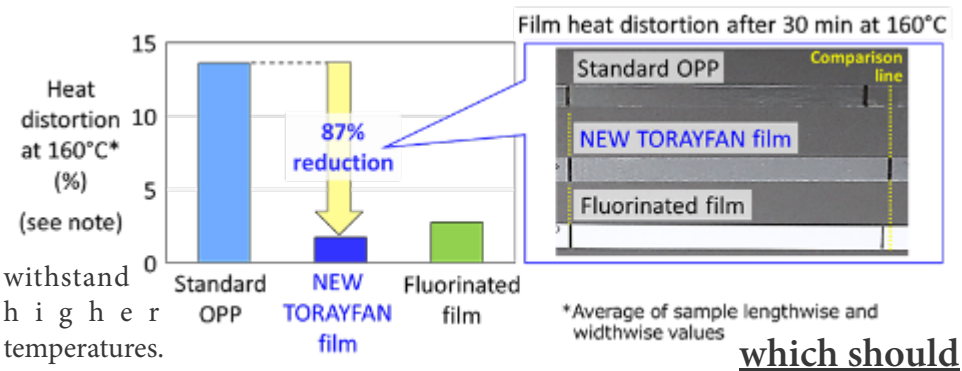
Source : Evonik

Toray Unveils World's First 160°C-Resistant Polypropylene Release Film to Help Cut Fluorinated Film Use in IC Substrate and Carbon Fiber-Reinforced Plastic Processing

Tokyo, Japan, January 23, 2026 – Toray Industries, Inc., announced today that it has developed a new type of TORAYFAN® biaxially-oriented polypropylene (OPP) film that is the world's first with a heat resistance near to that of a kind of engineering plastics The company has started shipping samples.

The thermal dimensional stability and release properties are excellent even at an ambient temperature of 160°C. A key intended use is as a high-heat-resistant release film in IC substrate, carbon fiber-reinforced plastic prepreg, and other molding processes, where fluorinated films are widely used today. Toray will continue technical development to meet customer application needs.

Manufacturers widely use OPP film in packaging because it resists moisture and stays clear. They also use it as an industrial material in their processes because it releases cleanly and emits little gas. Manufacturing and processing steps are diversifying as electronic devices and lightweight mobility materials evolve, so OPP film must withstand higher temperatures.



The new TORAYFAN stemmed from reinforcing Toray's high-heat-resistance technology for OPP film and integrating it with a new high-heat-resistance surface technology employing a high-heat-resistance polyolefin resin. This reduced heat distortion to about one-tenth that of standard OPP film at 160°C. It also lowered wettability, which should deliver excellent release properties.

On top of the thermal dimensional stability and release properties, this new film is uncoated and absorbs little moisture. This makes it suitable for demanding applications where even thermal wrinkles or slight contamination from release components during processing, such as thermal lamination, is unacceptable. It also suits applications that cannot tolerate moisture in the film, such as processing battery components in dry rooms or in vacuum equipment used for vapor deposition and sputtering.

Source : Toray

Citadel EHS Expands Northern California Building Sciences and Industrial Hygiene Consulting with Hazardous Building Materials Expertise

GRASS VALLEY, Calif., Jan. 22, 2026 /PRNewswire/ -- Citadel EHS announced the expansion of its Northern California building sciences and industrial hygiene consulting services with the addition of Kristoffer "Kris" Maglunob as Associate Practice Lead of Building Sciences, based in the firm's Grass Valley office.

Kris brings extensive experience in asbestos and lead-based paint consulting, hazardous building materials assessments, and occupational exposure evaluations, supporting public- and private-sector clients across California and the United States. His work includes complex infrastructure, institutional, and commercial projects where regulatory compliance, environmental risk management, and schedule certainty are critical.

Capabilities strengthened in Northern California

- Hazardous building materials surveys (asbestos and lead-based paint)
- Clearance testing and project monitoring
- Occupational exposure evaluations
- Indoor air quality assessments
- Mold and moisture investigations

Kris is a California Department of Public Health (CDPH) certified Lead Inspector/Assessor and a California Division of Occupational Safety and Health (DOSH) Certified Asbestos Consultant (CAC). At Citadel EHS, he will focus on expanding building sciences and industrial hygiene services throughout Northern California - including the San Francisco Bay Area and Sacramento region - delivering practical, defensible solutions tailored to project-specific needs.

This strategic hire reflects Citadel EHS' continued investment in local leadership to support growing demand for building sciences and industrial hygiene services across Northern California.

SOURCE Citadel EHS

Cleaner air, lasting performance: BASF introduces Near-Zero SVOC technology

- Near-Zero SVOC innovation sets new benchmark for cleaner indoor air and healthier living spaces
- Sustainability in action enables early room occupancy and supports future-ready, responsible building solutions
- Low emissions, high living comfort, supporting improved indoor air quality without compromising durability or aesthetics

BASF advances interior coatings innovation with its Near-Zero SVOC dispersion solution, designed to support cleaner indoor air and healthier homes, schools, workplaces and public spaces.

While most are still focused on reducing VOC levels, BASF has already taken the next step by addressing SVOCs to enhance the safety and comfort of work and living environments.

By significantly reducing emissions of semi-volatile organic compounds (SVOCs) to near-zero levels, this next-generation technology enables interior coatings that combine trusted performance, durability, and premium aesthetics with measurable improvements in indoor air quality. It sets a new standard for healthier indoor living, giving homeowners, designers, and building professionals confidence in the quality and safety of the spaces they create.

"Near-Zero SVOC technology reflects BASF's continued focus on innovation that delivers meaningful value for our customers and everyday living," said Andreas Fechtenkoetter, Senior Vice President, Dispersions Asia Pacific, BASF. "By

significantly reducing emissions without compromising performance, we are pioneering innovation in interior coatings, creating healthier indoor environments while advancing more sustainable solutions for the built environment."

Traditional interior coatings rely on substantial amounts of coalescent agents and other additives to achieve their designed performance, whereas these can release SVOCs over time and negatively impact indoor air quality long after application. BASF's Near Zero SVOC technology addresses this challenge through an advanced technical approach that combines hydroplasticization, multiphase morphology, and carefully selected raw materials, minimizing the need for conventional SVOC generating coalescents or additives. This approach improves indoor air quality and allows earlier room occupancy with lower odor and a more comfortable living environment, without compromising performance or visual appeal.

The technology enables paint manufacturers and formulators to develop interior coatings that offer:

- Near-zero SVOC emissions and low odor, supporting healthier indoor air and early occupant comfort
- Enhanced durability and high-quality finishes, including superior scrub and stain resistance
- Premium aesthetics and application performance, without trade-offs for sustainability
- Compliance with future regulations, helping customers meet increasingly stringent environmental standards

Beyond product performance, BASF's Near-Zero SVOC solutions reflect a new benchmark in coating innovation, giving the industry tools to meet evolving market needs while improving indoor air quality and occupant well-being. As regulatory requirements and consumer expectations continue to evolve, these coatings enable homes, offices, and public spaces to become healthier, cleaner, and safer — all while supporting more environmentally responsible building practices.

With continuous innovation in dispersions and resins, BASF continues to drive the next generation of sustainable coatings, creating cleaner indoor air, enhancing everyday living, and shaping a healthier future for people today and generations to come. Through this combination of performance, sustainability, and health-conscious design, BASF is demonstrating how chemistry can make a tangible, positive impact on everyday life and the built environment.

Source : BASF

Toray Technology Bonds Carbon Fiber Reinforced Plastic Components Three Times Faster

Tokyo, Japan, January 27, 2026 – Toray Industries, Inc., announced today that it has successfully completed its tests on a technology that bonds carbon fiber reinforced plastic (CFRP) aircraft mock-up structures almost three times faster than conventional approaches.

Thermoset CFRP (see note 1) is widely used for primary aircraft structures due to its excellent material properties and long track record of practical use. In recent years, as demands for smaller components and more complex geometries have grown, the use of thermoplastic CFRP (note 2), well suited for high rate production and offers high design flexibility, have also expanded. By combining thermoset and thermoplastic CFRP, there are anticipations for new airframes with enhanced performance and productivity. However, such conventional techniques as adhesive bonding and bolted fastening add complexity and slow production, creating a strong need for bonding technologies that improve both productivity and reliability.

Toray drew on years of expertise in CFRP intermediate material (prepreg) manufacturing and in CFRP molding and processing, to develop a thermal welding technology that bonds thermoset and thermoplastic CFRP. This delivers higher bonding strength than conventional adhesive bonding (see note 3 and Figure 1). It also makes bonding for simulated aircraft structures (Figure 2) three times faster than that needed for conventional adhesive bonding and bolted fastening. The technology can also lower aircraft weight by reducing the number of bolt fasteners. Going forward, Toray will accelerate its commercialization efforts in collaboration with aerospace

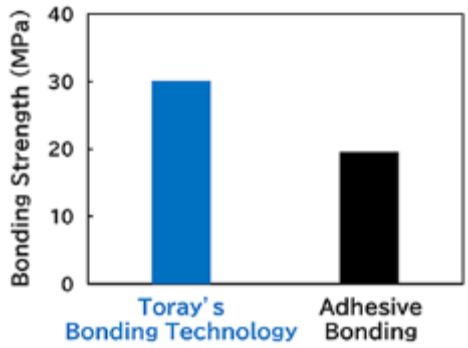
manufacturers.

This technology is the result of the 'Development of New Innovative Composite Materials and Forming Technologies' (note 4), supported by the New Energy and Industrial Technology Development Organization (NEDO). Toray will exhibit its breakthrough at 'nano tech 2026 (the 25th International Nanotechnology Exhibition & Conference)' held at Tokyo Big Sight from January 28 through 30, 2026.

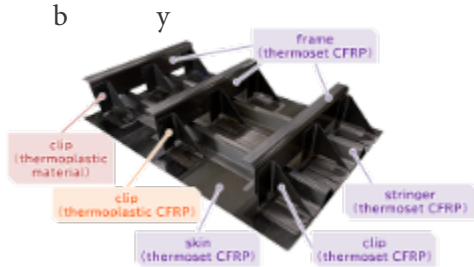
Toray has stated in its Sustainability Vision that it is committed to providing innovative technologies and advanced materials to help address global issues. The company will continue to innovate materials and technologies for a carbon-neutral economy, in line with its corporate philosophy of "contributing to society through the creation of new value with innovative ideas, technologies and products."

Notes

- A property in which heating triggers a chemical reaction that causes the molecules to bond firmly and harden. Once cured, it does not soften again even when reheated.



- A property in which the material softens when heated and hardens again when cooled.
- Bonding strength is measured through ISO 4587, the international standard for tensile shear testing.
- This project develops composites and related materials technologies to meet requirements of the International Civil Aviation Organization and other bodies to lower aircraft carbon dioxide emissions and enhance environmental sustainability and improve maintainability. It develops thermoplastic CFRP that is vital for manufacturing next-generation single-aisle commercial aircraft that should account for 70% of demand in the coming years. It also innovates low-cost, high-rate forming and assembly technologies for structural components that use thermoplastic CFRP and ceramic matrix composite components that improve engine efficiency. Such advances will cut carbon dioxide emissions, boosting fuel economy by



reducing aircraft weight and increasing engine efficiency. Toray will endeavor to increase its workshare for next-generation narrow-body aircraft made by overseas OEMs.

Source : Toray

Covestro launches digital tool to fast-track sustainable polyurethane foams

Covestro has unveiled the CQ-Configurator, a new digital tool designed to help polyurethane value chain partners rapidly design and assess more sustainable foam solutions using Covestro's own environmental data.

Positioned as an application-first platform, the CQ-Configurator covers both flexible and rigid polyurethane foams — from mattresses to insulation panels — and converts raw material-level data into clear, product-specific sustainability metrics. The goal: make environmental impact assessments faster, more transparent, and accessible well beyond sustainability teams.

As pressure mounts on companies to demonstrate measurable sustainability progress — from Scope 3 reporting to tightening regulatory demands — Covestro says the tool fills a critical gap.

"The CQ-Configurator supports these needs by enabling rapid, data-based environmental performance assessments and by improving transparency along the polyurethane value chain.", said Patrizia Wegner, VP Sales Flex Foam EMLA, Covestro.

The tool allows users to define foam applications, technical properties, and the proportion of mass-balanced isocyanate and polyol inputs. It then calculates the resulting CO_2 footprint and sustainable material share for each formulation scenario, enabling quick side-by-side comparisons.

"Companies can now compare material choices and reach their desired product sustainability profile in just a few clicks

— eliminating the need for time-consuming calculations and lengthy alignment processes", said Dennis Wagner, Marketing Manager Soft Furniture, Covestro.

By translating formulation decisions into application-specific sustainability outcomes, the CQ-Configurator creates a shared fact base for internal decision-making. Exportable results support cross-functional collaboration — from R&D and procurement to sales and marketing — and help connect material choices with market-relevant sustainability claims. The tool is designed for broad industry use, with an intuitive interface that accommodates both technical and non-technical users across sectors such as bedding, furniture, construction, and appliances.

"As sustainability becomes a key differentiator across markets such as bedding, furniture, construction, and appliances, the CQ-Configurator helps companies to make informed choices that align product performance with economic considerations," added Dennis Wagner.

Covestro says it is the first European polyurethane materials supplier to offer a comprehensive digital sustainability assessment tool spanning multiple foam applications. Built on third-party verified raw material life cycle assessment data and Covestro's long-standing polyurethane expertise, the CQ-Configurator forms part of the company's expanding digital portfolio aimed at helping customers meet their sustainability targets.

Source : Indian Chemical News

India–EU Trade Pact: What It Means for Pharma, MedTech, and Chemicals

Vinodhini Harish

Introduction:

The India -EU Free Trade Agreement will influence India's chemical sector across trade, pricing, competitiveness, investment, and compliance. Chemicals are sensitive to tariffs, supply chains, and thus they make the trade agreements impactful for exports, imports and long-term industrial positioning. Since the chemical industry is export-oriented, capital-intensive and regulation-heavy, if there is any bilateral agreement happening, especially with a high-value market like the EU, it reshapes cost structures, access conditions, and competition as well. Therefore, studying its impact helps policymakers and industry leaders anticipate gains, mitigate risks and align strategies with evolving global trade norms. Thus, in this article, we have discussed the matter in depth. Let's begin.

From Tariffs to Trust: How the India–EU Deal Elevates the situation:

Lowering India's import tariffs will

reduce the landed costs of EU chemical products, machinery, and plastics. When India lowers their import tariffs on European Union (EU) chemicals, machinery, and plastics, the landed costs- the final price after duties, freight and logistics of these products- fall immediately. For example, if India removes a 9-10% import tax on specialty plastic that is coming from Germany, then that product becomes noticeably cheaper in India. A material that was costlier before due to the tax may now be ₹8–10 per kg cheaper; this way, it is easier and more affordable for Indian pharma, packaging, auto and electronics companies to use better-quality materials.

Cheaper EU machinery is another benefit. High precision reactors from Italy, process automation systems from Germany or polymer compounding equipment from Austria become more accessible to the Indian manufacturers. This can improve productivity, product consistency and compliance with global quality standards, especially important for exports to regulated markets like the EU itself.

The tariff reduction intensifies competition for Indian producers. For example, Indian plastic compounders or specialty chemical MSMEs may struggle to compete with well-capitalized EU firms that benefit from scale, automation, and lower financing costs.

A French coatings manufacturer or a Dutch specialty resin supplier can undercut the prices or offer higher performance, squeezing domestic margins. Downstream industries like pharmaceuticals, FMCG packaging, and auto components gain from lower input costs, but the upstream Indian chemical manufacturers face pressure to upgrade technology, improve efficiency or move into niche value-added products. In the short term, this adjustment can be painful, but it also pushes the industry toward higher competitiveness and global integration.

The historic nature of the agreement reflects prolonged negotiations beginning in 2007, and it resumed in 2022. The conclusion signals mutual commitment to deeper economic integration, resolving long-standing differences on tariffs, services, intellectual property and regulatory cooperation. Lengthy negotiations indicate complexity and high economic stakes. Finalizing the FTA suggests convergence on critical trade issues and growing geopolitical alignment.

The chemical industry provides long-term policy certainty, encouraging investment decisions, capacity expansion and export planning, especially in sectors like chemicals requiring stable regulatory environments. The statement underscores the breadth of FTA, which covers most of the traded goods and strengthening services like logistics, engineering and R&D. Therefore, wide coverage ensures systemic trade liberalization rather than sector-specific relief, amplifying economy-wide effects across manufacturing and value-added services.

Since the reduction of tariffs helps over 90% of goods maximizes trade creation and minimizes distortions. For chemicals, the integrated services such as testing, compliance, and logistics are as critical as product access. Enhanced service trades improve operational efficiency, lower transaction costs, and overall strengthen India's position in EU-centric global value chains.

Bilateral trade reached $136-$190 billion in 2024-2025.

It is observed that the Bilateral trade reached $136–190 billion in 2024-25. The figure highlights the scale and importance of India-EU trade, spanning goods and services. The EU is one of India's largest trading partners, making any tariff or regulatory change economically significant, with ripple effects across exports, imports, employment and industrial growth. Large trade volumes magnify policy impacts. Even marginal tariff changes translate into billions of dollars in cost savings or losses.

Consider the chemical industry, which is a major contributor to bilateral trade, and this scale justifies strong industry interest, policy attention and proactive adaptation to maximize the benefits from the agreement.

What are the positive impacts on chemicals industry?

There are a few expected benefits for Indian chemical producers, especially in exports, market access and competitiveness. It frames the FTA as an opportunity for expansion into a high-value, regulation-driven EU market where Indian firms have growing capabilities.

The segmenting impacts allow balanced analysis. This highlights the positives first, reflects export-led growth potential, investment inflows and technology upgrading. For an industry that is relying on manufacturing, identifying upside opportunities helps the firm plan capacity expansion, compliance upgrades and product diversification aligned with the EU demand.

Eliminating the EU tariffs could boost exports of organic and specialty chemicals:

The reduction of EU import duties lowers the price barriers for Indian chemicals, especially the organic and specialty segments. These products already have the demand in pharmaceuticals, agrochemicals and advanced manufacturing, making the tariff elimination a direct catalyst for higher export volumes. The modest tariff cuts can shift sourcing decisions; the Indian firms with cost advantages and improving quality stand to gain

EVENTS AND CONFERENCES

PAINT INDIA

Date : Feb, 19-21, 2026

City : Bombay Exhibition Center, Mumbai

Country : India

Website : https://www.paintindia.in/

Description : India's leading platform for paints, coatings, inks, construction chemicals, and allied industries.
Building a Brighter, Sustainable Future : Paint India is a trusted platform for innovation and networking in the surface coatings industry, known for its flagship exhibition and respected journal that connect professionals across the value chain.

CPHI MIDDLE EAST & AFRICA

Date : Apr, 13-15, 2026

City : Bangalore International Exibition Centre

Country : India

Website :https://paintandcoatingexpo.com/

Description : The Paint and Industry Expo in Bangalore, India from 13th to 15th April 2026, will be a three-day event that gathers industry professionals, service providers, machinery and equipment manufacturers, technology innovators, and related stakeholders. This unique platform will facilitate networking, knowledge sharing, and business opportunities in the Paint and Coating sector, ultimately benefiting all participants. The Paint and coating Expo is an event designed to stimulate investment in the Paint and Coating industry, fostering a platform for local and national investors and experts to share knowledge, exchange business ideas, and ultimately drive business growth. By bringing together industry stakeholders, the expo aims to promote trade, improve competitiveness, and increase the overall value of the Paint and coating sector. The right technology , practices and equipment play a very crucial role in getting the right output in the Paint And Coating industry. The choice of right equipment and right quality is very important to create the perfect ground for a very successful position in the Paint and Coating industry.

51ST DYE+CHEM SRI LANKA INTERNATIONAL EXPO

Date : March, 5-7, 2026

City : Sri Lanka Exhibition & Convention Centre (SLECC), Colombo - Sri Lanka

Country : Sri Lanka

Website : https://www.lk.cems-dyechem.com/

Description : 1. The South Asia's Expanding Chemical Market: Sri Lanka's textile and garment industry continues to grow, driving demand for high-quality dyes, chemicals, and auxiliaries. Participating in the Dye+Chem Expo allows stakeholders to access one of South Asia's fastest-evolving industrial sectors and connect directly with leading manufacturers and processors. 2. Meet Key Decision-Makers & Industry Buyers: This is Sri Lanka's premier platform for dye and chemical sourcing. The event brings together senior procurement teams, R&D specialists, production heads, and purchasing professionals from across the

textile, leather, paper, plastic, and printing industries. 3. Showcase Innovations & Build Brand Authority: Position your brand as an innovator in the chemical sector. Whether it's eco-friendly dyes, specialty chemicals, or sustainable processing solutions, the Dye+Chem Expo gives you the opportunity to launch new products and demonstrate technological advantages to a highly focused audience. 4. Significant Investments in Textile Sector: Major investments in Sri Lanka are happening in the textile & garment sector. The dye chemical industry is a key sector that needs continuous upgrading and acquisition of new technology and equipment. 5. Integral Role in Sri Lanka's Export Economy: The garment industry accounts for over 50% of Sri Lanka's total export earnings. The final products of the apparel sector are heavily dependent on the dye chemicals sector, making the dyestuff sector one of the key components of the country's chemical industry. 6. Leverage Sri Lanka's Strategic Trade Location: Sri Lanka serves as a vital gateway between South Asia and the rest of the world, offering unmatched connectivity to regional and international buyers. Participating in the show positions your brand at the heart of a dynamic trade hub—ideal for expanding your regional footprint. 7. Networking Opportunities: Participating in this one-of-a-kind exhibition allows businesses to meet and connect with potential buyers through the expo, facilitating valuable business relationships and collaborations.

MIDDLE EAST COATINGS SHOW

Date : Apr 14-16, 2026

City : North Halls, Dubai Exhibition Centre (Dec), Expo City Dubai

Country : Dubai

Website : https://www.middleeastcoatingsshow.com/?utm_source=referral-traffic&utm_medium=ref-visit&utm_

campaign=google.com

Description : The Middle East Coatings Show returns from 14-16 April 2026 at the Dubai Exhibition Centre (North Halls) in Expo City Dubai. With over 30 years of industry presence, it remains the only event in the Middle East and North Africa dedicated to the coatings industry and the largest gathering for professionals looking to connect, source products and explore the latest industry developments. Over three days, the event provides a focused platform for business, networking and product discovery. Hosted in a modern venue designed to maximise visibility and growth, it brings together manufacturers, raw material suppliers, distributors, buyers and technical experts to meet, share insights and build valuable business relationships.

PAINT EXPO GERMANY

Date : Apr 14-17, 2026

City : Messe Karlsruhe, Germany

Country : Germany

Website : https://www.paintexpo.de/en/

Description : PaintExpo takes place every other year in Karlsruhe as a showcase for innovations, applications, future technologies and trends covering all aspects of industrial coating. The trade fair spans the entire range of international products and services in the supply chain for industrial coating technology. The wide spectrum of products extends from spray guns, equipment and materials to automation technology. This globally unique get-together of companies from the industry is unparalleled worldwide, making it highly attractive for coating service providers and in-house coating companies from around the world.

disproportionately in specialty chemicals, where margins are higher, and differentiation reduces the pure price competition risks.

Exports could double within three years:

The optimism is driven by phased tariff cuts, regulatory alignment, and improved market access. It suggests accelerated growth momentum for Indian chemical exports, supported by precedent from other FTAs and expanding EU demand for diversified, reliable suppliers.

The estimate might seem unrealistic, because similar trade deals in the past have already increased the exports by 30-40% in a short time. If Indian companies prepare well-by expanding production, meeting the EU quality rules, and developing products that are suited for Europe, then doubling the exports is possible over time.

Pharmaceuticals will benefit through diversification and generic access:

There are some spillover benefits for pharmaceuticals, as they rely heavily on chemical intermediates. Easier EU access enables them to diversify beyond the US market, supports generics and specialty drugs, and offsets losses from withdrawn preferential schemes like the EU's GSP. Market concentration is a strategic risk. The FTA reduces dependence on the US by opening a stable and high-value alternative. For pharma and chemicals, diversified export destinations improve resilience, pricing stability, and long-term growth while reinforcing India's role as a global healthcare supplier.

Investment and supply chain opportunities:

We understand how FTA may attract European investment into Indian manufacturing, strengthening supply chains and export hubs. Improved trade certainty and market access make the country an attractive base for EU firms seeking cost-effective, scalable production platforms. FDI follows policy clarity. The FTA reduces trade friction, encouraging EU companies to localize production rather than export finished goods. This supports "Make in India", which creates skilled jobs, transfers technology, and embeds Indian chemical firms deeper into global supply networks.

Increased competition from EU imports:

It is a warning to India that cheaper imports from the EU could flood the market and intensify the competition. Therefore, Indian chemical producers are facing pressure, reduced margins and operational stress, especially those lacking scale, technology, or cost efficiency.

In simple terms, imports become cheaper and start competing right away, but export benefits take longer to show. Recognizing this gap is important, and the government and industry can provide support, upgrades and protection during the transition, preventing job losses and long-term harm to domestic manufacturing.

Environmental and Compliance Burdens (CBAM)

The EU's Carbon Border Adjustment Mechanism, which taxes carbon-intensive imports. The high-emission chemical exports face added costs, potentially eroding competitiveness and reducing export volumes. Especially for firms lacking decarbonization infrastructure. CBAM transforms the climate policy into a trade barrier. CBAM turns the climate rules into an extra cost on trade. If Indian companies don't cut pollution sooner, then their products will become more expensive in Europe, and they will lose out on buyers. This adds up to urgency to invest in cleaner production, green technology, and government support. This is even more urgent for smaller businesses to stay competitive across the globe.

DISRUPTIONS - TRANSITIONAL CHALLENGES:

There are a few transitional challenges as well, where the benefits accrue gradually while the competition and compliance pressures arise quickly. When a trade agreement starts, its benefits do not appear immediately. Cheaper imports and stricter rules affect companies right away, but export growth takes time. Some workers may lose jobs or need new skills, and companies may struggle with paperwork, testing and certifications.

Even though the tariffs have come down, these non-tariff hurdles can slow down exports in the short term. This is common when there are big policy changes. Recognizing these early challenges helps everyone to prepare for the situation in a better way. If the government and industry plan ahead, by retaining workers, helping companies meet standards and simplifying regulations, the long-term benefits of the trade deal can reach more businesses and workers, especially in the chemical industry.

Indian-EU trade pact: $572 billion opportunity for pharma and med tech:

India and the EU trade agreement opens a path to Europe's huge pharmaceuticals and medical devices market that is worth over $572 billion. For Indian companies, there is a big chance to sell medicines and medical equipment in one of the richest regions of the world. The situation can help Indian firms grow bigger, create more jobs and become part of global supply chains. Since Europe buys large volumes and pays for quality, Indian manufacturers who enter the market can improve their scale, reputation and long-term competitiveness in global healthcare.

The EU market is not easy to enter as well. Europe has very strict rules for medicines and medical devices related to safety, quality, testing and documentation. Therefore, we can say that lower tariffs are not enough on their own. Indian companies must begin following EU standards in every way possible and follow them strictly. This means better factories, stronger quality checks and detailed records are required for the Indian companies. However, once the Indian companies succeed in Europe, they usually find their way to sell other materials and enter into advanced markets as well.

The focus is on the country becoming a global centre for making medicines and medical devices, not just exporting occasionally.

The presence of FTA has well supported the goal by attracting investments, expanding factories and improving the supply chains. More production means more skilled jobs and better technology. therefore instead of being known only for low-cost medicines, India can become known for reliable, high-quality healthcare manufacturing. This supports India's long-term industrial growth and strengthens its position in the global healthcare system.

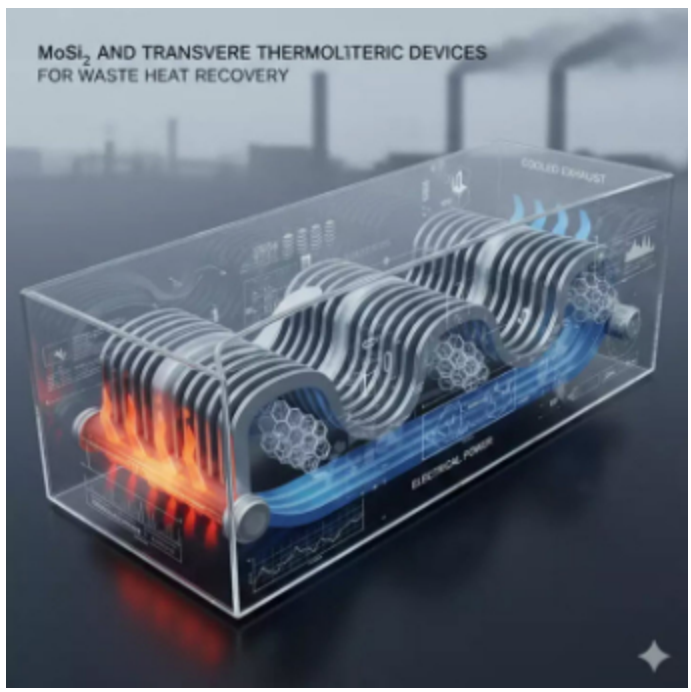
Takeaway: The India- EU free trade agreement represents a pivotal moment for the country's chemical, pharmaceutical and allied manufacturing sectors. The reduction of tariffs across most of the traded goods, the agreement creates strong opportunities for export growth, technology access and investment inflows. Indian chemical producers- particularly in organic and specialty segments stand to gain from improved market access and demand diversification, whereas the downstream industries are benefitting from lower input costs and advanced machinery. Although there are some challenges, like CBAM placing pressure on domestic manufacturers, and transitional disruptions, skill gaps. The situation is putting pressure to prepare and manage well, and the agreement will drive long-term competitiveness, resilience and sustainable growth.

$MoSi_2$ and the Rise of Transverse Thermoelectric Devices for Waste Heat Recovery

Team Chemical Market

Introduction:

Japan has a strong reputation in advanced materials science, solid-state physics, and energy-efficient technologies. They always had concerns due to limited natural energy resources. Since the majority of Industrial processes, engines and electronics release heat during operation, the energy loss in the form of heat is considered as waste heat. This research, conducted by Japanese researchers, has successfully achieved converting the heat into electricity, thereby improving energy efficiency and sustainability. Japan is the global leader in material science, and they give more credibility to the breakthrough. The researchers from Japan have been involved in the research to recover the waste heat, and a new system has been developed for the process. Since the process involves extracting more value from the energy that is already being generated and lost, rather than producing more energy, the system reduces fuel consumption, lowers greenhouse gas emissions, and improves overall system efficiency. Let's get into the details.



What are next-gen Thermoelectric devices and their significance:

Next-generation thermoelectric (TE) devices are advanced heat-to-electricity systems designed to overcome the efficiency, scalability, and material limitations of conventional thermoelectrics. Unlike traditional devices that rely mainly on longitudinal thermoelectric effects and bulk semiconductor stacks, next-gen thermoelectrics leverage new materials, new physics, and new device architectures to harvest waste heat more efficiently and flexibly.

Since countries are lacking energy resources, the goal is to improve efficiency instead of increasing imports, thus they recover value from existing energy usage. This has strong economic and geopolitical implications. The next-gen thermoelectric devices transform waste heat from a liability into a scalable, sustainable and practical energy source by combining new materials physics with smarter device architectures.

Mixed semi-metals and their role in thermoelectric devices:

Molybdenum Disilicide($MoSi_2$) is a promising material for next-gen thermoelectric devices. They convert heat into electricity directly. They have recently gained momentum in the research due to their favourite physical and electronic properties. Although it is still undergoing experimental validation and is not commercially established, it is playing a crucial role in the next-gen thermoelectric devices.

$MoSi_2$ is described as a mixed-semimetal, meaning its electronic structure exhibits characteristics of both metals and semiconductors. This dual nature is crucial in thermoelectric applications. Any good thermoelectric devices require metals that strike the balance between conductivity and tunability, that is, when they can be optimized for thermoelectric properties.

For instance Metals have high-density free electrons and thus they conduct electricity extremely well. But these charge carriers are already abundant and move freely; on the downside, it is difficult to control or tune their concentration. In the thermoelectric devices, this lack of control reduces the Seebeck coefficient and thus limits the efficiency despite excellent conductivity.

Meanwhile, the semiconductors have very few charge carriers, and their concentration can be precisely adjusted through doping or compositional changes. This tunability enables it to have better optimization. However, the semiconductors have lower electrical conductivity than metals, which restricts charge transport and power output.

This is when we have our Mixed-semimetals like MoSi2. They lie between these two extremes. They possess both metallic and semiconducting electronic features that allow electrons to move efficiently while still enabling some control over carrier concentration. This helps in balancing between high electrical conductivity without losing out on tunability. This is critical for achieving better thermoelectric performance. In essence, MoSi2 combines the strengths of metals and semiconductors while minimizing the downsides.

Overall, we can understand their crucial role in thermoelectric devices as they are known for their high thermal stability, oxidation resistance and mechanical strength. Thus, these metals are suitable for high-temperature environments where thermoelectric devices are often deployed. The researchers are actively exploring these semimetals and their applications.

MoSi is an ideal material for transverse thermoelectric (TTE) applications. Low temperature efficiency is a critical challenge in thermoelectric research, and many materials are capable of performing only at high temperatures. Since MoSi2 demonstrate strong performance at lower temperatures, the material is valued for applications such as electronics cooling, cryogenic sensors and low-grade waste heat recovery.

The heart of the insight is "Fermi surface," which is a representation of how electrons populate available energy states at the highest occupied energy level in a solid. The shape and dimension of the Fermi surface strongly influence how electrons move in response to heat, electric fields, or magnetic fields, and therefore directly affect a material's transport properties.

In conventional materials, Fermi surfaces are either three-dimensional or two-dimensional. Each of these cases produces predictable electronic behaviour that also limits the range of thermoelectric responses that can be achieved. In contrast, mixed-dimensional Fermi surfaces combine features of both 2D and 3D electronic structures within the same material.

Consider one of the most significant outcomes of the study – transverse thermoelectric (TTE) effects often rely on magnetic fields to deflect charge carriers and generate a voltage perpendicular to the heat flow. They are effective in laboratory settings, but the magnetic field-based systems are impractical for most commercial applications due to increased complexity, cost and energy consumption.

But MoSi2, as a transverse thermoelectric material, operates without an external magnetic field, which represents a major technological advancement. This means that the transverse voltage arises purely from the material's intrinsic electronic structure and anisotropic transport properties, rather than external manipulation. This greatly simplifies device architecture and improves reliability. This dramatically improves the feasibility of deploying transverse thermoelectric devices in real-world settings such as industrial surfaces, exhaust systems and compact electronics.

Promising route for sustainable heat-to-energy conversion:

Thermoelectric conversion devices are offering a promising route for sustainable heat-to-energy conversion. The goal is to bring in sustainable energy solutions that focus on reducing emissions, maximizing efficiency, and

minimizing environmental impact. Thermoelectric devices meet this aspect by harvesting waste heat rather than consuming additional resources.

There are quite a few lifestyle benefits. We can see the reasons. The thermoelectric devices have no moving parts, and thus they have long operational lifetimes and low maintenance requirements. They reduce fuel demand indirectly by improving energy efficiency. The positioning increases the relevance of the study beyond academic interest. This aspect highlights the societal and environmental impact.

They are attractive as they recover energy from waste heat. Globally, a large fraction of input energy is lost as heat through exhaust and cooling systems. The thermoelectric devices can be integrated into these systems to recover that heat without altering engine operation. This is crucial in the slow pace of global energy system replacement. This transitional benefit, which is not having to wait for complete electrification, thermoelectrics improve current systems make them highly valuable in the near and medium term.

The core benefit is the energy efficiency, which brings in improvements to reduce fuel consumption, operational costs, and emissions simultaneously. Even modest efficiency gains bring in large cumulative effects when applied across millions of engines and industrial systems. From the policy and economic standpoint, we can see that efficiencies without major redesigns are highly prioritized and thermoelectric recovery systems fit the requirement well.

There is also scope beyond industry. Portable power generation is critical in remote sensing, defence, space missions and emergency systems. Thermoelectric devices can generate power where heat exists, which makes them ideal for decentralized applications where batteries are impractical. For instance, consider small sensors installed in remote locations. These small sensors in remote areas rely on limited power sources. Thermoelectric devices can harvest environmental heat, enabling long-term autonomous operation. The application demonstrates scalability, from large industrial systems to micro-power devices.

The statistic quantifies the scale of the problem, and the industrial processes, such as metal refining, chemical manufacturing, and power generation, are thermally intensive processes, and they are inherently inefficient. Therefore, the research and results acquired are considered a substantial achievement considering the magnitude of the loss incurred. The market understands that even the slightest recovery or partial recovery using the technologies can yield significant energy savings.

Waste heat was once considered an unavoidable loss, and it is reframed as a usable energy source. Since the technologies convert losses into inputs, thermoelectrics improve overall energy utilization and thereby reduce the need for additional energy generation.

Run small sensors in remote locations using thermoelectric devices:

The practical and real-world example and application of thermoelectric devices are beyond large industrial systems. The remote sensors are widely used in applications such as environmental monitoring, seismic activity detection and wildlife tracking. They can also be used in agricultural fields, pipelines, border surveillance and space exploration. These sensors are often deployed in locations where access to electrical grids is unavailable, and the routine battery replacement is costly, difficult or even impossible.

Traditional power sources for the sensors- mainly batteries or small solar panels have critical limitations. The batteries have finite lifetimes and require periodic maintenance, while solar power depends on weather conditions and daylight availability. Thermoelectric devices offer a compelling alternative because they can continuously generate electricity as long as a temperature gradient exists.

The illustration shows that the thermoelectric technology is not limited to recovering large quantities of industrial waste heat but also can operate efficiently at the micro-power level. The ability to scale down from the industrial systems helps in strengthening the case for continued materials research in this field.

Takeaway:

The advancement in the next-gen thermoelectric devices represents a fundamental shift in how waste heat is perceived and utilized. The thermoelectric technologies are aligning themselves perfectly with the global priorities of sustainability by transforming unavoidable thermal losses into a valuable energy source. Japan's research leadership in this field adds significant credibility to the findings, especially through the development of mixed semimetal materials such as MoSi2. MoSi2 has a unique balance of metallic conductivity and semiconductor-like tunability, combined with its high thermal stability and low-temperature performance, and thereby positions it as an ideal candidate for transverse thermoelectric applications. The ability to generate transverse voltage without external magnetic fields marks a major technological leap. The researchers are into materials research, which is also continuing to evolve. Thermoelectric technologies are poised to play a crucial role in bridging today's energy systems with a more efficient and sustainable future.

MUMBAI MARKET PRICE AS ON 11/02/2026

Name of Chemical	Current Price	Location
Acetic Acid-Imported Repack	43	Mumbai
Acetic Acid-Domestic Intact	52	Mumbai
Acetic Acid-Domestic Repack	44	Mumbai
Acetone-Imported Repack	78	Mumbai
Acetone-Domestic Intact	85	Mumbai
Acetone-Domestic Repack	78	Mumbai
Acetonitrile-Imported Intact	157	Mumbai
Acetonitrile-Domestic Intact	160	Mumbai
Acetonitrile-Domestic Repack	140	Mumbai
Acrylonitrile-Imported Intact	165	Mumbai
Acrylonitrile-Imported Repack	170	Mumbai
Aniline-Imported Intact	148	Mumbai
Aniline-Domestic Intact	155	Mumbai
Benzene-Domestic Repack	77	Mumbai
Cyclohexane-Imported Intact	115	Mumbai
Cyclohexane-Domestic Intact	97	Mumbai
Cyclohexane-Domestic Repack	87	Mumbai
Cyclohexanone-Imported Intact	113	Mumbai
Cyclohexanone-Imported Repack	111	Mumbai
Cyclohexanone-Domestic Intact	115	Mumbai
Cyclohexanone-Domestic Repack	137	Mumbai
C9 Solvent (99.99% purity)-Imported Repack	120	Mumbai
C9 Solvent (Arham Petrochem)-Imported Repack	129.75	Mumbai
Dibutyl Phthalate-Domestic Intact	114	Mumbai
Dioctyl Phthalate-Domestic Intact	123	Mumbai
Ethyl Acetate-Domestic Intact	81	Mumbai
Ethyl Acetate-Domestic Repack	77	Mumbai
Formaldehyde(37%)-Domestic Repack	20.5	Mumbai
Methanol-Imported Repack	36	Mumbai
Methyl Ethyl Ketone-Imported Intact	125	Mumbai
Methyl Ethyl Ketone-Imported Repack	112	Mumbai
Methyl Isobutyl Ketone-Imported Intact	123	Mumbai

Methyl Isobutyl Ketone-Imported Repack	109	Mumbai
Methyl Methacrylate-Imported Intact	165	Mumbai
Mixed Xylene-Imported Repack	86	Mumbai
Mixed Xylene-Domestic Repack	86	Mumbai
Monoethylene Glycol-Imported Repack	58	Mumbai
Monoethylene Glycol-Domestic Intact	61	Mumbai
Monoethylene Glycol-Domestic Repack	58	Mumbai
Iso propyl Alcohol-Imported Repack	93	Mumbai
Iso propyl Alcohol-Domestic Intact	107	Mumbai
Iso propyl Alcohol-Domestic Repack	93	Mumbai
nButanol-Imported Repack	87	Mumbai
nButanol-Domestic Intact	102	Mumbai
nButanol-Domestic Repack	87	Mumbai
Ortho Xylene-Imported Repack	93	Mumbai
Phenol-Imported Repack	100	Mumbai
Phenol-Domestic Intact	103	Mumbai
Phenol-Domestic Repack	101	Mumbai
Phthalic Anhydride-Imported Intact	97	Mumbai
Phthalic Anhydride-Domestic Intact	97	Mumbai
Styrene Monomer-Imported Repack	110	Mumbai
Toluene-Imported Repack	84	Mumbai
Toluene-Domestic Repack	85	Mumbai
Vinyl Acetate Monomer-Imported Repack	92	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 11/02/2026

Product	Regions	Current prices
Feedstock Prices $/unit		
Crude Oil ($/barrel)	WTI CRUDE	64.38
	BRENT CRUDE	69.19
	MARS US	69.79
	OPEC BASKET	66.65
Natural Gas	New York	3.1
Gasoline	RBOB	1.97

Heating Oil	US	2.4
Ethanol	US	1.67
Naphtha	FOB US Gulf	510
	European	570
	CFR Far East Asia	615
Propane	New York	0.66
Aromatics prices $/MT		
Benzene	FOB Korea	760
	CFR Japan	760
Styrene	CFR Japan	950
	CFR South East Asia	1000
	CFR China	950
	FOB Korea	955
Toluene	CFR China	705
	CFR South East Asia	770
	FOB Korea	730
	CFR Japan	705
Iso-Mix Xylene	CFR South East Asia	760
	CFR Taiwan	760
	FOB Korea	740
MEG	CFR China	445
	CFR South East Asia	455
Methanol	CFR China	262
	CFR Korea	337
	CFR South East Asia	323
	CFR Taiwan	291
Solvent-MX	CFR South East Asia	795
	FOB Korea	725
	CFR China	775
Ortho Xylene	CFR South East Asia	850
	FOB Korea	875
	CFR China	830
Para Xylene	CFR South East Asia	895
	FOB Korea	885
	CFR Taiwan	905

Propylene	FOB Japan	770
	FOB Korea	780
	CFR China	820
	CFR South East Asia	740
Propylene Glycol	FOB Korea	785
	CFR China	785
Ethylene	CFR North East Asia	690
	CFR South East Asia	670
	FOB Japan	640
	FOB Korea	645
EDC	CFR Far East Asia	205
	CFR South East Asia	215
Butadiene	CFR China	1265
	CFR South East Asia	1205
	FOB Korea	1245
Benzene	FOB Rotterdam	910
Methanol	FOB Rotterdam	298
Ortho Xylene	FOB Rotterdam	975
Para Xylene	FOB Rotterdam	870
Solvent-MX	FOB Rotterdam	780
Styrene	FOB Rotterdam	1090
Toluene	FOB Rotterdam	790
Benzene C/G	FOB US Gulf	306
Toluene C/G	FOB US Gulf	274
Styrene C/LB	FOB US Gulf	46.9
Para Xylene $/MT	FOB US Gulf	960
Mix Xylene C/G	FOB US Gulf	269
Methanol C/G	FOB US Gulf	107
Intermediates prices $/MT		
Acrylonitrile	CFR Far East Asia	1050
	CFR South East Asia	1040
	CFR South Asia	1070
VCM	CFR Far East Asia	415
	CFR South East Asia	445
MTBE	FOB Singapore	655

	FOB US Gulf C/G	233.7
Phenol	CFR China	755
	CFR South East Asia	820
	FOB US Gulf	896
	FOB Rotterdam	1068
Acetone	CFR China	545
	CFR South East Asia	610
	CFR Far East Asia	540
	FOB US Gulf	810
	FOB Rotterdam	886
Caprolactum	CFR Far East Asia	1300
	CFR South East Asia	1270
Caustic Soda	FOB North East Asia	320
	CFR South East Asia	385
Ethyl Acetate	FOB US Gulf	1290
	FOB Rotterdam	921
	FD North West Europe(Euro/mt)	880
Butyl Acetate	FOB US Gulf	1466
	FOB Rotterdam	1027
	FD North West Europe(Euro/mt)	970
MEK	FOB Rotterdam	1075
	FD North West Europe(Euro/mt)	1010
IPA	FOB US Gulf	978
	FOB Rotterdam	909
	FD North West Europe(Euro/mt)	870
NBA	CFR China	770
	CFR South East Asia	755
	CFR Far East Asia	765
Octanol	CFR China	970
	CFR South East Asia	985
	CFR Far East Asia	965
DOP	CFR China	1010
	CFR South East Asia	1035
	CFR Far East Asia	1005
Phthalic Anhydride	CFR China	835

	CFR South East Asia	855
	CFR Far East Asia	830
PTA	CFR Far East Asia	660
	CFR South East Asia	690
Acetic Acid	CFR Far East Asia	414
	CFR South East Asia	395
	CFR South Asia	374
	FOB China	325
VAM	CFR China	845
	CFR South East Asia	785
	CFR South Asia	835

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.

Note- Last changed price means when it changed last whether its yesterday or 2 days ago or 5 days ago or depends on last changing.

OPENING PORTS PRICE (RS/KG) OF CHEMICALS AS ON 11/02/2026

USD Exchange Rate: 90.56 INR

Producers	Current Prices (INR/kg)	Prices in USD/mt Equivalent to INR/kg	Location
Acetic Acid	39	430.65	Ex-Kandla
Acetic Acid	39.5	436.17	Ex-Mumbai
Acetonitrile-imported intact	150	1656.36	Ex-Bhiwandi
Acetone	72	795.05	Ex-Mumbai
Acrylic Acid	84	927.56	Ex-Mumbai
Acrylonitrile	106	1170.49	Ex-Kandla
Adipic Acid	112	1236.75	Ex-Bhiwandi
Aniline Oil	135	1490.72	Ex-Kandla
Benzene	66	728.80	Ex-Vizaz
Butyl Acetate	83	916.52	Ex-Kandla
Butyl Acrylate Monomer	107	1181.54	Ex-Kandla
Butyl Glycol	91	1004.86	Ex-Kandla
C9	90	993.82	Ex-Kandla
C10	100	1104.24	Ex-Kandla
Caustic Soda Lye	35.5	392.01	Ex-Dahej
Chloroform	4.5	49.69	Ex-Dahej

Citric Acid-ANHYD	70	772.97	Ex-Bhiwandi
Citric Acid-Mono	64	706.71	Ex-Bhiwandi
Cyclohexane	77	850.27	Ex-Hazira
Cyclohexanone	98	1082.16	Ex-Kandla
DMF	59	651.50	Ex-Bhiwandi
DEG	49	541.08	Ex-Hazira
EDC	21.5	237.41	Ex-Kandla
Epoxy Resin	189	2087.01	Ex-Nhava Sheva
Ethyl Acrylate	126	1391.34	Ex-Kandla
Formic Acid	65	717.76	Ex-Bhiwandi
Glycerine	119	1314.05	CIF Nhava Sheva
N-Heptane	158	1744.70	Ex-Bhiwandi
Hexane	73.5	811.62	Ex-Kandla
Hydrogen Peroxide-50%	17.5	193.24	Ex-Bhiwandi
Isobutanol	78	861.31	Ex-Kandla
IPA	85	938.60	Ex-Kandla
IPA	86	949.65	Ex-Mumbai
LAB	140	1545.94	Imported
Maleic Anhydride-Drum	79	872.35	Ex-Mumbai
MDC	29	320.23	Ex-Dahej
MEG	50	552.12	Ex-Mumbai
MEK	97	1071.11	Ex-Kandla
Melamine	72.5	800.57	Imported
Methanol	29	320.23	Ex-Kandla
Methanol	29	320.23	Ex-Mumbai
MIBK	94	1037.99	Ex-Hazira
Mix Xylene-Solvent Grade	77	850.27	Ex-Kandla
Mix Xylene-Solvent Grade	78.5	866.83	Ex-Mumbai
MMA	146	1612.19	Ex-Hazira
N-Butanol	79	872.35	Ex-Kandla
N-Propanol	90	993.82	Ex-Kandla
NPAC	84	927.56	Ex-Kandla
Octanol	104	1148.41	Ex-Kandla
Ortho Xylene	83	916.52	Ex-Kandla
Phenol	83.5	922.04	Ex-Kandla

Phenolic Resin	180	1987.63	Ex-Indore
Phthalic Anhydride	75	828.18	Ex-Mumbai
Propylene Glycol	86	949.65	Ex-Kandla
Sodium Nitrate (50Kg Bag)	61	673.59	Ex-Make-Lasons
Styrene Monomer	101	1115.28	Ex-Kandla
Styrene Monomer	103	1137.37	Ex-Mumbai
Sulphuric Acid	19.5	215.33	Ex-Vapi
Tio2 (Anatase Grade)	225	2484.54	Ex-Bhiwandi
Tio2 (Rutile Grade)	250	2760.60	Ex-Bhiwandi
Toluene	75	828.18	Ex-Kandla
Toluene	75.5	833.70	Ex-Mumbai
VAM	84	927.56	Ex-Kandla
VAM	85	938.60	Ex-Hazira

PRODUCER PRICES (RS/KG) OF CHEMICALS AS ON 11/02/2026

Producers	Current Price (INR/Kg)	Import parity Price in USD/MT	Location
Accord-Ethyl Acetate	NA	Not Available	Ex-Maharashtra
Arham Petrochem-C9	89.75	991.06	Ex-Kandla
Arham Petrochem-C9	90.75	1002.10	Ex-Ahmedabad
Arham Petrochem-C10	99.5	1098.72	Ex-Kandla
Arham Petrochem-C10	99	1093.20	Ex-Ahmedabad
Arham Petrochem-C10 (Imported Repack)	105.75	1167.73	Ex-Bhiwandi
Arham Petrochem-MTO/White Spirit (KL)	59.65	658.68	Ex-Kandla
Arham Petrochem-MTO/White Spirit (KL)	60.65	669.72	Ex-Ahmedabad
Arham Petrochem-De-Aromatised D40	130	1435.51	Ex-Kandla
Arham Petrochem-De-Aromatised D40	131	1446.55	Ex-Ahmedabad
Arham Petrochem-De-Aromatised D60	139	1534.89	Ex-Kandla
Arham Petrochem-De-Aromatised D60	140	1545.94	Ex-Ahmedabad
Andhra Petrochemicals-Iso-Butanol	72	795.05	Ex-Vishakhapatnam
Andhra Petrochemicals-N-Butanol	78.75	869.59	Ex-Vishakhapatnam
Andhra Petrochemicals-Octanol	90.5	999.34	Ex-Vishakhapatnam
BASF-Adipic Acid	115	1269.88	Imported
BPCL-2-Ethyl Hexanol (B)	97.5	1076.63	Ex-Kochi
BPCL-2-Ethyl Hexanol (P)	108	1192.58	Ex-Kochi

BPCL-2-Ethyl Hexyl Acrylate (B)	116.5	1286.44	Ex-Kochi
BPCL-2-Ethyl Hexyl Acrylate (P)	126.5	1396.86	Ex-Kochi
BPCL-Acrylic Acid (B)	87	960.69	Ex-Kochi
BPCL-Acrylic Acid (P)	96	1060.07	Ex-Kochi
BPCL-Benzene	68.5	756.40	Ex-Mumbai
BPCL-Butyl Acrylate (B)	104	1148.41	Ex-Kochi
BPCL-Butyl Acrylate (B)	102.5	1131.85	Ex-Kandla
BPCL-Butyl Acrylate (P)	114	1258.83	Ex-Kochi
BPCL-Hexane (KL)	75.35	832.05	Ex-Mumbai
BPCL-Hexane (MT)	113.71	1255.63	Ex-Mumbai
BPCL-Iso-Butanol (B)	78	861.31	Ex-Kochi
BPCL-Iso-Butanol (P)	89	982.77	Ex-Kochi
BPCL-MTO (KL)	80.97	894.10	Ex-Mumbai
BPCL-MTO (MT)	107.8	1190.37	Ex-Mumbai
BPCL-N-Butanol (B)	84	927.56	Ex-Kochi
BPCL-N-Butanol (B)	85.5	944.13	Ex-Kandla
BPCL-N-Butanol (P)	95	1049.03	Ex-Kochi
BPCL-Paraffin Wax	118	1303.00	Ex-Delhi
BPCL-Sulphur (Molten)	45	496.91	Ex-Mumbai
BPCL-Toluene	78	861.31	Ex-Mumbai
Deepak Phenolics-Acetone	63	695.67	Ex-Dahej Gujarat
Deepak Phenolics-IPA	83.5	922.04	Ex-Dahej Gujarat
Deepak Phenolics-Phenol	NA	Not Available	Ex-Dahej Gujarat
GACL-Caustic Soda Lye	35	386.48	Ex-Dahej Gujarat
GACL-MDC	26	287.10	Ex-Bharuch Gujarat
GNFC-Acetic Acid	41	452.74	Ex-Bharuch Gujarat
GNFC-Aniline Oil	127	1402.39	Ex-Bharuch Gujarat
GNFC-Ethyl Acetate	70	772.97	Ex-Bharuch Gujarat
GNFC-TDI Drum	190	2098.06	Ex-Bharuch Gujarat
Grasim-MDC	26	287.10	Ex-Gujarat
GSFC-Cyclohexane	71.5	789.53	Ex-Gujarat
HOCL-Acetone	85.5	944.13	Ex-Kochi
HOCL-Phenol	103	1137.37	Ex-Kochi
HPCL-Hexane	111.44	1230.57	Ex-Mumbai
HPCL-MTO	109.19	1205.72	Ex-Mumbai

IOCL-Banzene	63	695.67	Ex-Vadodara Gujarat
IOCL-DEG	45.6	503.53	Ex-Odisha(Paradip)
IOCL-DEG	46.6	514.58	Ex-Panipat
IOCL-LAB	NA	Not Available	Ex-Gujarat
IOCL-MEG	50.1	553.22	Ex-Odisha(Paradip)
IOCL-MEG	51.1	564.27	Ex-Panipat
IOCL-PTA	75.5	833.70	Ex-Panipat
IOCL-Paraffin Wax	105	1159.45	Ex-Delhi
Jubilant-Ethyl Acetate	69.5	767.45	Ex-Maharashtra
Laxmi-Ethyl Acetate	74	817.14	Ex-Maharashtra
Meghmani-Caustic Soda Lye	35	386.48	Ex-Bharuch Gujarat
Meghmani-MDC	26	287.10	Ex-Ankleshwar Gujarat
NIRMA-LAB	153	1689.49	Ex-Vadodra
Reliance-Caustic Soda Lye	35	386.48	Ex-Gujarat
Reliance-DEG	45.2	499.12	Ex-Jamnagar
Reliance-LAB	NA	Not Available	Ex-Vadodra
Reliance-MEG	52.2	576.41	Ex-Jamnagar
Reliance-Mix Xylene	76	839.22	Ex-Jamnagar
Reliance-PTA	74.9	827.08	Ex-Dahej Gujarat
Reliance-Toluene	76	839.22	Ex-Jamnagar
SI GROUP-Phthalic Anhydride	91.5	1010.38	Ex-Navi Mumbai
TATA Chemicals-Soda Ash light	34	375.44	Ex-Bhiwandi

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India–US Trade Deal: A Structural Turning Point for India's Chemical and Manufacturing Sectors

Vinodhini Harish

Introduction:

The new India-US trade deal is marking a significant moment for both economies, especially against the backdrop of global supply-chain realignments, geopolitical uncertainties and a gradual shift away from overdependence on China-centric manufacturing. The trade-deal has gotten a new twist and thus is not merely about tariff adjustments, but it reflects a deeper economic convergence between the world's largest economy and one of the fastest-growing major economies. Several sectors are touched by the agreement, and the chemical sector, especially specialty chemicals, stands out as one of the most structurally advantaged beneficiaries. Since chemicals form the backbone of modern manufacturing, which feeds into pharmaceuticals, construction, agrochemicals, textiles, automobiles, electronics and advanced industrial

applications. Any policy shift related to the sector reflects across the broader industrial ecosystem. Thus, in this article, we have explored the news and how the new deal impacts specialty chemicals, and strengthen the country's position in global supply chains and sectoral advantages. Let's begin.

India has long-term ambitions of becoming a global manufacturing hub.

Manufacturing led-growth has been a priority for India, and it has been struggling with structural challenges till now, such as fragmented supply chains, cost disadvantages in certain markets, and tariff barriers in key export destinations like the US. This new trade agreement directly addresses these issues by creating a more predictable and competitive export environment. The reduced or rationalized tariffs have made Indian goods more price-competitive and have also impacted regulatory clarity. The transaction costs have been reduced for exporters, and this has been particularly important for chemicals.

From the export perspective, the US is one of the largest end markets for chemicals, pharmaceuticals, polymers and intermediates. The improved access to this market allows the domestic manufacturers to scale their production, improve capacity utilization, and justify fresh capital investments. over the time, this export-led manufacturing is expected to push feeds back into job creation, technology upgrading and productivity improvements within the country's industrial base.

Most critical outcome of this new India-US trade deal – Trade diversification:

Trade diversification is considered one of the most critical outcomes of this India-US trade deal. Historically, India's exports have been concentrated in a limited set of markets and product

categories. But the country was overdependent on a few geographies, and this has increased vulnerability to trade shocks, regulatory changes or geopolitical tensions.
Since India and the US have deepened their trade ties, India reduced its reliance on traditional export destinations and strengthened its presence in a high-value, regulation-driven market. The diversification is very important for chemicals, where compliance with US standards often acts as a gateway to other developed markets such as the EU, Japan, and South Korea.

The deal supports the country's ambition to climb the global value chains. Instead of exporting low-value bulk chemicals alone, Indian firms are now focusing on:

Specialty chemicals, performance chemicals, custom synthesis, advanced intermediates and others.

From the US standpoint, the trade deal is equally strategic, and India represents not only a large and growing consumer market but credibility in manufacturing alternatives in a world increasingly wary of concentrated supply chains.

The US chemical and manufacturing ecosystem relies heavily on stable suppliers for intermediates and components. India's strength in a strong base in chemistry, skilled manpower, improving infrastructure, and democratic institutional frameworks, all combined, make it an attractive partner. The deal thus allows the US companies to:

- Source intermediates competitively.
- De-risk supply chains from China
- Access India's domestic market more easily.

In this sense, the agreement is not transactional, but it is structural. It positions the country as a long-term manufacturing and sourcing partner rather than a short-term trade arbitrage opportunity.

The agreement becomes beneficial for export-oriented sectors, which gain from improved market access and policy certainty. Chemicals sit prominently within this group, alongside textiles, pharmaceuticals, auto ancillaries, IT services and industrial segments. More than tariff reductions, chemical exporters seek certainty since chemical projects are capital-intensive and often involve long gestation periods. The companies should have clarity on tariff regimes and market access. Thus, they are more willing to commit capital to capacity expansions, debottlenecking, and technology upgrades. In addition to this, the US buyers value long-term supply reliability, and the trade deal sends a strong signal that India-US trade relations are stable and forward-looking, increasing buyer confidence and encouraging longer-term contracts.

Alignment with India's PLI-led manufacturing push:

India's Production Linked Incentive (PLI) schemes are designed to catalyze manufacturing scale, encourage exports and reduce import dependence. When PLIs provide domestic incentives, their effectiveness depends heavily on access to global markets. The deal complements the schemes and ensures that incremental production finds ready

and competitive export avenues.

With respect to the chemicals, PLI supports specialty chemical manufacturing, advanced intermediates, and import substitution for critical inputs. Thus, by aligning external trade policy with internal manufacturing incentives, India creates a coherent policy ecosystem, and the companies are investing under PLI schemes, and now they see clearer export pathways, improving the project viability and return on investment.

Structural positivity for growth and external stability:

The trade deal is viewed positively because of its impact on India's macroeconomic stability. The export growth strengthens the current account and supports foreign exchange inflows, thus reducing vulnerability to external shocks. The improved market access and tariff certainty are expected to boost merchandise exports, encourage manufacturing investment, strengthen FDI inflows and so on.

FDI is particularly relevant for the chemical sector, where the global majors often seek local partners or greenfield investments to serve the export markets.

The chemical sector is benefiting from the India-US trade deal:

The chemical sector is emerging as a core beneficiary due to the deep cross-sectoral integration within the industrial economy. There are other industries, such as consumer-facing industries, where the case is different. But in the chemical industries, the chemicals are intermediate goods that are fed into almost every manufacturing value chain, such as pharmaceuticals, agriculture, textiles, automobiles, electronics, construction, packaging and energy.

Therefore, any improvement in the chemical trade competitiveness creates a multiplier effect across multiple downstream industries that amplifies the overall economic impact of the deal. The lower tariffs and improved market access directly enhance India's export competitiveness in several high-value chemical segments.

The chemical segments are less commoditized, and price is the only part of the decision matrix. US customers are putting so much importance on the reliability of supply, consistency of quality, regulatory compliance, and technical collaboration. Therefore, Indian chemical companies, many of which have spent the past decade upgrading plants, improving environmental compliance, and building customer-facing technical teams, are well-positioned to leverage the shift.

Specialty chemicals – becoming the strategically important beneficiary:

The specialty chemicals segment represents one of the most strategically important beneficiaries of the India-US trade deal. Specialty chemicals are not the end products; they are the functional materials that impact specific properties such as durability, efficiency and performance to downstream products. This makes them indispensable across industries ranging from pharmaceuticals and agrochemicals to electronics, coatings and advanced manufacturing.

Supply chains are shaped not only by the cost but also by resilience, geopolitical alignment and long-term policy stability. The tariff rates in China are at China at 30%, Vietnam at 19%, and India at 18%. This underscores how tariff structures directly influence sourcing decisions by global manufacturers. India is achieving the lowest tariff rate in the region is strategically significant.

The experts say that sectors like toys and aerospace are particularly sensitive to such changes. Toys rely heavily on cost efficiency and scale, while aerospace depends on precision manufacturing, regulatory trust and long-term supplier relationships.

From the perspective of global supply chains changing:

The India-US trade deal should be understood from the perspective of how the global supply chains are changing. The international companies are trying to reduce their dependence on China. Due to trade disputes, changing regulations, and geopolitical tensions, the companies are seeking alternative suppliers, tariffs, and cost competitiveness are becoming very important in deciding where to source the products from.

India now has a clear advantage. With a lower tariff rate than China and even Vietnam, India has become one of the most cost-effective manufacturing options in the region. Even small differences in the tariffs can strongly influence the sourcing decisions when buyers are making decisions between countries.

The lower tariffs are combined with India's ability to produce at scale, follow regulations, and supply reliability, India becomes a very attractive destination. This advantage is especially strong in the chemical sector. Chemical supply chains are not easy to change.

From an export perspective, the US is considered one of the largest end markets for chemicals, pharmaceuticals, polymers and intermediates. Improved access to the market allows the Indian manufacturers to scale their production, improve capacity utilization, and justify fresh capital investments. Over time, the export-led manufacturing push feeds back into job creation, technology upgrading and productivity

improvements within the country's industrial base.

Most of the US buyers are after long-term supply reliability, and thus the trade deal sends a strong signal that the India-US relations are stable and forward-looking. This increases the buyer's confidence and encourages longer-term contracts.

Investor perspective – who benefits the most?

From an investor standpoint, the opportunity lies in identifying the companies that are structurally positioned to benefit. These include the firms to have a meaningful exposure to the US market, scalable and flexible manufacturing capacities, strong regulatory and compliance track records, and healthy balance sheets. Therefore, such companies are better equipped to absorb demand growth, meet stringent US standards, and invest in expansion without financial stress.

Even in its initial phase, the US-India trade deal represents a decisive step toward an integrated and resilient trade partnership. This provides Indian manufacturers with a competitive edge, and the global buyers are actively seeking alternatives.

Takeaway:

The India-US trade deal is structurally positive for India's manufacturing sector. With respect to the chemical sector, especially specialty chemicals, it is emerging as a key beneficiary. The agreement strengthens export competitiveness, improves market access and aligns with the country's domestic manufacturing and export diversification strategies. The deal lays a strong foundation for long-term growth, innovation, and global supply-chain integration. The Indian chemical manufacturers open the doors to extended opportunities, deeper customer relationships and a stronger position in the global value chains. The investors, policymakers, and industry leaders alike, the deal signals that the country's manufacturing story is entering a more mature, globally integrated phase, one where chemicals play a central and enabling role.

Crude Oil Beyond Fuels: How Petrochemicals, Quality, and Integration Shape the Modern Refining Industry

Team Chemical Market

Introduction:

Crude oil is one of the most crucial natural resources in the modern world, as it is the major source of energy and the foundation for a vast range of materials and chemicals used in everyday life and industry. When people think of crude oil, they associate it with only fuels such as petrol or diesel. But in reality, crude oil is a complex mixture of hydrocarbons. When refined, they support transportation, manufacturing, agriculture, healthcare, construction and even digital technologies. Experts in the industry have understood that the quality parameters are becoming more critical and influencing the refinery economies, environmental compliance, safety and other aspects. Thus, in this article, we have explored the classifications and other aspects and how they are navigating today's changing oil and petrochemical landscape.

Let's get a little further from basics:

The most visible products of crude oil are fuels. Refining processes like distillation, conversion, and others, crude oil is transformed into gasoline, diesel, jet fuel, liquefied petroleum gas and fuel oil. These fuels power cars, buses, trucks, ships, aircrafts and trains. These modes of transportation enable the movement of people and goods across the globe.

Other forms of oil-derived fuels are used for cooking, heating, and electricity generation in areas where alternative energy sources are limited. Industrial generations and backup power systems also rely heavily on petroleum fuels that ensure continuous operations.

Apart from energy, crude oil offers a major part in the petrochemical industry, for instance, petrochemical feedstocks such as naphtha and ethane are derived from crude oil, and they are used in the manufacturing of plastics, synthetic rubber, fibers and resins. Consumer items such as plastic bottles, food packaging, mobile phone casings, medical syringes and household appliances are made from crude oil.

Synthetic fibres such as polyester and nylon are used in clothing, carpets, and upholstery. They are also petroleum-based, and making crude oil is deeply embedded in daily life.

In industry and technology, crude oil supports manufacturing processes and

advanced products. Solvents, paints, coatings, adhesives, and insulating materials are all petroleum-based. Electronics, including computers and smartphones, contain plastic components and synthetic materials derived from crude oil, highlighting their role in the digital economy.

In summary, crude oil is far more than a fuel. It is a foundational resource that underpins modern life, from transportation and energy to healthcare, agriculture, construction, and technology. Its products enable comfort, mobility, productivity, and innovation across industries worldwide, making crude oil one of the most influential resources in everyday life and global industrial development.

Crude-to-chemicals investments enabled Chinese supremacy in global petrochemicals:

There are massive and early investments in crude-to-chemicals refining assets. Especially, the Chinese players have fundamentally reshaped the global petrochemical market. The strategic shift has allowed China to gain cost leadership, scale advantages and market dominance at a time when traditional refining economies are under pressure.

The refining industry is undergoing structural change that is driven by three major forces, such as crude oil price volatility, environmental pressure to reduce emissions and declining refining margins.

There is a long-term demand for transportation fuels as gasoline is weakening due to improved fuel efficiency, electric vehicles and policy initiatives that is aimed at decarbonization, especially in Europe and North America.

The petrochemical demand continues to grow, and it is driven by population growth, urbanization, plastics consumption and industrialization in emerging economies. Some of the prominent organizations, such as the International Energy Agency (IEA) and Wood Mackenzie, clearly indicate that petrochemicals will be driving most of the future growth in global oil demand, even when the traditional fuels slow down.

Countries are improving vehicle efficiencies, consumers are shifting towards electric vehicles, and countries are deploying climate policies as well. These factors are gradually reducing the growth in gasoline and diesel consumption. In contrast, the demand for petrochemicals due to developing economies, rising living standards, increasing use of plastics, packaging, construction materials, medical products and other consumer goods is creating a great impact as well.

Companies are integrating refining and petrochemical manufacturing - companies are planning to position themselves to benefit from the ongoing trend. The refiners are consistently aiming for higher net cash margins than being simple fuel-focused refiners. They have understood that the petrochemical products are generating more value per barrel of crude oil.

Likewise, fuels such as gasoline and diesel are largely commoditized and subject to regulatory pressures. They have also seen producers enjoying higher and more stable margins when they offer a wider range of products with specialized applications. This economic reality has pushed refiners to rethink their operating strategies and maximize their fuel output. The refiners are increasingly focusing on maximizing chemical yields, which improves profitability and long-term resilience.

Crude-to-chemicals refineries represent the most advanced expression of this shift. While the conventional refineries convert only 10-20% of crude oil into petrochemical feedstocks, the C2C facilities can convert about 40-70% of each barrel directly into high-value chemical intermediates such as ethylene, propylene and aromatics.

Current trend observed in the industries: companies are prioritizing chemical production over fuels. They are becoming crude-to-chemicals refineries and aligning themselves more closely with the future demand patterns. These complexes require higher capital investment and advanced technologies, but they offer superior economies and strategic advantages in a world where petrochemicals are not just transportation fuels, but are increasingly aiding the core growth engine of the oil industry.

Understanding the applications of crude oil based on its classifications:

Crude oil density refers to the thickness of the fluid, and the density of the fluid arises from its molecular composition of hydrocarbons present in the crude. Light crude oils are dominated by short-chain hydrocarbons such as alkanes and aromatics. The heavy crude contains long-chain and complex molecules, resins and asphaltenes. Therefore, light crude oil flows easily at room temperature, and heavy crude oil is viscous, slow-moving and sometimes semisolid.

This difference strongly influences how it behaves from the wellhead to the refinery. Therefore, we understand why heavy crude oil requires heating or dilution with lighter hydrocarbons just to move through pipelines, while the light oils can be transported with minimal assistance.

We can understand why there is a difference; the density of the fluid reflects on refining efficiency, transportation, spill behavior and economic value. Therefore, the light oils can be directly converted into high-

value fuels with minimal cracking and heavy oils demand processes such as coking and hydrocracking, which increase the energy usage and costs. Environmentally, also, heavier oil spills persist longer, and they spread slowly and are harder to remediate. The lighter oils command higher prices as they offer better margins and lower operational risks.

Despite these challenges, heavy crude is often used to produce asphalt, bitumen, bunker fuel and petcoke. Therefore, they are commonly utilized in these manufacturing rather than gasoline or jet fuel.

Key aspects that affect the market demand:

API gravity is the standard measure that expresses crude oil density relative to water. Oils with API gravity above 10 float on water; anything higher than that means lighter oil. API gravity standard helps to simplify the comparison across crude grades across the globe and is embedded in pricing, refinery configuration and trade contracts.

The sweet and sour crude classifications depend on the sulphur content present in the crude. Sweet crude contains less than 1% of sulfur and sour crude contains higher levels. Sulphur occurs naturally in crude due to biological material trapped during formation. Therefore, sulphur affects refining complexity, emissions and corrosion risks; therefore, higher sulphur content increases regulatory compliance costs and technical challenges.

The sulphur content matters the most in the crude oil processing. Although sulphur is viewed as a naturally occurring impurity in many crude oils, they remain in fuels such as gasoline, diesel and jet fuel unless it is removed.

Sulphur content matters - Challenges that come with sulphur removal:

Modern fuel standards have brought in strict limitations on sulphur content because of sulphur emissions, and their contribution to air pollution, acid rain and respiratory health problems. Meanwhile, the removal of the sulphur has brought in challenges such as major economic and operational implications for the refineries. The sulphur recovery units built in the facilities increase the capital expenditure, and they require high-pressure reactors, specialized catalysts and corrosion-resistant materials.

Due to massive hydrogen consumption, the operational costs also increase in the process of sulphur removal.

The sulphur recovery units come with additional operational challenges such as catalyst replacement, maintenance, higher energy use and handling of risky hydrogen sulphide, which is highly toxic and flammable, requiring strict safety systems in those recovery units. It also requires trained personnel.

Therefore, from a profitability standpoint, high-sulphur crude oil is considered more expensive to process, even though it is sold cheaper in the market.

Midstream and refining challenges:

Sour crude handling requires corrosion-resistant pipelines, storage tanks, and processing units. This raises capital investment and operational planning requirements. This limits what kind of refineries can handle or process sour crude oil efficiently.

Total Acid Number (TAN) - TAN is a key quality parameter that measures the concentration of organic acids that are present in the crude oil. Low TAN crudes don't cause much trouble during the refining process, and they are safer and easier to handle. Whereas the high TAN crudes contain more acid and thus can be harmful to the equipment. We understand that the refining facilities equip hot areas such as distillation towers, pipelines, heaters and so on. When the heated acidic crude oil is sent to these areas, the acids become more active and at high temperature, these acids erode the thick protective layer that normally shields the steel surfaces. Once the protection is gone, the bare metal directly comes into contact with the acids and gets affected. This constant metal damage is called naphthenic acid corrosion (NAC). This weakens pipes and equipment over time, and this increases the risk of leaks and failures.

Thus, high TAN crude oils are considered challenging and risky to process compared to low TAN crudes.

Takeaway:

Crude oil is far more than a source of energy, and it is a foundational building block of modern civilization. Fuels that enable global transportation to petrochemicals that underpin plastics, textiles, healthcare products, electronics, and construction materials. Crude oil touches nearly every aspect of daily life and industrial activity. This significance lies not only in what it powers but in what it makes possible across economies and societies. The global energy system is undergoing a structural change, and the role of crude oil is shifting rather than disappearing. The demand for traditional transportation fuels faces long-term pressure, and petrochemicals are emerging as the primary engine of future oil demand. Overall, the versatility as a raw material is making it one of the most strategic and enduring resources in the global industrial economy.

Unlocking ultra-high-pressure reserves: why Shenandoah is a milestone for deepwater engineering and advanced chemistry

HOUSTON, TX, February 5, 2026 - When Beacon Offshore Energy's Shenandoah field achieved 100,000 barrels of oil per day (bopd) after 75 days, it didn't just exceed all regional ramp-up benchmarks and set a new performance standard for deepwater operations, it validated decades of innovation in extreme offshore environments and collaborative engineering. For Clariant Oil Services, Shenandoah represents a proving ground where meticulous testing meets reality under some of the most severe production conditions on Earth: pressures exceeding 20,000 psi (1,400 bar) and water depths approaching 6,000 feet (1,800 metres).

Shenandoah's journey from discovery to production spans decades, making its startup a remarkable achievement in deepwater development. Located off the Louisiana coast in North America, this field presents extreme operational challenges that demand rigorously engineered solutions at every stage.

The high-pressure, high-temperature (HPHT) reservoir conditions, with pressures above 22,000 psi and temperatures approaching 200 °F, push the boundaries of materials science and chemical engineering. Individual wells are delivering exceptional results, and the Shenandoah floating production system (FPS) has demonstrated high uptime and system reliability, with no known issues which would hinder its ability to meet its nameplate capacity of 120,000 bopd.

The oilfield chemical infrastructure behind deepwater success

Oil produced from deepwater fields like Shenandoah depends on sophisticated chemical treatment programs, such as those developed by Clariant. The startup phase is particularly critical, requiring:

Flow assurance solutions: Preventing hydrate formation, wax deposition, and asphaltene precipitation in subsea flowlines demands advanced chemical inhibitors specifically designed for HPHT conditions. At Shenandoah, asphaltene inhibitor performance monitoring has been critical during startup, with Clariant's ADAPT measurement system providing continuous monitoring to ensure optimal performance. This method measures the performance of asphaltene inhibitors with unaltered crude vs. the typical forced-precipitation techniques used widely in the industry.

Corrosion management: The combination of high temperatures, pressures, and corrosive reservoir/completion fluids necessitates robust corrosion inhibition programs to protect subsea infrastructure and ensure long-term asset integrity. Chemical treatment strategies implemented by Clariant are paired with recommended field monitoring programs to ensure performance is met throughout the field's lifecycle.

Scale prevention: HPHT reservoirs are prone to severe scaling issues. Customized scale inhibitors must function effectively in extreme conditions while being compatible with other production chemicals and reservoir fluids. Once reservoir water production increases, it is necessary to model scaling tendencies and design chemical treatment programs if required.

Production optimization: Emulsion breakers, primary/secondary defoamers and water clarifiers ensure efficient separation and processing, maximizing recovery while minimizing operational disruptions.

The rapid ramp-up in 75 days required extensive support. Clariant provided 24-hour coverage during this critical period, delivering chemical management, system monitoring, and troubleshooting support. Comprehensive site inspections of injection locations, sample points, and chemical injection systems ensured optimal performance from day one.

Deepwater success is built long before first oil

Shenandoah's successful startup exemplifies the collaborative nature of modern offshore initiatives. Chemical manufacturers like Clariant serve as technical partners, providing pre-startup planning, onsite technical support during critical phases, and continuous optimization throughout the field's lifecycle. At Shenandoah, this included platform visits to Ingleside, Texas, for comprehensive system inspections and operational feedback.

Shenandoah has now transitioned to steady-state operations under a routine coverage service plan, supported by Clariant's in-office team overseeing chemical management, projects, supply chain, and product development. Success of this scale requires the

seamless integration of multiple technologies, from drilling and completion to subsea systems and chemical treatments.

As Beacon Offshore Energy continues production at Shenandoah, with multiple wells producing at 20,000+ bopd, the field draws from reservoirs at approximately 30,000 feet (over 9,000 metres) true vertical depth, validating next-generation chemical technologies and serving as a model for future deepwater projects.

Shenandoah is not just notable; it's exceptional for ultra-deepwater development in terms of depth, ramp-up speed, and well productivity. We'd like to congratulate our valued customer, Beacon, on achieving several exemplary milestones. It is a remarkable feat, and we are honored to contribute our expertise to a project widely celebrated as a global standard for modern innovation and operational excellence.

Source : Press Release

Driving the Next Era of Automotive Design with Structural Batteries

MOHALI, India, Feb. 16, 2026 / PRNewswire/ -- /PRNewswire/ -- Scintillation Research has conducted an independent analysis of emerging structural battery composite materials. The report highlights the innovation, various processes, details of materials, technology trends, future tech leaders, and early adopters.

In automotive applications, SBCs aim to replace passive structural components (such as floor panels or body members) with energy-storing structures, thereby reducing overall vehicle weight and improving efficiency. Unlike conventional electric vehicles, in which the battery pack and vehicle structure are separate systems, SBC technology integrates lithium-based energy storage directly into composite structural parts such as floor panels, chassis members, and body panels.

A comprehensive dataset of active and granted worldwide patents was built by covering features of Structural Battery Composites for the Automotive Industry. We identified the following categorisations of patents based on the field of invention and the core technology area of patents:

Manufacturing & Processing Methods

- Resin Transfer Molding (RTM)
- Vaccum Assisted Resin Infusion (VARI/VARTM)
- Additive Manufacturing
- Hybrid Manufacturing Process

Electrolyte

- Liquid Electrolyte
- Gel Polymer Electrolyte (GPE)
- Solid Polymer Electrolyte (SPE)
- Structural Electrolyte
- Solid-State Ceramic Electrolyte

Binder Materials

- Lithium Manganese Oxide (LiMn2O4)
- Lithium Iron Phosphate (LiFePO4 or LPF)
- Lithium Cobalt Oxide (LiCoO2)
- Lithium Manganese Phosphate (LiMnPO4)
- Epoxy Resin

Fiber Type

- CFRP (Carbon Fiber Reinforced Polymer)
- GFRP (Glass Fiber Reinforced Polymer)
- AFRP (Aramid Fiber Reinforced Polymer)
- Hybrid Fiber Systems

Structural Architectures

- Laminate Architecture
- Sandwich Structures
- Fiber-level Intergrated Architecture
- Textile-based SBCs
- Battery Composite Diaphragm
- Cellular/Lattice SBC Structure

Load-Bearing Constituents

- Fiber-based Load Bearers
- Matrix-based Load Bearers
- Electrochemical Constituents

Anode Materials

- Cathode Materials
- Separators

Energy Storage Mechanism

- Electrochemical Batteries
- Electrochemical Capacitors
- Performance Metrics

Mechanical Performance

- Electrochemical Performance
- Multifunctional Efficiency Metrics