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# DYES & CHEMICAL MARKET

Connecting the Chemical Industry Together!

A MONTHLY MAGAZINE DEVOTED TO



DYES CHEMICALS PHARMACEUTICALS API TEXTILE AUXILIARIES PAINTS SOLVENTS COSMETICS

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Brown University and Panasonic Energy Launch Joint Development to Advance Next-Gen Lithium-ion Battery Materials through Diagnostics Analysis -pg62

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Why India Is Rethinking How Pharmaceutical Inputs Are Tracked -pg43



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**January 28-30, 2026**  
Astana, Kazakhstan  
The International Exhibition Center "EXPO"

**\$136 MILLION**

INVESTMENTS IN FIXED ASSETS OF THE CHEMICAL INDUSTRY IN JANUARY - MAY 2024

**850**

OPERATING ENTERPRISES IN THE CHEMICAL INDUSTRY OF THE REPUBLIC OF KAZAKHSTAN



**EXHIBITION TOPICS:**



CHEMICAL RAW MATERIALS AND AUXILIARY MATERIALS



EQUIPMENT, MACHINES, LABORATORY DEVICES



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- Plastics and Rubber Industry
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- Professional and Household Chemicals

**ADVANTAGES OF PARTICIPATION**

**5 REASONS TO PARTICIPATE IN THE EXHIBITION:**

- Increase sales volumes
- Expand the geography of sales
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- Establish new/ maintain old business contacts
- Learn about new products on the market and global trends

**HOW WILL THE EXHIBITION BE USEFUL FOR YOU?**

- Enter Central Asia's top market
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- Boost brand visibility and trust
- Track trends and make analysis of competitors

**25+**

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**6000+**

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THE EXHIBITION PARTICIPANTS ARE MANUFACTURERS OF CHEMICALS, RAW MATERIALS, EQUIPMENT, ETC.

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If you have any questions about participation, please contact us.:

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Central Asia Coatings Show is the largest industry project with a history of more than 5 years, having earned a strong reputation in the Central Asian market. The exhibition brings together leading Kazakhstani and global manufacturers of paints and coatings, raw materials, equipment, and technologies for their production.

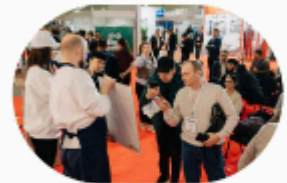
The 2025 edition confirmed its status as the key event of the coatings industry in Central Asia, attracting more than 4,000 visitors and over 100 companies from 15 countries.



**28-30 January 2026**

Astana, Kazakhstan

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**15,067.2 thousand m<sup>2</sup>** (+15.6% compared to 2022)  
Total area of new facilities commissioned in 2024

**\$11.5 billion** (12.6% more than in January–November 2023)  
Volume of construction work in January–March 2024

### Benefits of participation:

In 3 days you will be able to:

- Effectively present your company and its products to a concentrated professional audience
- Gain new ideas and share your expertise
- Take part in the business program
- Influence purchasing decisions
- Hold face-to-face negotiations with potential clients and exchange experience with partners

What does participation in the exhibition give?

- Attract new partners and clients
- Strengthen and expand your market position
- Understand the needs of your target audience
- Gain valuable insights into the competitive environment
- Increase sales volume
- Expand your sales geography

### Exhibition topics:



Raw materials and auxiliary materials



Equipment, machines and devices



Finished products



Services for paint and varnish industry enterprises



Containers, packaging and packing



New technologies and developments



Environmental protection and labor protection

**98%**  
Visitors established new business contacts

**95%**  
Visitors are satisfied with the quality of business contracts

**89%**  
Visitors agreed on a deal

**99%**  
Visitors recommend the exhibition to their partners

**We invite you to take part in the exhibition!**

For participation questions, please contact us:

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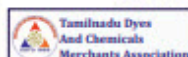
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### Cphi - Informa Group

No	Exhibitions	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	Dec 8-10, 2025	Riyadh, Saudi Arabia
4	CPhi China- Virtual CPhi	June 16-18, 2026	Shanghai New International Expo Center
5	CPhi Japan	Apr 21-23, 2026	Tokyo, Japan
6	CPhi Korea	Aug 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	Nov 17-19, 2025	Brazil

### Red Carpet Events

1	Bangladesh Int'l Dyes, Pigments and Chemicals Expo	TBD	
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### 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 Exhibition Centre, India
11	Water Expo	Apr 24-26 2026	Pragati Maidan, New Delhi
12	Inacoating	July 28-30, 2026	JIExpo Kemayoran, Jakarta - Indonesia



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# CHEMICAL MARKET

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

## 2026: A Turning Point for the Chemical Industry—From Trade Uncertainty to Digital Opportunity

As we step into 2026, the global chemical industry finds itself at a pivotal inflection point—shaped equally by resilience and reinvention. The past year tested supply chains, pricing discipline, regulatory compliance, and geopolitical adaptability. Yet, it also demonstrated the industry's capacity to evolve, innovate, and collaborate. For manufacturers, traders, distributors, and technology providers, 2026 is not merely another year on the calendar; it is an opportunity to reset strategies and accelerate toward a more connected, transparent, and demand-driven future.

### Happenings That Defined the Industry

2025 closed with several defining moments. Global chemical demand showed signs of stabilization after prolonged volatility, particularly in specialty chemicals, agrochemicals, and performance materials. Sustainability remained at the forefront, with increased investments in green chemistry, recycling technologies, and low-carbon manufacturing processes. Regulatory scrutiny intensified across major markets, pushing companies to adopt stronger compliance frameworks and traceability systems.

At the same time, digital transformation gained tangible momentum. From AI-driven demand forecasting to digital procurement platforms, the industry began moving away from relationship-only trading models toward data-backed decision-making. Companies that embraced digital tools early found themselves better positioned to manage margins, identify buyers faster, and reduce operational friction.

### Trade Issues and Market Realities

Despite progress, trade challenges persist. Ongoing geopolitical tensions, shifting trade blocs, and protectionist policies continue to impact cross-border chemical trade. Freight costs remain unpredictable, payment terms

are under pressure, and buyers are increasingly cautious—seeking reliability, transparency, and speed.

Another growing challenge is the noise in digital sourcing. Buyers are fatigued by irrelevant leads, non-serious enquiries, and opaque intermediaries. Sellers, on the other hand, struggle with delayed responses, unclear requirements, and poor-quality prospects. This gap between intent and execution is where the industry must evolve—and where platforms with a clear focus on quality and accountability will define the next phase of growth.

### Looking Forward: 2026 and the Year Ahead

The year ahead will reward chemical businesses that prioritize three fundamentals: trust, technology, and timing. Trust through verified business relationships. Technology through platforms that simplify—not complicate—sales and sourcing. And timing through faster responses to real market demand.

Manufacturers will increasingly look to bypass inefficient layers and reach buyers directly, while traders and distributors will focus on speed, regional strength, and value-added services. Niche products, custom manufacturing, and specialized technologies will see stronger demand as buyers move away from commoditized sourcing.

### Chemical Market Leads Platform: Redefining Buy Enquiries

Against this backdrop, the Chemical Market Leads Platform is positioned to change how buy enquiries are posted, discovered, and fulfilled. The platform is designed around one core principle: genuine demand matched with genuine supply.

Instead of mass, unfiltered enquiries, the Leads Platform focuses on structured, intent-driven buy requirements. Buyers can clearly define specifications, quantities, destinations, and timelines, while sellers can respond with precision. This approach

reduces noise, improves response quality, and saves valuable time for both sides.

For manufacturers, traders, and distributors, this means fewer wasted conversations and more meaningful business opportunities. For buyers, it means faster access to credible suppliers who understand their requirements.

### The Role of Mobile in the Next Sales Cycle

Looking ahead, the planned Chemical Market mobile app will further transform how chemical businesses operate. In an industry where timing is critical, mobile access enables real-time engagement. Manufacturers can post products, capacities, and technologies instantly. Traders can respond to live enquiries on the move. Distributors can monitor demand trends and regional opportunities without being tied to a desk.

A mobile-first approach also democratizes participation. Small and mid-sized chemical companies—often excluded from large procurement ecosystems—gain equal visibility alongside established players. The result is a more inclusive, agile, and responsive marketplace.

### Closing Thoughts

As we begin 2026, the chemical industry stands ready for a more transparent, efficient, and digitally enabled future. Platforms that prioritize authenticity, quality, and community will lead this transformation. At Chemical Market, our commitment remains unchanged: to build a trusted ecosystem where chemical businesses do not just list products—but build lasting, profitable relationships.

The year ahead belongs to those who adapt early, engage genuinely, and think beyond traditional boundaries. We look forward to building that future together.

— Rajiv Parikh



<b>CHENNAI PRICE TREND – 10.12.2025</b>		
<b>Inorganic Chemicals</b>	<b>No/ of Units Per Pack</b>	<b>Price Rs.</b>
Acid Slurry (Soft)	50Kgs	145
Alum- Ferric	50Kgs	22
Ammonium Bicarbonate	25Kgs	23
Ammonium Bi fluoride [sugar-grade]	50Kgs	178
Ammonium Carbonate	50Kgs	95
Ammonium Chloride	50Kgs	25
Ammonium Nitrate	50Kgs	30
Ammonium Phosphate (Mono)	50Kgs	135
Ammonium Sulphate	50Kgs	22
Antimony Trioxide	50Kgs	9,000.00
Barium Chloride	50Kgs	58
Bleaching Powder (33% Cl)	25Kgs	15
Borax (Granular)	50Kgs	88
Boric Acid (Tech.)	50Kgs	150
Calcium Carbonate ( Activate)	50Kgs	20
Calcium Carbonate (Precipitated)	50Kgs	19
Calcium Chloride Lump 70%	50Kgs	12
Calcium Chloride-Anhydrous	50Kgs	28
Camphor Oil	200Litrs	135
Caustic Potash (Flakes)	50Kgs	89
Caustic Soda (Flakes)	50Kgs	48
Caustic Soda (Prills)	50Kgs	92
Chromic Acid Flakes	50Kgs	285
Chlorinated Xylene	25kgs	85
Copper Sulphate	50Kgs	255
Di ammonium Phosphate	50Kgs	34
Dioctylmalite	180kgs	82
Ferric Chloride (Anhydrous)	50Kgs	32
Ferrous Sulphate – crystals	50Kgs	16
Hydrochloric Acid	Naked	6
Hydrogen Peroxide 50%	50Kgs	33
Hyflosupercell	22.7Kgs	138
Litharge	50Kgs	220
Lithopone B301(China)	25Kgs	124
Magnesium Carbonate (Indian)	50Kgs	125
Magnesium Sulphate	50Kgs	16
Mercury	34.5Kgs	24,800.00
Napthaline Balls	50Kgs	130
Nickel Chloride	25Kgs	620

<b>Inorganic Chemicals</b>	<b>No/ of Units Per Pack</b>	<b>Price Rs.</b>
Phosphoric Acid (85% Tech)	50Kgs	102
Potassium Carbonate (Powder)	25Kgs	115 .00
Potassium Carbonate (Granules)	25Kgs	87
Potassium Nitrate	50Kgs	115
Potassium Permanganate [Tech]	50Kgs	166
Potassium Permanganate [Pure]	50kgs.	185
Potassium Phosphate (Di)	50Kgs	158
S.L.E.S	50kgs	70
Soda Ash Light	50Kgs	28
Sodium Bicarbonate	50Kgs	28
Sodium Bichromate	50Kgs	160
Sodium Bisulphite	50Kgs	52
Sodium Chlorite 50% (India)	50Kgs	240
Sodium Chlorite 80% (India)	50Kgs	280
Sodium Cyanide	50Kgs	650
Sodium Fluoride	50Kgs	150
Sodium Formate	50Kgs	52
Sodium Hexameta Phosphate 68%	50Kgs	128
Sodium Hydrosulphite [China]	50Kgs	185
Sodium Metabisulphite	50Kgs	35
Sodium Nitrate	50Kgs	52
Sodium Nitrite (China)	50Kgs	60
Sodium Silicate	Naked	28
Sodium Sulphate (Anhydrous)	50Kgs	15
Sodium Sulphide 50-52% (Flakes)	50Kgs	58
Sodium Sulphide 58-60% (Flakes)	50Kgs	52
Sodium Sulphite 92%	50Kgs	50
Sodium Tri polyphosphate	50Kgs	95
Titanium Dioxide Anatase	25Kgs	220
Titanium Dioxide (Rutile - R-902)	25Kgs	250
Trisodium Phosphate	25Kgs	36
Zinc Chloride Powder (Tech.)	50Kgs	88
Zinc Oxide White Seal	50Kgs	230
Zinc Stearate [Pure]	25kgs	175
Zinc Sulphate (Tech.)	50Kgs	58
<b>Organic Chemicals</b>		
<b>Organic Chemicals</b>	<b>No/ of Units Per Pack</b>	<b>Price Rs.</b>
Acetic Acid Glacial	35Kgs	55
Acetone	160Kgs	78
Benzene	195Litrs	85



Organic Chemicals	No/ of Units Per Pack	Price Rs.
Benzyl Alcohol	200Kgs	133
Bisphenol-A (Russian)	25Kgs	140
n-Butanol	170Kgs	92
n-Butyl Acetate	165kgs	98
Butyl Cellosolve	195kgs	120
Camphor	25Kgs	415
Cellosolve –Ethyl	195Kgs	138
Chloroform	300Kgs	23
Citric Acid (Anhy)	25Kgs	74
Citric Acid (Mono)	25Kgs	65
Cresote Oil	50Kgs	88
Cyclohexanone	190kgs	135
D D Turpentine	200Litrs	145
Diacetone Alcohol	195Kgs	120
Diethylene Glycol	230Kgs	68.00
Dimethyl Formamide	195kgs	80
Diocetyl Phthalate	200Kgs	120
Di-Pentene	200Litrs	125
EDTA Acid	25Kgs	198
EDTA Disodium	25Kgs	188
EDTA Tetrasodium	25Kgs	188
Ethyl Acetate	185Kgs	82
Ethylene Dichloride	200 Kgs	65
Ethylene Glycol-mono	230Kgs	65
Formaldehyde	65Kgs	26
Formic Acid	35Kgs	62
Glycerine - CP	250Kgs	121
Hexamine – Tech	50Kgs	104
n-Hexane	160Litrs	62
Hydroquinone (Imported)	25Kgs	580
Isopropyl Alcohol	160Kgs	120

Ororganic Chemicals	No/ of Units Per Pack	Price Rs.
Isopropyl Alcohol (Refill)	160Kgs	98
Maleic Anhydride	25kgs	105
Methyl Ethyl Ketone	166Kgs	112
Methyl Isobutyl Ketone	160Kgs	130
Methyl Isobutyl Ketone (Refill)	160Kgs	120
Methylene Dichloride	250Kgs	48
Methylene Dichloride (Refill)	250Kgs	40
Mineral Turpentine Oil	50kgs	92
Monochloro Phenol	50Kgs	120
Nitrobenzene	200Kgs	102
Octanol (2-ethylhexanol)	160Kgs	128
Oleic Acid	50 kg	128
Oxalic Acid (Punjab)	50Kgs	62
Paraffin Wax ( White)	50Kgs	107
Para formaldehyde 91%	25Kgs	96
Perchloroethylene	320Kgs	89
Phenyl Liquid	230Kgs	105
Phthalic anhydride	25Kgs	105
Pine Oil 22%	200Litrs	155
Pine Oil 40%	200Litrs	190
Polyethelene Glycol 400	230Kgs	120
Polyethelene Glycol 600	230Kgs	150
Propylene Glycol	215Kgs	104
Poly Aluminium Chloride	25kgs	34
Red Lead	50kgs	220
Renine	180Kgs	72
Rosin	17Kgs	115
Sodium Acetate	50Kgs	38
Sodium Benzoate	50Kgs	108
Sorbitol	250Kgs	50

Above prices are given in good faith by : MR. SUBHASH GHORAWAT

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## BUY INQUIRIES

Product	Quantity	Grade
<b>Cocodimethylamine</b> Details : Need 5 Kg.paid sample  Tamilnadu, India	<b>500 Kg</b>	<b>Industrial</b>
		<a href="#">CLICK HERE TO VIEW</a>
<b>Triphenyl Phosphine</b> Details : We are having spent Triphenyl Phosphine 99% available in stock. Buyers can contact us.  Hyderabad, India	<b>80 Tonnes</b>	<b>Any</b>
		<a href="#">CLICK HERE TO VIEW</a>
<b>Hydrobromic Acid 48%</b> 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	<b>400 Tonnes</b>	<b>Any</b>
		<a href="#">CLICK HERE TO VIEW</a>
<b>(4-Methylphenyl) acetonitrile</b> Details : Call  Mumbai, Maharashtra, India	<b>200 Kgs</b>	<b>Anatase</b>
		<a href="#">CLICK HERE TO VIEW</a>
<b>TrilsoPropanolAmine</b> Details : Please connect with me and reply to my inquiry asap  Mumbai, Maharashtra, India	<b>200 Kgs</b>	<b>Any</b>
		<a href="#">CLICK HERE TO VIEW</a>



## BUY INQUIRIES

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



## BUY INQUIRIES

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



# Toxin-to-Treasure: Chonnam National University Scientists Use Engineered Enzyme to Turn Formaldehyde Pollutant into High-Value Chemical

JEOLLANAM-DO PROVINCE, South Korea, Dec. 22, 2025 /PRNewswire/ -- Formaldehyde is a common chemical used in various industries as a disinfectant, resin precursor, and synthetic intermediate. It is volatile, highly toxic, and a key environmental pollutant with genotoxic and carcinogenic effects, harming both human health and the environment. Therefore, there is an urgent need to come up with useful strategies to convert formaldehyde into non-toxic value-added products, ensuring environmental protection as well as chemical sustainability.

In a recent breakthrough, a team of researchers from the Republic of Korea, including Dr. Taner Duysak, the leading first author of this paper and a researcher in the group led by Professor Jeong-Sun Kim at the Department of Chemistry and the Host-Directed Antiviral Research Center, Chonnam National University, has developed an innovative biocatalytic cascade for the selective enzymatic conversion of formaldehyde into enantiopure L-glyceraldehyde—a high-value chiral C3 compound. Their novel findings were made available online on 21 October 2025 and have now been published in the International Journal of Biological Macromolecules on 1 November 2025.

The team utilized a structurally engineered fructose-6-phosphate aldolase (GaFSA) derived from *Gilliamella apicola*. This compound catalyzes carbon-carbon bond formation through an aldol

condensation reaction between glycolaldehyde (GALD) and formaldehyde. However, this approach led to the formation of a significant amount of D-threose as a byproduct. Notably, structure-guided mutagenesis via Ser166 and Val203—key determinants of regioselectivity—lowered D-threose formation with over 93% selectivity under mild aqueous conditions.

Furthermore, the researchers also achieved in situ GALD production from formaldehyde and thereby mitigated external GALD supplementation by coupling engineered GaFSA to an optimized glyoxylate carboligase from *E. coli* (EcGCL). "This one-pot, eco-friendly, and scalable enzymatic cascade reached a conversion efficiency of about 94% from 25 mM formaldehyde at pH 7.5 and 40 °C, with minimal byproducts. The reaction proceeds entirely in water, under ambient pressure, without toxic reagents or organic solvents, requiring only natural cofactors for EcGCL activity," points out Dr. Duysak.

The present research thus shows how a dangerous industrial toxin, formaldehyde, can be transformed into a safe and valuable chemical, L-glyceraldehyde, using an engineered enzyme. This demonstrates how enzyme engineering, such as amino acid mutation, can turn pollution into useful building blocks for medicine and industry.

Dr. Duysak highlights the potential applications of their work. "It promotes

not only environmental detoxification in the form of the safe removal of formaldehyde from industrial waste streams but also green chemistry. L-glyceraldehyde is a renewable raw material that serves as a crucial precursor for rare sugars such as L-sorbose and L-psicose and chiral intermediates used in drug development. As a C3 compound, it is a key player in many biochemical pathways. L-glyceraldehyde can facilitate the development of novel compounds with antibiotic, anti-cancer, and other therapeutic effects."

In the next decade, approaches similar to this study could help industries detoxify hazardous chemicals while creating useful compounds, enable circular chemical processes where waste is recycled into new materials, support the development of eco-friendly pharmaceuticals and specialty chemicals, as well as inspire broader adoption of biocatalytic cascades for sustainable chemical manufacturing worldwide.

Read the full report : <https://www.algenesislabs.com>

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# India's \$9.6 billion paints industry heads for \$16.5 billion but FY25 exposes margin stress: Rubix Data Sciences

India's paints and coatings industry is on track for a sharp expansion, but not without growing pains as rising competition and margin stress redefine the game.

Valued at about \$9.6 billion in 2024, the sector is projected to grow at a CAGR of 9.4% through 2030 and reach nearly \$16.5 billion in the next five years, according to Rubix Data Sciences' latest Industry Insights. Yet FY2025 emerged as a clear inflection point, laying bare intensifying competition, margin pressure and structural stress across the value chain.

Long-term demand drivers remain firmly in place. Rapid urbanisation, rising disposable incomes, sustained infrastructure spending and expanding housing construction continue to underpin growth. India's status as the world's third-largest automobile market — and its ambition to claim the top spot within five years — is also fuelling steady demand for automotive and industrial coatings, strengthening the medium-term outlook.

Despite these tailwinds, FY2025 proved difficult even for market leaders. Major paint makers grappled with compressed margins, softer urban demand and fierce price-based competition as consumer increasingly traded down to value offerings. Aggressive discounting and higher dealer incentives eroded profitability, marking a shift from a historically stable, brand-led industry to a far more contested marketplace.

The strain is most severe among the nearly 3,000 small and unorganised paint manufacturers operating nationwide. Rising compliance costs tied

to environmental and low-VOC regulations, limited capacity to invest in R&D and innovation, and the absence of strong marketing and distribution networks are pushing many smaller players to the brink. For this segment, survival itself has become a challenge, with growth largely out of reach.

Competition has further intensified with the entry of new players and a wave of consolidation. The arrival of Grasim Industries' Birla Opus, JSW Paints and Pidilite's Haisha Paints, alongside deals such as JSW Paints' acquisition of Akzo Nobel India, Astral's purchase of Gem Paints and JK Cement's takeover of Acro Paints, has reshaped the industry. These moves have accelerated capacity expansion, disrupted dealer relationships and heightened pricing pressure across both incumbents and smaller manufacturers.

On the trade front, India remains a net importer of paints, underlining its reliance on advanced industrial coatings and critical raw materials such as titanium dioxide and specialised resins. Imports touched \$219 million in the first half of FY2026 — more than three times exports of \$61 million in the same period.

While India largely exports to developing markets, it continues to import high-performance coatings from developed economies. Solvent-based products still dominate, accounting for 84% of exports and 75% of imports, even as eco-friendly, low-VOC paints gradually gain traction. Though trade is not a key growth driver, the imbalance highlights gaps in domestic high-performance coating capabilities and the growing importance of technology and

scale.

Looking ahead, the industry's fundamentals remain strong. Central government housing programmes such as Pradhan Mantri Awas Yojana – Urban and Pradhan Mantri Awas Yojana – Gramin are expected to provide a sustained boost. At the same time, the shift towards eco-friendly, low-VOC and high-performance coatings, coupled with the adoption of advanced materials and nanotechnology, is set to reshape product portfolios and competitive strategies.

The report concludes that while India's paints and coatings industry is well positioned for long-term growth, the road ahead will be defined by scale, compliance readiness, technology investment and distribution strength. Near-term pressures may persist, but companies that adapt swiftly to the evolving competitive and regulatory landscape are likely to emerge stronger in the next phase of expansion.

Read the full report : <https://www.indianchemicalnews.com/chemical/indias-96-billion-paints-industry-heads-for-165-billion-but-fy25-exposes-margin-stress-rubix-data-sciences-28695>

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# Trump's 50% Tariff Shock: Why Indian Chemical Exporters Are Still Standing Strong

Team Chemical Market

## Introduction:

The Trump administration's announcement of up to 50% tariffs on select imports caused global concern, especially in key export sectors like chemicals. For India's chemical industry, which relies heavily on the US market, such steep tariffs seemed to pose a major threat to pricing, margins, and supply chains. However, a closer look reveals that Indian chemical exporters are not only weathering the tariff shock but are also maintaining, and even enhancing, their competitiveness in the US market. This article explains why the impact of these tariffs is far less severe than it appears, highlighting the resilience of Indian companies, especially those dealing in specialty, agrochemical, and pharmaceutical intermediates. Let's begin.

Despite the imposing 50% tariff, there are strong reasons why India's chemical industry continues to compete successfully in the US market.

There are high import duties; despite that, Indian chemical exports remain well protected under Annex II exemptions, they are still keeping the competitiveness intact. When the Donald Trump administration announced cumulative tariffs, it was a major policy shock; the tariff was as high as 50% and unusually steep for the chemical trade, and it directly affected pricing, competitiveness and market access. The US is a key export destination for Indian chemical companies, and this announcement made it naturally created uncertainty



and concern across manufacturers, exporters, investors and others. The announcement has also made ripple effects, in other words, a wide-reaching impact beyond the firms.

The chemical industry in India is heavily export-oriented, with a significant share of revenues coming from overseas markets, especially in the US and Europe. Higher tariffs typically reduce demand, squeeze margins, and force companies to renegotiate contracts or absorb costs.

profitability, and long-term growth; the fear of disruption is justified. The Indian producers are taking a counterintuitive perspective, instead of reacting defensively, companies like JubilantIngrevia recognised that the tariffs do not affect all the products or players equally. The complex chemical supply chains, differentiated products, long-term customer contracts and limited suppliers mean that some Indian firms can retain customers or even gain share. The complexity refers to product-specific tariffs, exemptions and strategic sourcing constraints.

Tariffs threaten supply chains,

Continued on page 37



## CHINA TAKES COMMANDING LEAD IN SOLID-STATE BATTERY PRODUCTION

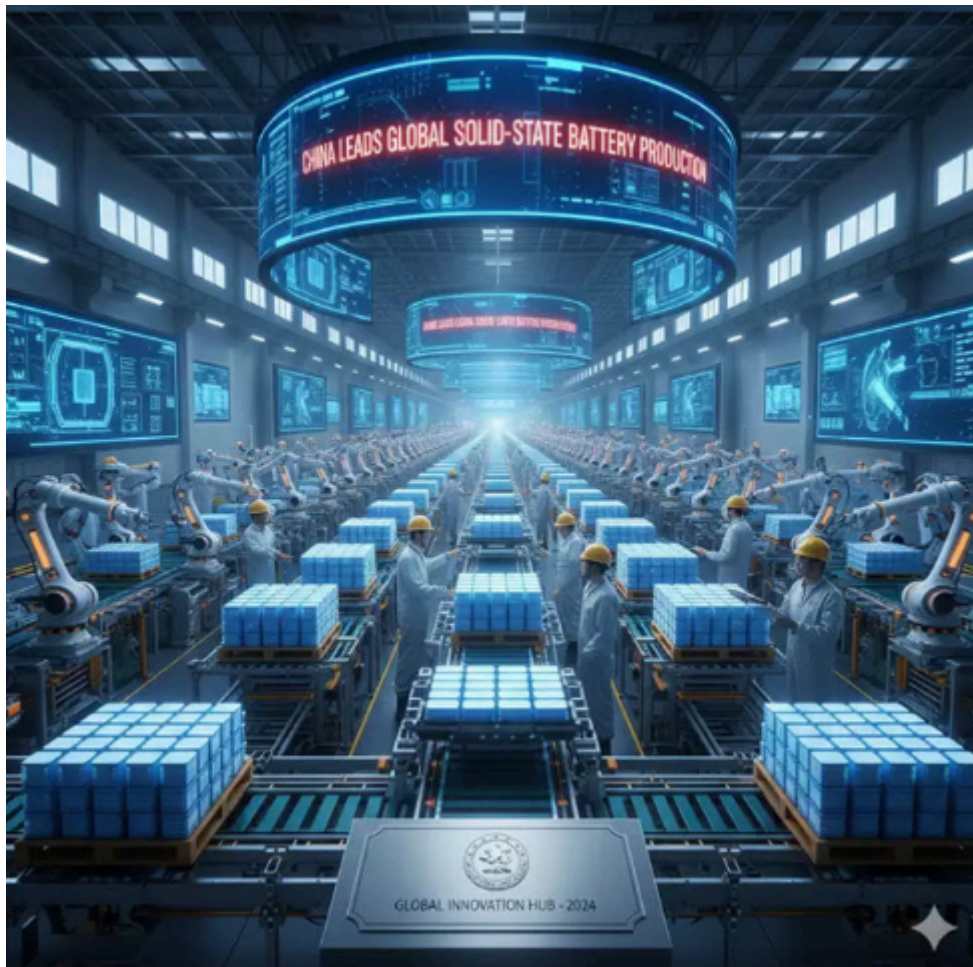
Vinodhini Harish

### Introduction:

China has established its first solid-state battery production line for electric cars, becoming the first to begin full-scale manufacturing rather than just prototyping. GAC's production line is capable of making high-capacity batteries (60 amp-hours or more), sufficient for automotive use. This gives China a significant advantage as the industry moves toward the post-lithium-ion era, offering strategic and economic leverage. Let's explore this development further.

### Global Battery Race: China Pulls Ahead with Solid-State Patents

China is now working specifically on manufacturing solid-state EV batteries and not just prototypes. Most of the global players are stuck with prototyping. They have announced that these batteries are being made only in small amounts, and the real vehicle testing will commence in 2026, yet this is too early. The small-scale testing must come out before the commercial rollout. The main innovation is switching from liquid electrolytes to solid ones. Therefore, there is a fundamental difference that makes the solid-state ones safer and more powerful. We understand the limitations of liquid electrolytes; they can leak, catch fire, or degrade over



time. That is why we come across news about EV fires happening, but the solid-state battery removes these risks entirely.

Solid materials can tolerate heat better and enable higher energy storage, and allow faster charging. Therefore, the companies in the industry see the solid-state as a “holy grail” of EV batteries. The reports from GAC show that these batteries store more energy per area than the current EV batteries; the jump is from 5 to 7.7, which is huge, and it means better performance without increasing the size. Achieving high areal capacity is difficult and crucial for EV performance. This proves that GAC solved a crucial engineering problem that others struggle with.

The achievement shows that GAC's solid electrolyte interface is stable and materials are durable, even at commercial thickness, addressing typical issues like cracking. These batteries can store about twice as much energy in the same space, so the vehicle range could potentially double, alleviating range anxiety for customers.

No solid-state EV has been sold yet, but GAC is ready to manufacture. Being first with production capacity is key to future market dominance.

### The new manufacturing method- GAC introduced to the market:

The goal of GAC is to simplify the production steps used in manufacturing the batteries.



Manufacturing innovation is as important as chemical innovation. The company introduced this simple manufacturing method, where three separate steps are now merged into one continuous method. This reduces the costs and error rates during the process, which is critical for mass production. This process is faster and wastes fewer materials. Battery costs decide EV price, and when a company begins to improve this price, it can bring huge commercial benefits. Traditionally, these processes require multiple machines and checks. Simplifying these steps means there will be fewer barriers to scale up. The company can amp up the production and thereby help solid-state reach mass adoption. Therefore, lowering the cost is crucial, too, given that the solid-state batteries are expensive today.

There were several solid-state projects carried out in the past, and none have reached this level. The batteries manufactured by GAC are good enough to put into the vehicles for testing. Bigger and more powerful cells can reduce the number of cells needed, and thereby improve the weight and efficiency of the vehicle. This will reduce the complexity of EVs and improve reliability.

### **How is GAC leading in the global race?**

GAC has not entered mass production yet, but it proves that China is leading in real progress. A working line matters more than research announcements. China is ahead in turning the technology into industry-ready products. Japan and US companies have strong patents too, but in this case, China is ahead in the factories. The US, Japan, and South Korea have been into strong research programs, but they have not yet launched the commercial-scale production lines. Therefore, China is ahead in practical manufacturing.

Testing begins in 2026, and mass production will commence around 2027-2030. The success of the project

will depend on market demand, supply chain, and reducing costs. We know that solid-state electrolytes are still expensive and hard to mass-produce.

China is the world's fastest-moving and largest investor in solid-state EV battery technology, the leadership is due to four strong pillars:

#### **Aggressive patent activity:**

China files more patents in solid-state batteries than any other country, and companies like Tinci, CATL, BYD, and GAC are involved in research and development, alongside there are several other research institutions that are involved in rapid patenting. The patenting includes solid electrolytes such as sulfide, oxide, polymer, lithium metal stabilization technologies, manufacturing processes for solid-state cells, and high-energy-density cell designs. Therefore, the patents legally give the companies exclusive rights over a technology. This means that only they can make it, sell it, and use it; others must get permission or pay to use it. These patents give the company future commercial dominance; thus, they will dominate the market tomorrow. The competitors cannot copy the technology, or they must pay the royalties.

#### **Early production lines are already launching:**

China is the first country to begin pilot-scale production of all-solid-state batteries. GAC Aion launched a 60+ Ah solid-state production line. Meanwhile, CATL is working on hybrid solid-state batteries for mass EV integration, and BYD is developing blade-type solid-state cells.

#### **Strong governmental support:**

China's government has decided that solid-state batteries are its national strategic priority. Therefore, they have created a "new energy storage" policy

that includes solid-state as a core technology, they have set aside billions in subsidies for R&D, and are encouraging local governments to help build battery industrial parks. They are also sending faster approvals and incentives to the manufacturing lines. Therefore, these governmental aids help in reducing barriers and accelerating deployment.

#### **Full supply chain ownership:**

China is currently dominating the refining and processing of lithium, supply chains of Nickel, Cobalt, and Manganese, separator films, electrolytes, battery-grade ceramic and polymer materials. Therefore, solid-state battery production requires high-purity lithium metal, sulfide electrolytes, and advanced ceramics. China is already producing them on a huge scale, and thus, they are all set for mass production and leading the global market.

#### **China is positioning itself to control:**

Strong progress is carried out by Japan, by Toyota, Panasonic, Idemitsu, but the commercialization is slow.

South Korean companies like Samsung SDI and LG Energy Solution are strong contenders too, but they are still in their pilot stage.

US companies like QuantumScape, Solid Power, and Ionic Materials are strong in innovation, but they haven't shown for mass production.

This means that China is positioning itself to control the next-gen EV battery standard, like it now dominates the lithium-ion manufacturing. If the solid-state manufacturing method, the technology becomes mainstream, China will have early cost advantages, faster commercialization, and export dominance.

Therefore, China is expected to dominate the global solid-state



production, potentially exceeding 50% of the market share. They are already controlling the critical materials, refining and electrolyte production, they have set the manufacturing standards, and are aiming to become the top supplier of EV-grade solid state cells across the globe.

#### Final thoughts:

China is rapidly progressing in the solid-state battery technology, thereby they are marking a defining shift in the global EV landscape. By combining aggressive patent ownership, vertical supply-chain control, and the world's first operational solid-state production lines, China has transformed from research ambition to industrial reality faster than any nation. The world is entering the next era of electric mobility, the solid-state batteries will determine competitiveness across automotive, materials, and clean-energy sectors. This new technology comes with higher energy density, improved safety, lowering long-term manufacturing costs, and so on. Therefore, the technology is considered poised to become the industry standard by 2040. In this global race toward safer, longer-range, and more efficient EVs, the balance of power is already shifting, and China stands at the front.

## WACKER UNVEILS NEXT-GEN THERMALLY CONDUCTIVE ADHESIVES AT THE BATTERY SHOW 2025

Wacker Chemical Corporation (WCC) is showcasing its latest advancements in thermally conductive (TC) adhesive technology at The Battery Show North America 2025, reinforcing

its commitment to driving innovation in electric vehicle (EV) battery systems. The event takes place in Detroit, Michigan, from October 6 to 9.

As the EV industry rapidly transitions from traditional cell-to-module (CTM) configurations to next-generation cell-to-pack (CTP) and cell-to-chassis (CTC) designs, the need for adhesives that deliver superior thermal management and structural performance has become increasingly critical. Responding to these evolving demands, Wacker is expanding its product portfolio with a new line of thermally conductive adhesives (TCA) designed specifically for advanced EV battery applications.

Wacker's silicone and hybrid adhesive technologies are engineered to provide both essential heat dissipation and robust mechanical stability. The company's proprietary hybrid TC adhesives, formulated with silane-terminated polyether (STP-E) technology, combine the flexibility and temperature resistance of silicones with the mechanical strength of organic polymers. This unique material design enables customizable curing profiles, high thermal conductivity, excellent chemical resistance, and flame retardance—essential features for enhancing both the safety and performance of electric vehicle batteries.

**“As EV battery architectures evolve, Wacker’s thermally conductive adhesives are developed to stay ahead of industry trends, supporting new assembly methods, re-workability, and overall value optimization,” said Peter Zorney, Senior**

**Director of Electronics and Automotive for North and Central America. “Our silicone-based adhesives have demonstrated stable mechanical performance even after extensive thermal aging and shock testing, ensuring long-term reliability and safety for electric vehicles.”**

With its next-generation TC adhesive solutions, Wacker continues to support the advancement of sustainable mobility by enabling efficient, reliable, and thermally optimized battery systems for the vehicles of the future.

Source : Indian Chemical News

## FROM POLICY TO PERFORMANCE: HOW LUBRIZOL ADDITIVES SUPPORTS INDIA'S ACCELERATED E20 JOURNEY

India's energy landscape is entering a defining decade. From ambitious policy frameworks to on-ground adoption, the nation's journey toward cleaner, self-reliant fuel systems have accelerated dramatically. At the center of this transition stands E20 a 20% ethanol, 80% petrol blend that symbolizes India's commitment to sustainability, rural empowerment, and reduced carbon dependency.

When India first announced its



National Biofuel Policy in 2018, the 20% ethanol blending target was set for 2030. Yet, through coordinated policy support, technological readiness, and agricultural integration, the country reached over 18% blending by early 2025 five years ahead of schedule. The accelerated rollout underscores India's growing ability to execute complex energy reforms while balancing industrial capacity and environmental ambition.

### Why Ethanol Matters

Ethanol blending is not merely a technical exercise but a multi-dimensional strategy. Derived from sugarcane, maize, rice, and other biomass, ethanol offers cleaner combustion, lower greenhouse gas emissions, and higher octane levels than conventional petrol. While it carries a slightly lower energy density resulting in marginally lower mileage the trade-off is outweighed by the benefits: import substitution, improved air quality, and better income opportunities for farmers. By integrating agriculture with energy, ethanol blending brings a unique socio-economic advantage turning India's farmlands into vital contributors to the nation's fuel security.

### Navigating the Technical Challenge

Achieving higher ethanol concentrations introduces new challenges for the automotive and refining ecosystem. Ethanol's strong solvent properties, its tendency to absorb water, and potential compatibility issues with certain elastomers and metals necessitate technical innovation in fuel additives, engine oils and lubricant additives system materials. Without proper mitigation, risks like corrosion, phase separation, and deposit formation can affect fuel efficiency, engine performance and durability

### Lubrizol's Leadership in Compatibility

### Solutions

This evolving scenario opens the door for companies like Lubrizol, a global leader in lubricant and fuel additive technology, to play a pivotal role. With fuel compositions changing, the demand for advanced additive packages that ensure cleanliness, corrosion protection, anti-wear and flow stability has never been higher.

Moreover, modern gasoline vehicles are deploying technology such as gasoline direct injection, gasoline particulate filters, and turbocharging, all resulting in harsher operating conditions within the engine. This can result in restrictive deposit build-up and a decline in performance if not sufficiently protected. From a fuel additive standpoint, while conventional gasoline additives have supported low-level ethanol blends for years, advanced fuel additive solutions are now critical to ensure fuel stability, engine protection, and consistent performance across India's diverse climatic and operational conditions.

By leveraging cutting-edge additive technology, we can ensure that ethanol-blended fuels deliver consistent performance, safeguard vehicle durability, and meet stringent emission norms—creating a seamless transition toward a cleaner, greener future for India's mobility ecosystem. From an engine oil standpoint, Top-tier API service categories such as API SN Plus, SP & SQ address the water emulsifying capability of engine oil, simulated by higher ethanol blended gasoline thus ensuring compatibility whilst providing the necessary protection to key engine components

Lubrizol's expertise in the fields of engine and fuel additives positions it as a key partner in enabling India's E20 adoption. The company's tailored additive solutions can prevent injector fouling, maintain optimal combustion efficiency, and extend the service life of

vehicle components operating in ethanol-blended environments.

Usage of Fuel additives results in substantially less intake valve deposits when used continuously. Lubrizol's proprietary product provides a range of benefits including flexible treat rates, premium inlet valve deposit and GDI injector deposit protection, low temperature valve sticking performance and wear protection. Scalable treat rates enable performance ranging from economical, for better than base fuel performance, all the way to premium, for rapid deposit removal. Beyond chemistry, Lubrizol is committed to collaboration across the value chain. By engaging with oil marketers, refineries, OEMs, and service networks, the company can help ensure that the E20 transition remains smooth and well-supported.

### Sustainability as the Unifying Thread

India's E20 transition aligns perfectly with the global movement towards decarbonization and sustainable energy security. By ensuring the reliability of ethanol-blended fuels, Lubrizol enables the broader benefits of lower CO<sub>2</sub> emissions, rural economic participation, and reduced import bills to be realized without performance compromise.

### A New Era for Indian Mobility

As India accelerates towards its E20 milestone, it marks more than a policy achievement it represents a structural evolution of the nation's mobility ecosystem. For Lubrizol, this is a moment to demonstrate leadership at the intersection of chemistry, technology, and sustainability. By ensuring that the country's cleaner fuels remain efficient, stable, and compatible, Lubrizol stands at the forefront of India's clean-fuel revolution helping turn ethanol blending from a policy initiative into a practical, long-term success story.



## SUN PHARMA INTRODUCES ITS GLOBAL INNOVATIVE DRUG, ILUMYA® IN INDIA FOR TREATMENT OF MODERATE-TO-SEVE RE PLAQUE PSORIASIS

MUMBAI, India, December 01, 2025 – Sun Pharmaceutical Industries Ltd. (Reuters: SUN.BO, Bloomberg: SUNP IN, NSE: SUNPHARMA, BSE: 524715, “Sun Pharma” and includes its subsidiaries and/or associate companies) today announced the launch of its global innovative drug, ILUMYA (Tildrakizumab) in India for moderate-to-severe plaque psoriasis. A novel biologic treatment, ILUMYA has been endorsed widely by dermatologists in the US and worldwide for several years as an effective and safe treatment of moderate to severe plaque psoriasis.

“ILUMYA offers a safe and effective treatment option for patients who are struggling to manage their moderate-to-severe plaque psoriasis,” said Kirti Ganorkar, Managing Director, Sun Pharma. “We are pleased to introduce this novel therapy in India from our global portfolio of innovative medicines. Already available in 35 countries, ILUMYA has consistently demonstrated significant and long-lasting skin clearance, beginning soon after initiation and sustained over years.”

Sun Pharma’s clinical study in India included 115 patients of moderate-to-severe plaque psoriasis. A 75 percent skin clearance ( $\geq 75\%$  reduction in Psoriasis Area Severity Index Score) was seen in 62.3%, 83.3% and 93.9% patients, respectively at Weeks 12, 16, 28. A 90 percent skin clearance ( $\geq 90\%$  reduction in Psoriasis Area Severity Index Score) was seen in 26.3%, 50%, & 78.1% patients, respectively at Week 12, 16 & 28. Patients received 3 subcutaneous injections of Tildrakizumab over a period of 16 Weeks (Day 1, Week 4 & Week 16) and were followed for a period of 28 weeks. Significant improvements were also observed on additional efficacy endpoints such as, Dermatology Life Quality Index (DLQI) score. Tildrakizumab was well tolerated by Indian patients, with no immunogenicity concerns observed in this study.

**“Having been involved in the clinical development of Tildrakizumab in India, I am pleased to see its potential as an effective, safe, and long-lasting treatment for psoriasis. In the Phase-3 trial, tildrakizumab demonstrated significant improvements across all measures, with approximately 93.5% reduction in PASI score and pronounced skin clearance.”**

**said Dr. B. S. Chandrashekar, Chief Dermatologist and Managing Director at Cutis Academy of Cutaneous Sciences, Bengaluru, India who was also an investigator in India Phase 3 trial. “These results showcase its benefits in improving the quality of life for psoriasis patients.”**

Source : Sun Pharma

## PRORX PHARMA INTRODUCES NEW LIQUID NANOEMUL- SION DELIVERY SYSTEM TO SUPPORT ENHANCED ABSORPTION, BIOAVAILABILITY, AND PATIENT CONVENIENCE

ILUMYA is the first IL-23 inhibitor to complete five years of study based on a pooled analysis of two Phase 3 efficacy and safety extension trials in moderate-to-severe plaque psoriasis<sup>9</sup>. Patients living with moderate-to-severe plaque psoriasis need therapies they can use



over long periods of time without loss of efficacy, and data shows that ILUMYA is a sustainable choice for patients over the long term.

ProRx Pharma Introduces New Liquid Nanoemulsion Delivery System to Support Enhanced Absorption, Bioavailability, and Patient Convenience

EXTON, Pa. — ProRx Pharma, the leading health and wellness 503B outsourcing facility, today announced the launch of its new Liquid Nanoemulsion Delivery System, which is designed to improve patient convenience with a needle-free option to traditional injectable medications. ProRx has exclusivity as the only 503B outsourcing facility in the country to have rights to this patented delivery system.

This innovative delivery system uses nanoemulsion technology, a liquid form where particles are so small that the body may absorb them more quickly and easily.[1] In this system, particles are encapsulated in a lipid-based format, allowing them to be absorbed directly into the bloodstream through the tissues in the mouth—under the tongue or inside the cheek—bypassing the stomach and digestive system.

**“Healthcare providers are increasingly seeking fast-acting therapies that deliver both reliability and convenience,” said Kurt Lunkwitz, chief operating officer at ProRx. “Our new Liquid Nanoemulsion Delivery System allows ProRx to offer customized**

**formulations from the Bulk Drug Substances list for providers who are looking to minimize injections for their patients without compromising results. Our investment in this technology underscores our commitment to safety, science, and innovation—giving clinicians a new option for patients who choose or need non-injectable therapies.”**

Source : ProRx Pharma

## COVESTRO AND ALLMED PARTNER TO PIONEER RECYCLING OF ARTIFICIAL KIDNEY FILTERS

- Feasibility study on recycling of artificial kidney filters explores viability of medical plastic recycling
- Project includes distribution specialist Kimal, hospitals, and recyclers to create a complete recycling ecosystem
- Goal: Creating pathways for medical device circularity

Covestro, one of the world's leading suppliers of high-performance



polymer materials, and Allmed, an international blood purification specialist, announced a partnership to jointly investigate the recycling of used artificial kidney filters. The study will explore the potential to recover polycarbonate from medical devices for use in new materials with recycled content.

The collaboration seeks to develop a circular economy model for medical devices by proving both technical feasibility and economic viability while navigating the complex regulatory landscape of medical waste management. In cooperation with additional partners in the United Kingdom – including Allmed’s distribution partner Kimal, a leading regional hospital trust and a specialized recycler – Allmed and Covestro are now preparing for their first recycling trials.

“The circular economy in healthcare is still emerging – but it holds tremendous potential. With this feasibility study, we want to demonstrate that even complex applications like artificial kidney filters can be circular and become a valuable source of high-quality polycarbonate recycle instead of being incinerated or sent to landfill,” says Lily Wang, Global Head of Engineering Plastics at Covestro.

Source : Covestro



## TORAY DEVELOPS ENERGY-SAVING CHEMICAL SUBSTANCE CONVERSION BIOREACTOR TECHNOLOGY

Tokyo, Japan, December 24, 2025 – Toray Industries, Inc., announced today that it has developed an immobilized-microorganism bioreactor technology (see note 1). The company estimates that this new technology would consume 80% to 90% less energy than conventional chemical conversion processes that entail high temperatures and pressures, thus slashing plant operational costs and lowering environmental impact.

This technology immobilizes specific microorganisms on wood-based carriers and packs them into a reactor. Ongoing contact between an aqueous solution containing the target chemical and a packed bed allows microbial enzymes to convert the target substance efficiently into a desired product.

An in-house demonstration trial employing acrylonitrile (note 3) confirmed conversion of more than 99.5% of that substance. Products include acrylic, propionic, acetic, and other organic acids. When combined with activated-sludge treatment (see Note 4), these products can be completely broken down to carbon dioxide. Because the reactor is tightly sealed, it is especially effective for volatile substances. It reduces losses from airborne dispersion and improves safety.

By tailoring the microorganisms

immobilized on the wood-based carriers and the reactor structure, the technology can be applied to diverse chemicals.

Toray will step up technical verification and operational design at internal and external production sites to commercialize this technology as a new energy-conserving solution. The company will continue to tackle environmental challenges and contribute to a sustainable economy through its materials technologies

### Features of the new technology

Customizable, optimizing microorganisms and reactor structure selection based on target chemical substances and site conditions. Diverse applications extend from environmental remediation to valuable product production, with selection possible from Toray's library of around five hundred microbe species.

High conversion efficiency from optimized microorganism selection and carrier structure. Can convert more than 99.5% of acrylonitrile to organic acids and employs a highly sealed structure for use with volatile substances.

Energy-efficient and safe, requiring no heating or pressurization.

Chemical conversion with Toray bioreactor

Source : Toray

## COVESTRO ACCELERATES AUTOMOTIVE COATINGS INNOVATION WITH

## DIRECT COATING – THE IN-MOLD COATING TECHNOLOGY

- Combines injection molding and coating into one integrated process to reduce cost, process complexity, and energy use
- Increases design flexibility with advanced haptics and visual effects in a single production cell
- Covestro is a proven partner with tailored raw materials and global application support that accelerate time-to-market

Covestro is strengthening its global support for Direct Coating – The In-Mold Coating technology, a single, integrated two-shot in-mold process that combines injection molding with a polyurethane (PU) coating. Direct Coating reduces costs and energy, streamlines production, and enables the manufacture of higher-quality, more design-flexible coated plastic components for automotive applications.

This is important because the conventional vehicle part coating process typically involves multiple steps, each of which adds cost, uses energy, and limits design freedom. Direct Coating from Covestro transfers the molded part to a second cavity and applies a low viscosity 2K PU that cures in the mold. This integrated process requires no conventional coating- or painting lines, accelerates cycle times, streamlines operations, and enables more flexible, scalable production of a range of coating designs, including those featuring haptics and visual



effects.

**“With a broad network of partners across the entire value chain, we are well-positioned to support the global rollout of Direct Coating,” said Benjamin Herzberg, Technology Expert IMC at Covestro. “We have over two decades of proven experience in the Direct Coating process, with a strong focus on joint projects across the automotive industry. Our application and scale-up expertise is anchored across technical centers worldwide and backed by a strong IP portfolio. Our latest customer support enhancement is a tool that compares cost and CO<sub>2</sub> emissions with the conventional manufacturing process.”**

Covestro also offers tailored polycarbonate substrates such as Makrolon® IMC2477. This solution delivers excellent adhesion to polyurethane coatings while maintaining good optical properties in both transparent and colored opaque finishes. Additionally, Covestro has designed dedicated polyurethane

coating raw materials for Direct Coating applications. These materials include fast-curing, low-viscosity polyisocyanates and polyols suitable for these applications.

“Customers can accelerate their time-to-market by benefiting from guidance on mold design and process optimization, as well as using our facilities to trial designs and validate parts and production conditions,” added Thomas Baeker, Marketing Manager for Industrial and Automotive Coatings at Covestro.

Since 2021, a leading German automotive manufacturer has used Covestro products for Direct Coating components in both exterior and interior vehicle applications.

Source : Covestro

## **COROMANDEL INTERNATIONAL LAUNCHES WATER-SOLUBLE FERTILIZER ‘FERTINEX’**

Coromandel International Limited has launched Fertinex, an advanced water-soluble fertilizer designed specifically for fertigation. Developed through rigorous internal research and multi-location trials, Fertinex provides a balanced nutrient profile that is immediately available to plants, supporting robust development during early growth stages.

A key differentiator of Fertinex is Coromandel’s proprietary Smart Signalling Technology. This patented innovation uses specialized molecules to facilitate communication between plant roots and beneficial soil microorganisms. This “signalling enhances nutrient-use efficiency,

promotes root growth, and improves soil vitality. Furthermore, the technology boosts plant metabolism, helping crops better withstand biotic and abiotic stresses.

Suitable for a wide range of crops—including vegetables, fruits, pulses, and plantation crops—Fertinex is positioned as a sustainable solution for farmers seeking higher yields and better produce quality.

The first batch was recently flagged off at the company’s Visakhapatnam facility by Managing Director and CEO S. Sankarasubramanian. Commenting on the launch, Avinash Thakur, Vice President & Business Head of SND and Organic, emphasized that innovation continues to be a core driver for the company.

**Commenting on the launch, Avinash Thakur, Vice President & Business Head – SND and Organic, Coromandel International Limited said, “At Coromandel, innovation is at the heart of everything we do. Fertinex, powered by Smart Signalling Technology™, is a testament to our commitment to deliver advanced agri-solutions that enhance soil health, optimize nutrient efficiency, and improve farmer productivity. Through continuous investment in R&D,**



agronomic trials, collaboration with global technology partners, and farmer education, we remain dedicated to building a sustainable and self-reliant agri ecosystem in

India.”

Fertinex dissolves completely in water, ensuring uniform nutrient distribution in fertigation system . The dual advantage of balanced nutrition and Smart Signalling Technology™ helps farmers achieve faster root establishment, robust vegetative growth, and higher yields, while minimizing nutrient losses and

environmental impact. With this launch, Coromandel is introducing the Fertinex range, which will evolve into a comprehensive portfolio of high-quality, research-driven water-soluble fertilizers, empowering farmers across India with innovative solutions for sustainable and profitable farming.

Source : Indian Chemical News

## NEW PRODUCTS

### INDOVINYA INTRODUCES OXISMOOTH® DS: INNOVATION IN EMOLLIENTS FOR LONGEVITY IN BEAUTY

THE WOODLANDS, Texas, Dec. 19, 2025 /PRNewswire/ -- Indovinya, the specialty chemicals and surfactants division of Indorama Ventures, announces the launch of OXISMOOTH® DS to the Brazilian market. This multifunctional emollient, made from 100% plant-based and renewable sources, sets a new standard in performance, transparency, water resistance, and UV filter solubilization. The product arrives to meet the growing demand for sustainable, high-performance solutions in personal care and cosmetics.

OXISMOOTH® DS delivers tangible benefits for sunscreen formulations, makeup, hair care, and skin care products. Key advantages include a dry and comfortable touch, rapid absorption, easy spreadability, and enhanced hydration without occlusion.

For hair, the ingredient boosts shine, reduces frizz and color fading, and provides thermal protection against dehydration and alpha-keratin degradation. In makeup, it optimizes pigment dispersion and improves coverage uniformity.

This launch aligns with global longevity trends in beauty, which go beyond anti-aging to focus on preserving the health and vitality of skin and hair over time. According to Bruna Moretti, Marketing Manager for Personal Care at Indovinya, "Consumers now seek products that combine hydration, protection, and styling, with biodegradable and natural ingredients capable of building a continuous cycle of health and beauty."

The arrival of OXISMOOTH® DS reinforces Indovinya's commitment to innovation and sustainability, bringing a concrete solution to the Brazilian market for brands aiming to stand out in performance, sensory experience, and environmental responsibility.

Source :Indorama Ventures

### NEW ADDITIVE TEGO® POWDER AID D01 IMPROVES POWDER COATING FORMULATIONS IN MANY WAYS

- TEGO® Powder Aid D01 reduces the melt viscosity of powder coating formulations
- Supports gloss development and DOI
- Versatile use for systems with high PVC (pigment-volume-concentration)

Essen, Germany. Evonik's Coating Additives Business Line has



developed a new, multifunctional polymer additive for powder coating formulations: TEGO® Powder Aid D01 makes the formulation easier to disperse during extrusion by promoting pigment wetting and effectively reducing melt viscosity.

The lower melt viscosity also leads to better degassing, which aids flow and leveling as the formulation cures and prevents pinholes in the coating. Thus, the new additive optimizes gloss development and ensures better DOI (Distinctness of Image) on the coating surface.

### One additive, many functions

Another plus point of TEGO® Powder Aid D01 is its particularly versatile applicability in formulations with inorganic fillers and pigments, along with organic pigments including carbon black.

"Our new product thus offers a wide range of benefits for formulators who desire one multifunctional additive for various powder coating systems," says Maximilian Morin, head of the Industrial & Transportation Coatings market segment. "TEGO® Powder Aid D01 generates a large effect in small amounts and acts as a synergist with other additives."

### Reduction of melt viscosity

TEGO® Powder Aid D01 also plays to its strengths in HAA curing systems for powder coatings with water being formed as a by-product. "The challenge during crosslinking is, that the water needs to escape from the system. This can result in pinholes or small craters in the film," explains Bernhard Resch, Scientist in Market Segment Industrial & Transportation Coatings.

To avoid this, the low melt viscosity is particularly important: homogenization of the ingredients and leveling of the surface is improved. "TEGO®

Powder Aid D01 prevents pinholes by increasing the degassing threshold and enables the application of thicker coating films," says Resch.

### Durable, recoatable coatings

Powder coatings containing TEGO® Powder Aid D01 also show comparable resistance to weathering, making this additive suitable for use in exterior applications. So-called overbake yellowing, even at elevated temperatures, is manageable. The new additive imparts these positive properties to powder coating formulations without containing surface-active waxes. As a result, overcoating is also possible without any problems.

"TEGO® Powder Aid D01 is a new addition to the additive portfolio from Evonik's Coating Additives Business Line, intended to be extruded into powder coating formulations," says Resch.

Source : Evonik

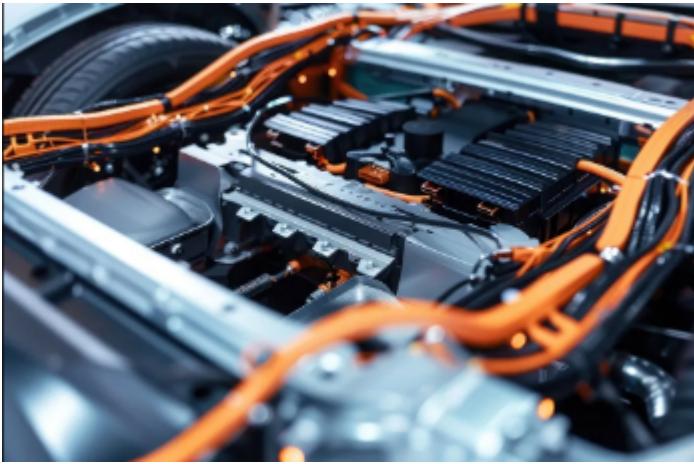
## CABOT STRENGTHENS EUROPEAN EV BATTERY PRESENCE WITH POWERCO PACT

Cabot Corporation (NYSE: CBT), a global leader in specialty chemicals and performance materials, announced it has signed a multi-year supply agreement with PowerCo SE, a leading European original equipment manufacturer (OEM) in the electric vehicle (EV) battery sector. This agreement marks a significant milestone in Cabot's strategic growth in the battery materials market.

Under the agreement, Cabot will supply its advanced conductive carbons and conductive dispersions for use in EV batteries electrodes. Cabot's conductive formulations are high-performance materials designed to enhance battery conductivity and efficiency. They play a critical role in improving the performance of lithium-ion batteries by enabling higher energy density, faster charging capabilities, and extended battery life, which are critical performance attributes for next-generation EVs.

"We are proud to collaborate with one of Europe's foremost EV battery manufacturers to deliver innovative solutions that meet the evolving demands of the electric vehicle market," said Jeff Zhu, executive vice president and president, Carbon & Silica Technologies, Battery Materials and Asia Pacific Region. "This agreement positions us as one of the leading conductive materials suppliers in the European EV battery market. Furthermore, it reflects the strength of our technology and our ability to scale production to meet growing global demand."





The supply agreement is expected to contribute meaningfully to Cabot's growth in the battery materials sector and reinforces its position as a trusted partner in the global EV value chain. The partnership reinforces Cabot's commitment to delivering high-

performance, scalable solutions that support the global transition to clean energy.

Cabot's advanced conductive products subject of the agreement are part of its broader portfolio of conductive additives and dispersions engineered to optimize battery performance across a range of applications, including electric vehicles, energy storage systems, and consumer electronics.

Source : Cabot

## MERGERS AND ACQUISITIONS

### CHASM AND SAUDI READYMIX DEMONSTRATE LOW-CARBON, CNT-ENHANCED CONCRETE USING 100% LOCAL MATERIALS IN DAMMAM, SUPPORTING SAUDI VISION 2030 AND THE KINGDOM'S NET-ZERO AMBITIONS

DAMMAM, Saudi Arabia and CANTON, Mass., Dec. 30, 2025 / PRNewswire/ -- CHASM Advanced Materials, a U.S.-based leader in carbon nanotube (CNT) development, manufacturing, and technology

licensing, and Saudi Readymix Concrete Company announced the successful completion of a CNT-enhanced green concrete demonstration at SRM's headquarters site in Dammam. This field evaluation marks an important milestone in advancing low-carbon, high-performance concrete solutions across the Kingdom using 100% locally sourced Saudi materials.

The project directly supports Saudi Vision 2030 and the Saudi Green Initiative, which targets a national reduction of 278 million tons of CO<sub>2</sub> emissions per year and a pathway to Net Zero by 2060. By enabling low-carbon concrete without relying on imported supplementary cementitious materials (SCMs) such as fly ash or GGBFS—materials that are often unavailable at scale in Saudi Arabia—CHASM's patented NTeC<sup>®</sup> CNT technology provides a cost-effective and scalable path to sustainable construction.

The demonstration consisted of two adjacent 4X4 meter concrete pads—one incorporating NTeC<sup>®</sup>-C CNTs and one control mix. The CNT-enhanced mix maintained excellent workability using SRM's standard batching process and is expected to support improved compressive strength and long-term

durability. The pads will undergo ongoing monitoring at the Dammam site.

Saudi Arabia presents some of the world's most aggressive environmental conditions for concrete, including intense heat, rapid day-night temperature swings, and high salinity in coastal regions such as Dammam, Jubail, and Khobar. CNT-enhanced concrete is designed to improve crack resistance and withstand thermal and salinity-driven degradation, offering performance benefits tailored to the Kingdom's infrastructure landscape.

"The transition toward lower-carbon construction is essential to the Kingdom's sustainable growth. At Saudi Readymix, we continuously invest in research and development to advance solutions that support decarbonization and respond to the Kingdom's evolving needs. Through purposeful innovation, we strengthen national capabilities, support Saudi Vision 2030, and fulfill our responsibility to preserve the nation's wealth and its people for future generations," said by Mohammed Abuzaid, Managing Director.

### CHASM's CNT platform



enables sustainable, high-performance concrete without the green premium," said David Arthur, CEO and Co-founder of CHASM. "Our technology licensing model brings the lowest-cost, most scalable CNT production to the Kingdom and beyond—supporting Saudi Arabia's low-carbon goals and enabling partners around the world to accelerate their own sustainability initiatives".

This Dammam pour lays the groundwork for broader collaboration between CHASM and Saudi Readymix to evaluate CNT-enhanced concrete across the Kingdom's diverse environments and to support decarbonization efforts for major construction initiatives, including national infrastructure and giga-projects under Vision 2030.

Source : CHASM Advanced Materials

**RALLIS INDIA  
LAUNCHES INNO-  
VATION ECOSYSTEM  
"IDEA2IMPACT" FOR  
SUSTAINABLE  
AGRICULTURE**

Rallis India Limited, a Tata Enterprise and science-led agri-solutions company, launched its new open innovation platform, Idea2Impact – Rallis Agri Innovation Ecosystem, today. This platform is designed to foster collaboration across the agricultural sector to speed up the development of farmer-centric, sustainable solutions.

Idea2Impact is a collaborative ecosystem designed to unite external innovations, scientific expertise, and practical field knowledge responsibly and transparently. This initiative facilitates partnerships among farmers, researchers, startups, academic bodies, and small enterprises. Participants gain access to Rallis' scientific know-how, extensive R&D facilities, testing and validation services, and established pan-India market distribution networks.

Indian agriculture is facing increasing complexity driven by climate variability, sustainability expectations, evolving regulatory requirements, and changing farmer needs. Rallis believes that addressing these challenges requires innovation that extends beyond organisational boundaries and is firmly grounded in scientific rigor and on-field relevance.

Idea2Impact follows a structured, milestone-based governance framework, covering confidentiality, evaluation, development, and value-sharing. Innovations submitted through the platform may progress through laboratory studies, greenhouse and multi-location field trials, piloting, and—where appropriate—commercialization, supported by clear intellectual property and royalty frameworks.

**Dr. Gyanendra Shukla,  
Managing Director & CEO,  
Rallis India Limited, said:**

**"At Rallis, we believe that meaningful agricultural innovation emerges when strong science is combined with fresh ideas and real field experience.**

**Idea2Impact™ is our way of opening up Rallis' capabilities to the wider ecosystem, while maintaining the highest standards of governance, transparency, and scientific rigor. This platform will help us work more closely with innovators to develop solutions that deliver real value to farmers and contribute to the long-term sustainability of Indian agriculture."**

The ecosystem will focus on priority innovation domains critical to Indian agriculture, including Seeds and Trait Innovation (covering plant breeding and germplasm), Biological and Sustainable Solutions, Crop Protection, Soil Health, Digital and Precision Agriculture, and Climate & Water Resilience. These focus areas align closely with Rallis' long-term portfolio priorities and growth strategy.

Source : Indian Chemical News



## INDORAMA VENTURES RANKS FIRST GLOBALLY IN CHEMSCORE 2025 FOR EXCELLENCE IN CHEMICALS MANAGEMENT AND ENVIRONMENTAL PERFORMANCE

Bangkok, Thailand — 10 December 2025 — Indorama Ventures Public Company Limited (IVL), a global sustainable chemicals company, has been ranked first globally with a green card in ChemScore 2025, the internationally recognized benchmark developed by ChemSec, assessing the environmental performance and chemical management of the world's 40 largest chemical companies. The company has consistently found itself in the top three ChemScore companies and scored twice as high on average as the Asia-based companies taken together. The achievement reaffirms Indorama Ventures' commitment to balancing business resilience with environmental and social responsibility.

ChemScore1 is widely used by global investors, regulatory bodies, and multinational brand owners to evaluate companies across four key pillars: responsible chemical management, development of safer and more sustainable alternatives, transparency and disclosure, and long-term stewardship across the value chain. The ranking was developed by ChemSec, an independent non-profit organization that advocates for substitution of toxic

chemicals to safer alternatives. In the 2025 assessment, Indorama Ventures earned 57 out of 100 points and received a green card, including 12/25 in Transparency, 23/25 in Phase-out of Persistent Chemicals, 13/25 in Product Portfolio, and 9/25 in Safer Solutions.

Indorama Ventures is recognized by ChemSec for applying the Substitute It Now (SIN) List to systematically eliminate hazardous substances, accelerate safer alternatives, and expand bio-based and hazard-free recycled feedstocks. This approach places the company ahead of tightening global regulatory requirements, including emerging EU and U.S. restrictions on persistent chemicals, and aligns with rising demand for safer, traceable materials across consumer goods, automotive, health and hygiene, and industrial sectors.

**Mr. Yash Lohia, Executive President of Petchem and Chairman of the ESG Council at Indorama Ventures, said, "Indorama Ventures is honored to be recognized as the top global performer, ranking first in ChemScore 2025. This achievement reflects the dedication of our teams globally, who work every day to strengthen our health and safety, minimize our chemical footprint, and raise the bar in chemicals management. We are also grateful for the continued guidance and engagement we receive from ChemSec and the IIHC, which helps drive stronger industry standards and continuous improvement. This recognition reinforces our commitment to balancing business resilience with environmental and social responsibility—and to delivering safer, greener, and more circular solutions for our customers and communities."**

Sonja Haider, Head of Sustainable

Finance from ChemSec, said "ChemSec congratulates Indorama Ventures on securing the leading position in this year's ChemScore ranking. Since the very first ChemScore evaluation, Indorama Ventures has consistently distinguished itself through its strong commitment to conducting business largely without hazardous substances. Its progressive approach and transparent information sharing set a benchmark for the industry. We hope this achievement will incentivize others to follow suit and accelerate the transition toward safer chemistry and a more sustainable future."

With ChemScore increasingly used by ESG-focused investors to evaluate long-term chemical safety risks and governance standards, Indorama Ventures' top ranking enhances its investment appeal and reinforces confidence in its risk management practices. The ranking underscores Indorama Ventures' role in shaping the next era of sustainable chemistry—one defined by safer substances, circular design, heightened transparency, and low-carbon innovation. For brand owners and consumers, this translates into safer packaging, cleaner materials, and stronger environmental assurance across everyday products.

Source : Indorama

## TCL TECHNOLOGY PIONEERS A LOW-CARBON FUTURE THROUGH ADVANCED WATER MANAGEMENT AND



# CLEAN TECHNOLOGY INNOVATION

SHENZHEN, China, Dec. 19, 2025 / SPRNewswire/ -- Following the release of its annual ESG report in June 2025, TCL Technology is proud to highlight its progress on water resource protection and green technology innovation, which are key pillars in addressing environmental challenges and building a low-carbon future. TCL Technology prioritizes water resource management and the development of clean technologies as critical components of its strategy to foster green transformation and advance sustainability on a global scale.

## Comprehensive Water Resource Management: From Risk Control to Circular Economy

TCL Technology demonstrates its leadership in water resource management through a robust governance framework. The Strategy and Sustainability Committee under the Group's Board of Directors oversees water management strategies and performance, ensuring continuous improvement and adherence to conservation principles across all subsidiaries. By combining sound policies, technological innovation, and comprehensive process control, the Company has built a robust and efficient water resource management system.

TCL Technology embeds water resource management into its corporate governance framework, using policies to guide implementation. For example, TCL CSOT has introduced a Water Resource Management Policy, comprising six sub-policies that outline responsibilities for conservation, resource planning, and inspections. This creates a closed-loop control process from target-setting to

implementation and oversight. Similarly, TCL Zhonghuan incorporates water resource management indicators into its ESG performance evaluation framework as part of its Environmental Management Policy, linking plant manager performance to executive remuneration to ensure operational accountability.

Technological innovation and process optimization drive TCL Technology's efforts to use water resources efficiently:

**Guangzhou TCL CSOT:** Optimized brine reuse and rainwater collection systems, forming a closed-loop framework covering production, recycling, and reuse.

**Wuhan TCL CSOT:** Adopted membrane separation to treat fluoride-bearing wastewater, enabling the reuse of 780,000 cubic meters of water annually. Additional measures, such as chemical precipitation to reduce heavy metals in silver-bearing wastewater and a wetland-based rainwater reuse system, integrate gray infrastructure with ecological solutions.

To proactively evaluate and address water-related risks, TCL Technology's subsidiaries employ the World Resources Institute (WRI) Aqueduct Water Risk Atlas to assess water risk levels globally across its factories. For example, TCL CSOT's 2024 assessment identified its Suzhou base as exposed to relatively higher water stress and consumption risks, while other locations reported at medium to low risk levels. These insights inform tailored strategies to mitigate site-specific risks.

## Innovating for a Green Future: Clean Technology at the Core of TCL's Strategy

Clean technology is central to TCL Technology's mission of advancing corporate transformation and sustainable growth. By prioritizing

investment in clean technologies, the Company integrates sustainability into its business operations, establishing a green management framework that covers the entire product lifecycle and supports global efforts to transition to a low-carbon economy.

In practice, TCL CSOT collaborates with customers to promote circular economy principles, such as recycling and reusing primary packaging materials to reduce resource consumption and environmental impacts. In 2024, the Company completed carbon footprint assessments for its 12.9-inch display panel and 10.1-inch central control display module. Using the results, it optimized key emission hotspots along the product lifecycle and established an ESG-oriented product R&D platform to advance green product development and enhance sustainability performance.

TCL Zhonghuan plays a key role in the energy and low-carbon transition, focusing on reducing the levelized cost of electricity (LCOE) in photovoltaic power systems. Through breakthroughs in photovoltaic wafer and cell technologies, the Company is developing low-emission photovoltaic solar energy products across the full product lifecycle.

By seamlessly integrating water resource efficiency management and clean technology innovation into its operations, TCL Technology is setting a benchmark for sustainable development. The Company's commitment to circular economy principles, resource conservation, and ESG-focused innovation underscores its vision of creating a positive impact on the environment, businesses, and communities worldwide.

Source : TCL



Continued from page 22

A tariff announcement, especially one as high as 50%, naturally attracts attention and creates anxiety across markets. The effective exposure, that is, the actual portion of revenue or profitability affected, is generally a smaller portion only. We can understand this by closely examining the structure of the chemical industry and global trade dynamics.

The product-level tariff variations significantly dilute the overall impact. Chemical exports are not a single, uniform category. The tariffs are applied at the level of specific product codes, and many specialty or intermediate chemicals may face lower duties, exemptions, or delayed implementation. Therefore, only a subset of a company's product portfolio may actually be exposed to the highest tariff rates.

On the other hand, we know that speciality chemicals or high-value chemicals come with low-substitutability, thus they come with natural protection. Unlike commoditized chemicals, specialty chemicals are often customized for specific applications or customers or regulatory requirements. Therefore, switching suppliers in such cases is difficult.

There could be instances where customers may need to requalify the products, redesign formulations, or undergo regulatory approvals, all of which increase switching costs. The tariffs raise prices, buyers may continue sourcing from Indian suppliers because alternatives are limited, they are unreliable or more expensive in the long run.

Third, the pass-through mechanisms involved in the contracts play a most crucial role, too. May chemical supply

agreements include clauses that allow the producers to pass on part or sometimes all of the additional costs arising from the tariffs to customers. Therefore, we can see that tariffs don't fully erode the producers' margins. The cost burden is shared across the value chain, and therefore, the burden is reduced and has minimal financial impact on the exporter.

Fourth, the customer dependence on Indian suppliers strengthens India's negotiating position. India took many years to build the reputations for consistent quality, regulatory compliance, and reliable supply at competitive costs. For many years, global buyers, especially pharmaceuticals, agrochemicals, and specialty materials, Indian firms are deeply embedded in supply chains and abruptly replacing them could introduce operational risk, supply disruptions and quality issues.

Therefore, considering all this information, industry leaders are expressing confidence rather than panic. The quote signalling "limited effective exposure" doesn't reflect denial of risk, but confidence grounded in granular data, product-level analysis, and customer relationships.

We can conclude that negative trade action doesn't automatically translate into damage for Indian chemical firms. These shocks shall be absorbed by factors like strong positions in specialty chemicals, cost efficiency, operational reliability, and diversified exports. In some cases, the tariffs may even weaken less competitive suppliers elsewhere. All of these combined will allow the Indian players to gain market share. What appears as a threat at first glance can become a strategic opportunity when it

is viewed through the lens of industry structure and execution strength.

JubliantIngrevia specifies that only a small fraction of revenue is affected. Instead of reacting emotionally to the headline mentioning the figure of tariffs, often reported up to 50%, JubliantIngrevia narrows the discussion to its actual financial exposure. By stating that only 2 % of revenue is affected, the company reframes the narrative from macro-level fear to micro-level reality. The trade disputes, perception often amplifies risk. High tariff numbers trigger concerns around margin erosion, demand destruction, supply chain disruption, and long-term competitiveness.

Through the analysis, we understand that the tariff shocks are not systematic to Jubliant's business model but limited, contained and manageable. The investors, customers and policymakers must understand this. The term "barely 2 per cent" emphasises insignificance without dismissing the issue entirely. The company acknowledges the presence of tariffs while signalling that they do not pose a material threat to overall revenue stability.

## The Tariff headline is misleading- why?

At first glance, a 50% tariff appears devastating, especially for an export-oriented industry like chemicals. Since the chemical industry has flourished in the US market. Such a steep number usually triggers fears of collapsing demand, eroded margins, and a broken supply chain. Therefore, the chemical trade doesn't function like consumer goods or bulk commodities; the price shocks translate quickly and uniformly across the sector. The headline figure is attention-grabbing, but it also masks the



underlying economic mechanics of the industry.

The deeper analysis helps us understand that tariffs on chemicals are product-specific, not industry-wide. They are applied to the individual product codes, not to the entire chemical basket. Therefore, the tariffs with upto 50% are applied to only certain molecules or categories that are exposed to the highest rates. Many intermediates and specialty chemicals continue to move under exemptions or lower duty brackets, which has significantly reduced the effective impact.

Second, the actual exposure depends on the portfolio mix, not the total exports. The chemical companies operate diversified portfolios spanning commodities, intermediates and high-value specialities. Any firm with a larger scale of speciality or regulated products may see only a small fraction of revenue getting affected, even if the US is a major destination.

Finally, the pricing power and contract structures that dilute the shock over time. Unlike spot-priced commodities, chemical supplies are often governed by long-term contracts that include cost pass-through clauses. These mechanisms allow tariffs to be shared across the value chain, rather than absorbed entirely by the exporter. In many cases, customers accept higher prices because switching suppliers is costly and risky. The gap between the headline risk and economic reality explains why the Indian chemical companies show resilience.

### **Annex II: The quiet shield:**

Annex II exemptions under the US trade law form a largely overlooked, powerful safeguard for Indian chemical exports. When the tariff headlines focus on headline rates and political aspects, the Annex II was operating quietly in the background, preserving trade flows for

products that are essential to the functioning of US industries. For the chemical sector, this distinction is critical. Annex II covers a wide range of agrochemical intermediates, pharmaceutical building blocks, and specialty and performance chemicals. These segments where Indian companies have built deep expertise and global relevance.

The products are not discretionary imports; they are foundational and used by US manufacturers in agriculture, healthcare, and advanced materials. Therefore, applying blanket tariffs on such inputs would raise costs for American farmers, pharmaceutical companies and industrial producers, thereby undermining domestic competitiveness.

This is why chemical inputs continue to move under exemptions or preferential treatment even during periods of aggressive trade policy. From a policy perspective, taxing critical inputs is economically self-defeating. Higher input costs would either be passed on to the US customers or erode the margins of downstream manufacturers, both outcomes running counter to the stated objective of strengthening the domestic industry. Annex II reflects this economic reality by carving out protections for strategically important materials.

For the Indian exporters, these exemptions provide structural protection rather than temporary relief. The shield is embedded in trade architecture, not negotiated on a deal-by-deal basis.

As long as Indian suppliers remain reliable, compliant and cost-efficient, US buyers have strong incentives to maintain these supply relationships regardless of broader tariff posturing.

Annex II has really shifted the impact of trade tensions from being systemic to selective and manageable. Therefore, the idea is to let the chemical companies in

India experience differentiated outcomes depending on product criticality and classification. This explains why, despite sharp tariff announcements, the actual trade flows remain resilient.

In essence, Annex II ensures the economic logic tempers political noise. This allows Indian chemical exports to remain embedded in US supply chains, quietly sustaining competitiveness even when trade rhetoric turns hostile.

### **Takeaway:**

The 50% tariff headline doesn't define economic reality for India's chemical industry, but when viewed through the lens of product-level exposure, portfolio mix, contract structures, and Annex II exemptions, the actual impact is limited, selective and manageable. Companies such as JubilantIngrevia have demonstrated that only a small fraction of revenue is truly exposed. They have reframed fear into data-driven clarity. Rather than triggering widespread disruption, the trade tensions are acting as a filter, penalising undifferentiated suppliers while reinforcing the position of reliable, specialty-focused exporters. The country's strength is regulated, low-sustainability chemicals, combined with deep integration into US supply chains, provide natural insulation against tariff shocks. Overall, for the Indian chemical firms with execution strength and strategic depth, what initially appeared as a threat is evolving into an opportunity to consolidate the market share and reinforce long-term competitiveness in the American market.



# Why India Is Rethinking How Pharmaceutical Inputs Are Tracked

Vinodhini Harish

## Introduction:

India's pharmaceutical regulatory landscape is undergoing a significant transformation. Authorities are turning to digital tools to improve oversight and accountability. Recent developments highlighted the critical need to monitor raw materials used in medicine manufacturing, especially for widely consumed formulations. As India expands as a global manufacturing hub, ensuring supply chain integrity and scaling production is crucial. In this article, we explain recent developments and the new digital tracking system, along with its advantages. Let's begin.

## CDSCO launches digital tracking system for pharma launches

A major regulatory breakthrough is happening with India's primary drug authority, the Central Drugs Standard Control Organization (CDSCO). The digital monitoring system on the ONDLS portal essentially transforms manual, paperwork-heavy oversight into a real-time, automated digital workflow.

It was not long ago that the solvent tracking was decentralized, the state regulators maintained their physical records, manufacturers kept separate logs, and data verification often took weeks and months. This gap permitted low-quality or industrial-grade solvents

to enter the medical production. Occasionally, this had led to tragedies such as DEG poisoning cases. The new system directly addresses these vulnerabilities by creating a unified national registry, where every batch of high-risk solvents must be recorded before entering the supply chain.

ONDLS is a centralized digital licensing and tracking system. When a manufacturer produces a batch of regulated solvent or ingredient, they must enter the batch details into the ONDLS portal. The system requires

including the buyer's license and address. Therefore, no batch can move forward without complete documentation, and regulators can view the entire journey of any chemical from source to final buyer. Any suspicious activity, like unusually large orders or missing test reports, is flagged automatically.

This becomes very convenient to the regulators as they can instantly cross-check entries, freeze suspicious batches, and flag the inconsistencies. By digitizing the entire workflow, CDSCO reduces the opportunities for adulteration, false reporting, and illegal distribution. The move aligns the country with the global best practices in pharmaceutical traceability. The global practices require end-to-end visibility of raw materials, and the government understood that there is a need for a stronger digital infrastructure to prevent avoidable public-health crises.

## The emotional and regulatory trigger behind the reform:

In Madhya Pradesh, Children died after consuming cough syrups contaminated with diethylene glycol, which is a toxic industrial chemical often mistaken for or intentionally substituted for pharmaceutical-

essential information such as quantity produced, producer details, license number, and manufacturing unit. Manufacturers must also submit lab reports showing purity levels, safety checks, and compliance with standards.

They must also include the details of whom they have sold the batch to,

grade solvents like glycerin or propylene glycol. DEG poisoning causes kidney failure and metabolic acidosis. These conditions are fatal in Children, and the deaths were not isolated incidents. DEG contamination has caused mass fatalities in India over several decades now. The Madhya Pradesh tragedy has exposed loopholes in supply chain monitoring.



Manufacturers purchased solvents from suppliers without verifying the purity.

The government's response hits hard, and it is launching the digital system, which was not theoretical but a direct consequence of a real disaster. They have created a link from the policy to the tragic deaths, and it shows how the regulatory reforms gain urgency only when a crisis exposes their weakness.

The digital system is expected to monitor manufacturing processes, quality, and distribution of high-risk solvents such as propylene glycol, glycerin, and sorbitol. Therefore, the scope of the reform is massive, and high-risk solvents are widely used in liquid drugs, especially syrups. Propylene glycol keeps the formulations stable, and glycerin adds smoothness and sweetness. On the other hand, sorbitol acts as a humectant. All of them must meet strict pharmacopeial purity standards. We can see why this is important. When these are adulterated with the industrial-grade substitutes, then they become life-threatening, and this upgraded digital system ensures these solvents are tracked right from when they are manufactured to the moment they reach pharmaceutical companies.

The system ensures that counterfeit, low-grade, or contaminated solvents don't slip into the market and go unnoticed. Through the digitally upgraded system, India identified that there were about 10 high-risk solvents that historically carried adulteration risks. Digitalization establishes transparency, and for a country like India that manufactures billions of bottles of liquid medicines that are meant for children, such control mechanisms are crucial.

The integration of real-time monitoring keeps it drastically different from the old system. The regulators review the data through inspections, audits, or after complaints, but with digital access, the

regulators can see the production volumes as soon as they are uploaded, identify suspicious spikes and shortages.

Real-time tracking also helps stop the contaminated batches before they reach the final drug manufacturers. The regulators can prevent the harm by blocking unverified batches immediately.

### **Global comparison: How India's digital drug oversight is getting better?**

The global level pharmaceutical regulation is undergoing a fundamental shift, where the leading drug manufacturers and drug importing markets are increasingly moving away from the fragmented, paper-based oversight. It's so obvious. Therefore, Indian regulatory reforms must be viewed within this broader global movement rather than as an isolated response to domestic events.

Especially in the United States, digital traceability has become a cornerstone of pharmaceutical regulation under the Drug Supply Chain Security Act (DSCSA). The law mandates end-to-end electronic tracking of prescription drugs, and this enables regulators and manufacturers to trace the products at the package level across the supply chain.

The European Union has adopted a similar approach as well through the falsified medicines directive. The centralized verification system orders the producers to attach a unique identifier to the medicines they produce, and they are checked digitally at multiple points before reaching patients. The framework emphasizes traceability, transparency, and cross-border coordination. Therefore, their pharmaceutical supply chain is international by nature. The EU experience shows that digital oversight improves recall efficiency, strengthens enforcement, and reduces regulatory

blind spots.

In Japan and South Korea, the regulatory authorities are integrated with digital compliance systems, and they are working for licensing, manufacturing oversight, and post-market surveillance. These are meant to focus on real-time reporting, standardized digital documentation, and control over inputs in the drug production. At a high level, the global lesson is clear: modern drug regulation is increasingly built on data, transparency, and traceability rather than episodic enforcement. India's reforms place it on the same trajectory as advanced pharmaceutical markets, signaling a shift toward preventive governance. While the depth and maturity of systems may differ across regions, the direction is consistent—technology is no longer optional in drug regulation.

### **Takeaway:**

For a country like India, the latest regulatory push signals a deeper commitment that strengthens systemic safeguards within India's pharmaceutical ecosystem. By prioritizing traceability, standardization, and digital accountability, the vulnerabilities are addressed. These vulnerabilities have been in the industry for a long time now, and it has affected the long-term effectiveness of such measures, which will depend on consistent enforcement and industry compliance. The regulatory frameworks evolve overtime, but the emphasis is toward building a resilient system that is capable of preventing future risks. In a sector where trust and safety are paramount, these reforms may prove pivotal in shaping the next phase of India's pharmaceutical governance, quietly reinforcing standards while supporting the industry's continued growth and global relevance.



# A New Industrial Benchmark: Niutech Intelligent Pyrolysis Equipment Empowering a World-Renowned Group for Chemical Recycling Project of Waste Plastic

JINAN, China, Dec. 18, 2025 / PRNewswire/ -- A well-known international group conducted rigorous worldwide evaluations on both domestic and international suppliers in the same industry. After comprehensive assessments of technological equipment's advancement, maturity, and stability, the group ultimately selected Niutech's "Next-Generation of Large-Scale Industrial Continuous Intelligent Waste Plastic Pyrolysis Technology and Complete Equipment Set". This decision led to the investment and construction of a high-end waste plastic chemical recycling plant in Vietnam.

At present, the plant has been successfully put into operation and running continuously and efficiently for several months, with all indicators of the pyrolysis products meeting expectations. The advanced technical equipment of Niutech has demonstrated outstanding safety, reliability and environmental protection performance during actual operation, earning high praise from the client. It has also verified the power of China's high-end environmental protection equipment and is another important achievement of the in-depth cooperation between Niutech and the international group in the field of waste plastic chemical recycling. Currently, the expansion preparations for the project have been basically completed, and the replication and expansion plans for other regions are also in progress.

**This project takes plastic waste from industrial production as feedstock, leveraging Niutech's**



**unique patented technology and equipment to convert waste plastics into high-quality pyrolysis oil. This pyrolysis oil is subsequently processed at the client's own chemical plants, achieving a complete chemical cycle from "waste plastic to new plastic." This approach significantly reduces carbon emissions while decreasing reliance on fossil fuels. The innovative model of integrating Niutech's technology and equipment with the coordinated development of the industry has created multiple world-firsts, providing a verifiable, replicable and scalable demonstration case for promoting the development of chemical recycling of waste plastics.**

successful commissioning of this project is another significant achievement of Niutech in continuously exploring the international high-end market, following its collaboration with BASF plastics chemical recycling project in Denmark. Currently, a large-scale waste plastic pyrolysis project in the UK, adopting the same advanced technology of Niutech, is being implemented smoothly. Relying on over 30 years of technological accumulation and engineering practice experience in the pyrolysis field, Niutech has provided the partner with a full-process service covering technical solution design, core equipment manufacturing, and on-site commissioning guidance.

Source : PRNewswire

Professional creates benchmarks. The



# Kastar Brings Standard-Driven High-tack MS Polymer Sealants to Global Green Construction Markets

FOSHAN, China, Dec. 30, 2025 / PRNewswire/ -- Kastar, a Chinese high-tech sealant manufacturer and contributor to the country's silane-modified polymer (MS Polymer) sealant standards, has introduced high-tack MS Polymer sealants to address tightening environmental and performance requirements in global construction markets.

These days, low-emission materials and real staying power aren't nice-to-haves anymore—they're must-haves. Sealants are under the microscope more than ever when it comes to worker safety and how well they hold up over decades. In places like the U.S., UK, Australia and New Zealand, contractors and specifiers are ditching old-school solvent-based or polyurethane sealants for cleaner options that still deliver serious bonding strength without the health or compliance headaches.

The high-tack MS Polymer sealant is formulated without solvents or isocyanates and cures through moisture, combining early holding strength with long-term elastic performance. It bonds effectively with a broad range of commonly used construction substrates: concrete, metals, brickwork, even tricky coated surfaces. That makes it handy for new construction or fixing up older buildings.

## From Standards Development to On-Site Performance

Kastar didn't just read the standards, but helped write them. Sitting at the table for several of China's national MS polymer sealant standards gave the team an inside look at exactly where products

usually fail the tests and fall apart on site.

That firsthand standards experience shapes everything they do in the lab. Instead of chasing one standout spec, they build high-tack MS Polymer sealants that simply work reliably—no matter the weather, the surface, or the job site conditions.

"Being involved in standards work gives us a clearer view of where sealant failures tend to occur in real-world use," said Tom Zhou, Chief Engineer at Kastar. "That experience allows us to focus product development on stability, compatibility, and long-term reliability, not just short-term adhesion."

## Addressing Real Construction Trade-Offs

On real job sites, sealants are rarely judged on one factor alone. Contractors need products that grab quickly, apply smoothly, and still hold up years down the line. Push too hard for speed, and long-term durability can suffer. Focus only on longevity, and installation efficiency often takes a hit.

Kastar's high-tack MS Polymer sealant is designed with this balance in mind. It offers strong early adhesion to keep work moving, while maintaining the flexibility needed to handle joint movement and day-to-day exposure



once cured. This helps contractors stay on schedule without having to compromise on performance later.

Once cured, the sealant can be painted over using many commonly used architectural coatings, making it easier to integrate into finished surfaces—particularly in interior spaces and renovation work where appearance and efficiency matter.

## Quality Control Backed by Scale and Testing

Getting the same performance batch after batch is everything in this business, especially when product is shipping halfway around the world. Kastar runs a 50,000 m<sup>2</sup> modern plant with its own CMA-certified lab that puts every run through rigorous checks. They keep samples from each batch on file and test across more than 100 parameters,



supporting consistent product quality across production batches.

Kastar doesn't rest on yesterday's formula either. Three in-house R&D labs focus specifically on silicone sealants, MS polymer materials, and specialty functional sealants. It also works closely with Tsinghua University to tweak recipes and develop versions that handle everything from freezing winters to scorching summers.

### Positioning for Global Markets

Backed by 27 years of experience specializing in construction adhesive sealants and strict quality control systems, Kastar supplies products across North America, Europe, Oceania, the Middle East, and Southeast Asia. The company offers OEM and ODM services, allowing partners to customize formulation characteristics, packaging, and branding to align with local

regulations and market expectations.

As construction standards continue to evolve across regions, Kastar sees its MS polymer sealant portfolio as a practical response to growing demands for environmental compliance, performance reliability, and dependable supply.

Source : Kater Adhesive Industrial Co., Ltd.

## Global Petrochemical Oversupply: How India, China, and Korea Are Redrawing the Industry Map

Vinodhini Harish

### Introduction:

India, South Korea, and China illustrate distinct responses to global petrochemical oversupply. Decades of aggressive capacity additions, especially by China and Middle Eastern countries, alongside slowing global demand, have created a persistent oversupply beyond what market forces alone can resolve. South Korea's focus is on policy-driven capacity correction, while China's response showcases the impact of large-scale, state-led expansion. The analysis reveals a shift: the industry is shaped not just by markets, but by industrial policy, national strategy, and geopolitics. Let's get into it.

### Oversupply, Overcapacity, and Oversight: How is it going?

The petrochemical industry in both South Korea and India is grappling with a significant oversupply issue. The oversupply issue is due to massive capacity expansions in China, combined

with a global demand slowdown. South Korea had labelled the situation as "deepest slump in decades". The South Korean government has intervened to manage the crisis, and thus they include aspects like: government-mandated

USD 37 billion in the sector, and that signals long-term national commitment towards the industry. The nation is moving towards self-sufficiency and aiming to reduce its reliance on imports as well. Nearly 45% of petrochemical intermediates are imported, and thus, the country faces both economic vulnerability and opportunity.

Government initiatives like Make in India directly support the shift by encouraging domestic manufacturing and value addition. The country is targeting one-third of the global incremental capacity by 2030. This idea highlights the country's ambition to move from a net importer to a global production hub. India expects support by exercising policy clarity, industrial scaling-up, and capital inflows.

The economic importance of petrochemicals in the country's growth story should be taken into consideration as well. The market size of USD 220 billion and the contribution of 6% to GDP highlight the sector's macroeconomic relevance. Another crucial aspect is employment



restructuring, financial distress, strategic shift and government support.

There is a strategic importance in the global context for India's petrochemical sector. India has recently invested about



generation, which comes to around 5 million people, and this makes it socially significant. The projected growth to USD 300 billion by 2025 and USD 1 trillion by 2040 highlights strong structural demand that is driven by infrastructure, manufacturing and consumption. The 10-12% CAGR highlights the high-growth industry, which is supported by industrialisation, urbanisation, and rising downstream consumption across multiple sectors.

Consider the strategic importance of the sector across several other industries. The petrochemical industry is the backbone of other critical industries such as automotive, pharmaceuticals, agriculture, textiles and construction. Therefore, their role in enabling the manufacturing aligns them directly with the national programs such as Make in India and Atmanirbhar Bharat. Therefore, the sector enables value addition across supply chains and thereby supports domestic production of everyday goods such as fertilisers, packaging, electronics, and medical equipment.

#### **Future goals are clear for India:**

India is working towards the industry's shift toward sustainability and long-term viability. Thus, they are working on initiatives like recycled polymers, extended producer responsibility, and energy-efficient operations this reflects alignment with global ESG expectations. Companies such as HMEL demonstrate how innovation and sustainability can coexist with profitability.

India is practising water conservation, waste management, and circular economy practices reduce environmental impact while improving operational efficiency. The transition ensures regulatory compliance, enhances investor confidence, and aligns the sector with global sustainability goals.

India is upgrading their capacity in

order to stay competitive with China's massive capacity additions, which present competitive pressure, but they are creating opportunities for diversification. India is working towards increasing its capacity, improving product quality, and strengthening trade relationships. The strategic location, democratic stability and supportive trade policies give India an edge as companies seek alternatives to China.

Therefore, India is trying to capture market share by focusing on efficiency, integration, and innovation. Alongside all of these, they are also working towards mitigating risks associated with overdependence on a single global supplier.

#### **Analysing South Korea's petrochemical industry:**

South Korea's petrochemical industry is facing a structural crisis and not a cyclical slowdown. They are dealing with overhauls such as plant closures, consolidation, and policy changes, which are different from temporary relief measures. Thus, the core problem is external competitive pressure. China and Middle Eastern producers have cost advantages due to scale-up and cheap feedstocks. They are leaving Korean firms and are unable to compete on pricing, resulting in increasing financial stress and risk to jobs and banks.

South Korea's petrochemical industry is falling into a huge downturn in scale, and people are addressing it as "deepest slump in decades"; this suggests that it is a systemic failure and not a short business cycle. The oversupply depresses the prices, while weak demand prevents recovery as well.

Together, they are compressing margins and making operations unsustainable. The loss in the large chemical firms can spread to banks, workers, and regional economies, and this raises political pressure on the government to

intervene.

#### **The intervention of the South Korean government:**

The South Korean government observed the petrochemical industry and its recent patterns, and they have concluded that intervention is necessary. Under general conditions, petrochemical cycles are quite normal, and they correct themselves. The prices of the petrochemical products fall, inefficient plants shut down, which would lead to supply tightness, and the prices would recover.

But in the current situation, they see that there are structural distortions which have broken the cycle. The global oversupply is structural and not cyclical. China added massive ethylene and derivative capacity, and Middle Eastern countries have expanded their ultra-cheap feedstock as well. The demand growth was falling as well post-COVID. Therefore, even if the South Korean firms decide to shut down their facilities, the global oversupply crisis remains in the country, thereby keeping the prices depressed.

MOTIE – Ministry of Trade, Industry and Energy is stepping in and is signalling a coordinated industrial rescue and restructuring effort. The goal of MOTIE is to push for capacity rationalisation that reflects a controlled, strategic response to oversupply rather than allowing disorderly market exits. This allows the weaker firms to collapse and the government encourages voluntary shutdowns, asset swaps and mergers between inefficient producers.

#### **How India and South Korea are responding to the petrochemicals oversupply:**

The global petrochemical industry is undergoing a structural shift that is driven by prolonged oversupply, uneven demand recovery and aggressive capacity additions in Asia. India remains



a demand-driven market, and it is expanding its capacity and relatively competitive cost structures due to its integrated refinery petrochemical complexes.

South Korea is a mature, export-dependent producer that is facing excess capacity and high input costs due to its reliance on naphtha-based production. China stands at the other extreme, where having massive state-backed capacity that has resulted in severe overcapacity. The policy approaches differ sharply. India is still growth-oriented, meanwhile Korea is focused on restructuring, and China is continuing state-led expansion despite weakening margins.

South Korea is responding deliberately; the government, led by the Ministry of Trade, Industry and Energy, is pursuing a strategy of managed retrenchment rather than allowing market forces to trigger disorderly collapses.

The country is encouraging voluntary shutdowns, facilitating mergers and asset swaps and offering temporary liquidity support to prevent financial contagion.

The goal is not to protect every firm, but to ensure consolidation happens in an orderly way. This might trigger economic disruptions, employment markets and so on. Thus, the government is also providing labour cushioning and regional support to reduce political and social resistance to

plant closures.

In South Korea, there are structural disadvantages, and the petrochemical sector is heavily export-oriented and dependent on naphtha. This aspect makes it less competitive than producers in China and the Middle East that benefit from cheaper feedstocks.

The global oversupply intensifies, and pricing power weakens, Korea producers are facing shrinking margins and declining utilisation rates. The government's strategy reflects a clear recognition that survival depends on reducing excess capacity and creating fewer but stronger players capable of competing globally.

### Analysing all three countries in the global crisis: what is revealed about the future of petrochemicals.

India, South Korea and China are not in a position about who is winning today, but about how differently their economies are positioned in the same global crisis. At a structural level, these countries are responding to the same force, which is global oversupply, which has broken the traditional supply-demand balance, and the market forces alone can no longer correct that.

China represents overextension, and they have built capacity aggressively using state capital, scale advantages, and industrial policy. Their strategy is not retreat but endurance, absorbing losses while pushing surplus into global

markets.

South Korea represents late-stage maturity under stress, and its industry is efficient but structurally disadvantaged due to high feedstock costs and export reliance. The South Korean government shows recognition that pure market competition will lead to disorderly collapse. Therefore, restructuring, consolidation and state coordination are being used to slow the fall and preserve the strategic capacity.

### Takeaway:

India represents early stage expansion with structural tailwinds. Unlike Korea or China, India still has an under-penetrated domestic demand, rising consumption and refinery-linked cost advantages. Their challenge is discipline and not survival. We can understand that the global petrochemical industry has crossed a threshold where normal market dynamics will function effectively on their own, and oversupply is no longer going to create a permanent imbalance, but a structural condition that is created by years of aggressive capacity expansion, state-backed investment, and slowing downstream demand. Therefore, we can tag the petrochemicals industry as a policy-managed one, rather than a market-led growth industry. The capacity decisions, survival outcomes, and competitiveness are now increasingly shaped by government decisions, financial support and strategic planning.

## Kolmar Korea Wins CES 2026 Best of Innovation Award in Beauty Tech, a Global First for the Cosmetics Industry

LAS VEGAS, Jan. 7, 2026 / PRNewswire/ -- Kolmar Korea announced that its AI-powered Scar Beauty Device has won the Best of Innovation Award in the Beauty Tech category at CES 2026, the world's largest consumer electronics and IT exhibition. The device also received an Innovation Award in the Digital Health category,



achieving a double win at this year's CES.

The Best of Innovation Award is the highest distinction at CES, granted only to technologies that receive top scores across all evaluation criteria, including innovation, design, and technological excellence. Among the 10 Innovation Award honorees in the Beauty Tech category, Kolmar Korea's technology was selected as the most outstanding.

Introduced last year, the Best of Innovation in Beauty Tech, drew global attention when Samsung Electronics became its inaugural recipient. Kolmar Korea is the second company overall to receive the honor—and the first cosmetics company worldwide to do so—marking a historic milestone for the global beauty industry.

### World's First All-in-One Scar Treatment and Beauty Device

The award-winning Scar Beauty Device is the world's first one-stop integrated solution that combines scar treatment and skin coverage in a single device. Traditionally, users applied ointment to a scar and later concealed it with makeup. With this device, both



treatment and aesthetic coverage can be completed simultaneously in just 10 minutes.

The core technology lies in AI-driven big data analysis and piezo-electric micro-dispensing technology (Piezo-Electric Plating). When a user captures an image of the scar via a smartphone app, the AI algorithm classifies the scar into one of 12 types and performs a detailed condition analysis. Based on the diagnosis, a customized treatment solution is precisely dispensed onto the scar.

At the same time, the device blends and sprays an optimal combination of more than 180 skin-tone-matched colors to apply seamless cover makeup. The piezo-electric micro-dispensing technology—similar to inkjet printing that ejects material using electrical

signals—enables highly precise application without heat generation.

### User-Friendly Design Recognized for Accessibility

The Scar Beauty Device also received high marks for its intuitive UI/UX, which allows users to monitor and control the amount of treatment dispensed in real time via a smartphone screen. Designed for ease of use, the device is accessible even to general consumers, significantly enhancing convenience and usability.

### Commercialization and Future Expansion Plans

Kolmar Korea plans to complete the technology launch in the first half of 2026 and begin full-scale customer acquisition in the second half of the year. The company also aims to further advance its software to apply the core piezo-electric micro-dispensing technology to customized cosmetics manufacturing, while accelerating smart factory development through government-led AX (AI Transformation) research initiatives.

Source : Kolmar Korea

## OLAY Debuts New Regenerist Micro-Sculpting Cream with Triple Collagen Peptide, Joined by Ambassador Sarah Michelle Gellar

CINCINNATI, Jan. 7, 2026 / CPRNewswire/ -- OLAY unveils the most significant evolution of its iconic Regenerist Micro-Sculpting Cream in more than 20 years. Backed by over 70 years of skin science and more than 50 years of peptide research, the upgraded formula is powered by OLAY's new Triple Collagen Peptide. This synergistic blend of pro-longevity skin care ingredients delivers anti-aging moisture and visible skin firming by

strengthening cellular bonds, supporting natural collagen and improving skin structure for visibly firmer, smoother, more radiant skin in just 7 days.

This breakthrough formula upgrade marks an important milestone for one of the world's most beloved moisturizers — honored as People Magazine's "Best Face Moisturizer of All Time", winner of more than 60 beauty awards, holder of

55,000+ five-star reviews and purchased once every 12 seconds in the U.S. It also marks the reunion of OLAY with the iconic Sarah Michelle Gellar, who rejoins as the brand's newest ambassador to help introduce this next chapter of Micro-Sculpting Cream.

"I've been in this industry long enough to know you never stop evolving — and I don't want to," said Gellar. "I don't need or want to look like I did 20 years ago. I



want skin that feels strong, supported and like me. I grew up watching my mom use OLAY every day, and decades later it's still the brand I trust. This upgraded Micro-Sculpting Cream reflects everything I believe in: science-backed, trusted skin care that strengthens your skin. No filters, no extremes."

#### Key Benefits of the New Micro-Sculpting Cream:

- Strengthens cellular bonds to support natural collagen
- Improves elasticity and reinforces internal skin structure
- Provides deep hydration starting Day 1
- Delivers visibly firmer, smoother, more radiant skin in 7 days
- Visibly lifted skin with reduced deep wrinkles by Day 28
- Clinically tested: 97% of women saw visible results+
- More than half of users reported delaying or postponing a cosmetic procedure based on results++

The upgraded formula reflects new insights from OLAY's decades of research into skin longevity and the science of cellular aging. As skin ages, cellular metabolism slows and collagen



and elastin production decline, weakening cellular bonds. This reduces skin's ability to repair and regenerate, contributing to visible signs of aging including dryness, dullness, fine lines, wrinkles and a weakened barrier.

Drawing from findings in OLAY's landmark Multi-Decade Ethnicity Study, which analyzed more than 20,000 genes to understand how skin behaves over time, scientists identified ingredient combinations that help skin act more like that of "exceptional agers" — women whose skin maintained more youthful activity across decades. These insights directly shaped the development of Triple Collagen Peptide, now at the center of the new Micro-Sculpting Cream.

The upgraded OLAY Regenerist Micro-

Sculpting Cream also includes Pro-Vitamin B5 for deep cellular hydration, Niacinamide to strengthen and brighten skin and additional clinically proven actives that improve elasticity and support the skin's natural barrier.

"At OLAY, we never stop innovating to help women feel confident in their skin at every age," said Stephanie Headley, Senior Vice President of North American Skin Care at Procter & Gamble. "This breakthrough formula represents our most advanced science yet, strengthening cell bonds to turn skin care into cell care. The new Micro-Sculpting Cream upgrades our best formula to deliver even more meaningful results from the iconic red jar that women have come to love for over two decades."

OLAY's mission goes beyond innovation — it's rooted in empowering women to feel confident in their skin. Recent global research revealed that 1 in 10 women avoid mirrors, and 42% feel less likely to show their face on social media due to aging-related skin concerns. OLAY invests in listening to thousands of women every year to understand their real needs, ensuring its formulas deliver accessible, high-performance results for every skin type and tone.

This commitment has long been part of OLAY's DNA: when women feel confident in their skin, they can face anything.

Source : Olay

## Hindustan Zinc and Silox India partner to advance low-carbon manufacturing with EcoZen

Hindustan Zinc Limited, the world's largest integrated zinc producer, and Silox India, a leading specialty chemicals manufacturer, have announced the strengthening of their long-standing partnership through

Silox India's adoption of Hindustan Zinc's low-carbon zinc brand, EcoZen, across its manufacturing operations.

The collaboration marks a significant step in advancing low-carbon practices

across India's industrial value chains and highlights the important role of upstream producers in enabling downstream decarbonisation.

By integrating EcoZen, Silox India will



reduce the embedded carbon footprint of its zinc-based chemical products while continuing to meet the performance and quality standards expected by its global customers.

EcoZen is Asia's first low-carbon zinc produced entirely using renewable energy, with a verified carbon footprint of less than one tonne of CO<sub>2</sub> per tonne of zinc—around 75% lower than the global industry average. Beyond its low-emissions profile, EcoZen offers full traceability and third-party verification, enabling customers to transparently account for the environmental impact of their material inputs. In downstream applications such as galvanizing, the use of EcoZen can avoid approximately 400 kilograms of CO<sub>2</sub> emissions per tonne of steel compared with conventional zinc.

Hindustan Zinc, a Vedanta Group company, plays a critical role in India's metals ecosystem, supplying zinc and associated materials to sectors ranging from infrastructure, automotive and power to chemicals and renewables. As part of its sustainability strategy, the company has prioritised reducing emissions not only within its own operations but also across customer value chains.

EcoZen has emerged as a central pillar of this approach, supporting customers in meeting Scope 3 emission reduction targets. Hindustan Zinc is also a member of the International Council on Mining and Metals (ICMM), underscoring its alignment with global

best practices in responsible mining, climate action and transparent value chains.

Silox India is one of Hindustan Zinc's key customers in the chemical applications segment. The company specialises in inorganic chemistry and the manufacture of non-ferrous metal derivatives, supplying application-specific solutions to a broad range of industrial sectors. The incorporation of EcoZen aligns with Silox India's ESG objectives by reducing the carbon footprint of its zinc-based offerings and strengthening the sustainability credentials of its supply chain.

**Speaking on this, Arun Misra, Chief Executive Officer & Whole-time Director, Hindustan Zinc said, "Decarbonisation at Hindustan Zinc is not limited to our own operations; it extends to how our products are used across industries. EcoZen represents a step change in how zinc can support cleaner manufacturing. By partnering with customers**

**like Silox India, we are enabling the wider adoption of low-carbon solutions at scale."**

Prakash Raman, Managing Director, Silox India said, "The collaboration supports the company's long-term sustainability roadmap. Integrating EcoZen into our manufacturing processes allows us to lower embedded emissions across our product portfolio while continuing to deliver high-performance solutions to our customers. This partnership demonstrates how upstream innovation can accelerate sustainability outcomes downstream."

EcoZen combines zinc's durability and long service life with a significantly lower carbon footprint at the production stage, helping reduce overall environmental impact across the value chain. By delivering consistent performance and quality alongside reduced emissions, EcoZen supports more sustainable manufacturing practices for industrial customers.

The product is backed by third-party verified life-cycle assessments, environmental product declarations, and globally recognised ISO and REACH certifications, ensuring transparency, credibility and compliance.

Source : Indian Chemical News

## China's Only Professional Surfactant and Detergent Exhibition to Open Soon

### Press Release

Founded in 2010, the International Exhibition of Surfactant and Detergent (IESD China) has grown over 16 years of continuous development into the only professional and industry-

leading exhibition platform for surfactants and detergents in China. As a dedicated communication and exchange platform for the surfactant and detergent industry, the exhibition has consistently followed global market trends, explored emerging consumer

demands, and expanded the long-term development potential of the industry.

Compared with previous editions, the upcoming exhibition will see further improvements in overall scale, industry coverage, product and service quality, as



well as exhibitor and visitor engagement. The participating companies will also represent a higher level of industry maturity, with global high-quality buyers gathering on site. The event will serve as an important platform for enterprises to strengthen relationships with existing clients while developing new business opportunities.

The exhibition will showcase the latest scientific research achievements,

innovative products, and emerging technological directions in the surfactant and detergent sector. Through in-depth exchanges and cooperation between industry enterprises and global professional audiences, the event will promote innovation, enhance environmental performance, and advance practical applications across the industry. The exhibition will be held April 27–29, 2026, at the Shanghai

Convention and Exhibition Center of International Sourcing. Industry professionals from around the world are warmly invited to attend.

For further details, please visit the official website: <http://www.iesdexpo.com/eng/>

## 2nd International Forum Chemical Industry of Russia 2026

### Press Release

#### 2nd International Forum 'Chemical Industry of Russia 2026' 4–5 March 2026, Irkutsk, Russia

On 4–5 March in Irkutsk, we will bring together leading experts from the chemical industry on a single professional platform.

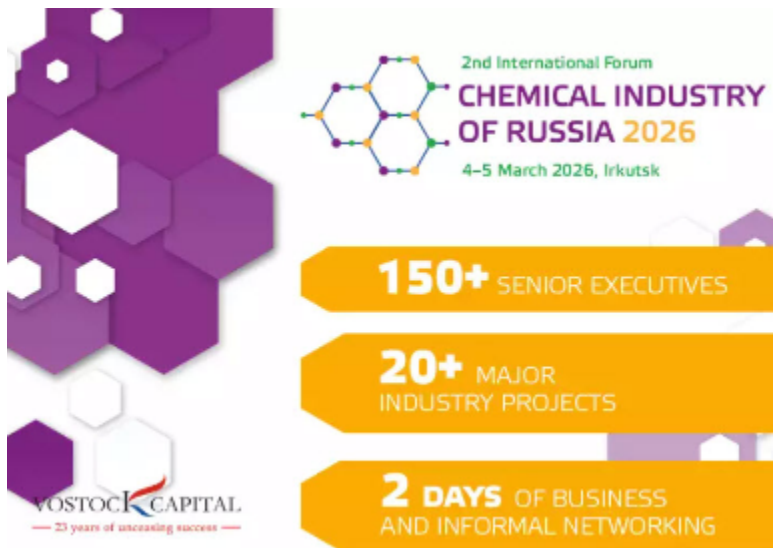
#### 2nd International Forum 'Chemical Industry of Russia 2026'

The Forum will bring together 150+ executives from leading chemical industry enterprises, initiators of investment projects in the industry, global technology licensors and equipment manufacturers for companies in the segment, financial and investment organisations, industry regulatory and supervisory bodies, production technology licensors, developers, equipment manufacturers and suppliers, engineering and design and construction companies, and service providers.

The Forum is dedicated to the exchange of practical experience in the construction and

modernisation of major chemical industry companies, issues related to the implementation of investment projects, and the technical and technological improvement of companies.

#### Key highlights of the programme for the 2nd International Forum and Exhibition



#### 'Chemical Industry of Russia 2026':

- 150+ SENIOR EXECUTIVES from leading chemical industry companies will gather to discuss the industry's most pressing challenges
- 20+ PRESENTATIONS featuring exclusive insights from key industry leaders

- 20+ MAJOR INDUSTRY PROJECTS – Updates on realisation stages of the largest investment projects in Russia's and CIS chemical industry. Construction and modernisation. Key investment opportunities.

- TRENDS 2026 – Challenges and opportunities for Russia's chemical industry. How to accelerate sector growth?

- BUSINESS SIMULATION. Controlling the Response: Crisis Management in the Chemical Sector
- SPECIAL REPORT. Data Chemistry: AI as an Industry Catalyst

- CHEMICAL INDUSTRY CEOs CLUB – Private Business Lunch (By invitation only. For terms & conditions, please contact the organisers)

- NEW! Catalyst of Opportunities: Development prospects for the Priangarye Chemical Cluster

- DISCUSSION: How sanctions became a driver for new technologies?

- Round Table: Advanced materials and innovations: Protecting infrastructure from wear and corrosion

- 2 DAYS of business and informal networking! 1-on-1 meetings, business lunches, coffee breaks, evening cocktail reception and more.



# Crafted for Comfort, Designed for Responsibility: CiCLO® Technology Advances Luxury Fiber Blends at Heimtextil 2026

GASTONIA, N.C., Dec. 18, 2025 / GPRNewswire/ -- Intrinsic Advanced Materials, makers of CiCLO® technology will debut a new generation of responsible-performance luxury home textiles at Heimtextil 2026, Jan. 13–16 in Frankfurt. The product development demonstrates how combining TENCEL™ fibers derived from certified or controlled-wood sources<sup>1</sup> with CiCLO®'s biodegradable polyester innovation can elevate comfort and durability while supporting reduced environmental impact across hospitality and home categories.

CiCLO® technology is a patented textile ingredient that enables polyester and nylon to biodegrade naturally, significantly reducing the time synthetic fibers remain in the environment. The technology is embedded in the fiber, thereby creating pathways that attract naturally occurring microorganisms, enabling the material to break down in environments where traditional synthetics persist. Biodegradation occurs only after long-term exposure to moisture and microorganisms, so fabrics maintain durability and performance throughout their useful life. CiCLO® fibers and TENCEL™ fibers are then blended, creating a luxury textile solution with dedicated benefits and a reduced environmental impact on a fiber level<sup>2</sup>.

The collection combines naturally soft TENCEL™ fibers derived from certified or controlled wood sources<sup>1</sup> with CiCLO® biodegradable technology that is certified safe for use in sustainable textiles by OEKO-TEX® ECO PASSPORT, and REACH compliant to meet EU standards for human and environmental safety, and is non-toxic to

marine and plant life. The result is a collection designed for sheets, pillows, comforters, and other high-use home and hospitality applications where comfort, product life, and environmental considerations<sup>3</sup> increasingly shape material choice.

"Hospitality brands make every effort to deliver the ultimate guest experience. This collaboration highlights the fusion of luxury, sustainability<sup>2</sup>, and performance materials," said Cheryl Smyre, vice president of Intrinsic Advanced Materials. "By uniting CiCLO® technology with TENCEL™ fibers, we bring to life premium bedding solutions that elevate comfort, strengthen product value, and support long-term sustainability goals for manufacturers and brands alike<sup>3</sup>."

"Advancing home textiles requires material solutions that meet today's expectations for comfort while addressing tomorrow's environmental challenges<sup>3</sup>," said Walter Bridgham, Sr. Business Development Manager Home, North America, Lenzing AG. "Bringing together TENCEL™ fibers with CiCLO® technology allows manufacturers to design fabrics with elevated softness, strong performance, and responsible manufacturing<sup>2</sup>. It reflects a broader shift toward responsibly designed materials that support both commercial demands and long-term industry progress."

As global hospitality buyers look for elevated comfort with reduced environmental impact, the collaboration introduces materials that unite performance, sensory appeal, and responsible design<sup>2</sup> with key

- Soft, smooth hand-feel that supports elevated comfort in premium bedding.
- Maintains breathability, drape, and smoothness to the touch, central to the guest experience.
- Renewable and biodegradable<sup>4</sup> fibers, offering a responsible upgrade across hospitality categories.
- Commercial-grade durability, supporting consistent comfort and product life in hotel and high-use laundering settings.
- Verified reduction of synthetic microplastic fiber persistence, lessening environmental impact that is rigorously tested for biodegradability by third-party labs using ASTM test methods<sup>5</sup>.
- Easy adoption for mills, integrating as a drop-in approach that requires no equipment or process changes.
- Traceable<sup>6</sup>, science-supported material choice, aligning with retailer and hospitality expectations for responsible product development.

These benefits position the collaboration as a strong example of the industry's movement toward responsible luxury materials engineered for comfort, longevity, and reduced impact.

Heimtextil attendees can preview a range of constructions and product concepts developed through this collaboration and see how fiber-level innovation is shaping more responsible home textiles<sup>2,3</sup> at the CiCLO Technology in Hall 4.0, Booth E28, and at Lenzing in Hall 4.0, Booth B11.

<sup>1</sup> Adhering to the company's



commitment to environmental protection and resource preservation, Lenzing procures wood and pulp only from certified or controlled sustainable sources. In its Wood and Pulp Policy, Lenzing is committed to procuring wood and pulp exclusively from non-controversial sources.

<sup>2</sup> TENCEL™ Lyocell and Modal fibers are made with at least 50 percent less carbon emissions and water consumption, compared to generic (unbranded) lyocell and modal. The results were calculated according to LCA standards (ISO 14040/44) and are made available via the Higg Materials Sustainability Index (MSI) v3.10 (April 2025).

<sup>3</sup> To foster a sustainable global textile and nonwovens industry, Lenzing follows three strategic principles within the context of its "Naturally Positive" sustainability strategy, which focuses on greening the value chain, driving

systemic change and advancing the circular economy through partnerships with key industry stakeholders, such as Textile Exchange, Cascale, Canopy, Together for Sustainability, Renewable Carbon Initiative, and UN Global Compact.

<sup>4</sup> LENZING™ Lyocell and Modal standard fibers are certified by TÜV AUSTRIA as biodegradable in soil, freshwater and marine environment.

<sup>5</sup> ASTM method testing of CiCLO Polyester vs. Conventional Polyester using third-party ASTM Testing Methods included: ASTM D6691 data show that CiCLO polyester biodegraded in seawater 94% compared to 5% for conventional polyester in 1,362 days. In wastewater sludge, ASTM D5210 data shows CiCLO polyester biodegraded\* 90% compared to 0% for conventional polyester in 952 days. In soil, ASTM D5988 data shows CiCLO polyester

biodegraded\* 91% compared to 3% for conventional polyester in 1,170 days. In a biologically active landfill, ASTM D5511 data shows CiCLO polyester biodegraded\* 91% compared to 6% for conventional polyester in 1,278 days.

\*Achieving  $\geq 90\%$  in respirometry tests is considered full biodegradation. The remaining percentage can be attributed to biomass. Further analysis has been conducted to confirm that no microplastics are left behind. Data is summarized from studies conducted by third-party labs using ASTM Test Methods. Visit [ciclotextiles.com](http://ciclotextiles.com) for more information and detailed test data.

<sup>6</sup> TENCEL™ Lyocell and Modal fibers are produced with a molecular marker. This special identification technology ensures the authenticity and traceability of TENCEL™ fibers even after processing into textile products.

Source : Parkdale Mills Inc.

## APPLIED Adhesives Acquires Interlock Adhesives, Establishing Presence in the UK Market

MINNETONKA, Minn., Jan. 8, 2026 /PRNewswire/ -- APPLIED Adhesives, a leading provider of custom adhesive solutions, is proud to announce the acquisition of Interlock Adhesives, a premier United Kingdom-based adhesive technology company. This acquisition represents a significant milestone for APPLIED and establishes the company's presence in the UK.

Founded in 1993 and headquartered in Scunthorpe, North Lincolnshire, England, Interlock Adhesives has built a strong reputation for delivering innovative adhesive solutions and exceptional customer service across packaging, labeling, and bookbinding industries. As a Henkel Premium Partner, Interlock provides an extensive range of adhesive solutions, technical

service and training to optimize production quality and efficiency for its customers.

APPLIED's acquisition of Interlock Adhesives is driven by a shared vision to provide customers with superior adhesive expertise and outstanding customer service. APPLIED's extensive expertise combined with Interlock's deep market knowledge will enable the combined company to innovate and improve their adhesive offering to customers in the UK.

**"This acquisition represents an exciting chapter for APPLIED as we expand into the UK market. Interlock's**

**deep market knowledge and customer-first approach align perfectly with our culture and vision," said John Feriancek, President and CEO of APPLIED Adhesives. "Establishing a presence in the UK strengthens our global footprint and opens new growth opportunities for our company."**

In addition to the synergies across the



organizations, the acquisition provides Interlock with an opportunity to continue to expand in the UK market. The senior leadership team of Tony Blott, Michael Blott, and David Blott will continue to spearhead development, and the entire Interlock team will remain in

place to support growth.

"Partnering with APPLIED gives us access to additional resources and strategic support to accelerate growth in the UK and beyond," said Michael Blott, Joint Managing Director, Interlock

Adhesives. "Our customers will continue to receive the same high level of service they've come to expect, while benefiting from expanded capabilities and technical expertise."

Source : APPLIED Adhesives

## Forever Chemicals Banned in France: A Landmark Shift in Public Health Policy

### Team Chemical Market

#### Introduction:

France has decided to ban PFAS, which is commonly known as "forever chemicals. The news is more than a regulatory update; it also signals a fundamental shift in how chemical risks are understood and governed. France has responded to decades of scientific evidence highlighting the persistence, bioaccumulation, and long-term health impacts. The ban reflects precaution, but it also highlights regulatory complexity, partial exemptions, and the risk of substitution rather than true elimination. Let's get into the story.

#### Forever Chemicals Banned in France: Setting a Precedent for Global Chemical Control

Forever chemicals, otherwise known as PFAS substances, are commonly known for their persistence in the environment and human body. There is a national ban that signals that France has recognized PFAS as an environmental risk and systemic public health rather than a chemical issue. These bans generally follows years of scientific evidence, public pressure and regulatory review. The importance lies only in restricting products and also in setting a precedent for other countries. France positioning itself as a proactive reflects growing global urgency to control chemicals whose long-term costs far outweigh their short-term industrial benefits.



The usage of PFAS on cosmetics and clothing clarifies the scope of the ban, as they are high-contact consumer products, and the exposure to PFAS occurs very often, almost daily, and often unknowingly. PFAS are intensely utilized in cosmetics, as they offer smooth application, and in clothing for their water and stain resistance. Therefore, France has banned these categories to reduce direct exposure,

especially for women and children. Since the products are not essential and there are safer alternatives already exist, removing PFAS from everyday items reflects the precautionary principle, which prevents harm before it becomes irreversible.

Research results show that PFAS are persistent pollutants that have the capacity to accumulate in human blood



and organs over time. On the other hand, scientific studies increasingly link them to long-term risks rather than immediate toxicity. Similarly, the contents are difficult to regulate early. These mounting concerns, public awareness, and growing scientific consensus have pushed the governments to act as the evidences are becoming overwhelming. The delayed action increases healthcare burdens and environmental cleanup costs, which makes early intervention both a health-protective and economically sensible decision.

The ban is appreciated for protecting citizens, as the decision reflects common regulatory tension. Removing certain products from the bill weakens its environmental impact and risks creating loopholes.

Environmentalists justify their concern as the partial bans can shift PFAS use rather than eliminating it. However, the success lies in the completeness and long-term effectiveness in reducing chemical pollution.

On the other hand, educating about policy is crucial as the understanding helps in strengthening compliance and support. Many consumers unknowingly use PFAS-containing products. The scientific complexity, public awareness, and justification lie in transparency, and the regulations are more effective when citizens understand what is being regulated and why. The regulation covers PFAS as an entire category and not as a single chemical.

### Complexity in the regulations:

The magnitude of the challenge lies in the fact that PFAS is not a single compound but thousands of chemicals. Furthermore, the resistance to natural degradation explains why they are called “forever chemicals”. The justification for the concern lies in the environmental persistence; if it is released once, it will

remain for generations. The persistence means even small emissions accumulate over time, contaminating water, soil, wildlife, and humans.

PFAS have been found on the planet for a very long time. They are used since the 1940s, and they are present from the mount Everest to marine animals. It shows how industrial chemicals travel beyond their point of use and how their ubiquity justifies their international concern; there is no ecosystem that remains untouched.

It also highlights the historical regulatory failure; PFAS were used widely before their risks were understood. Chronic exposure means low doses of exposure over long periods are scientifically linked to cancer, fertility issues, and immune disruption that elevates PFAS from an environmental issue to a public health crisis. As the crisis affects healthcare systems and affect future generations, the regulation lies effective in effective prevention. Unlike preventive diseases, the chemical exposure is controllable when the policies become strict, and thereby the diseases burden can be reduced.

Another reason why the policies need to be tightened is that the exposure pathways are numerous. PFAS are not confined to food or water they are spread through water, dust or absorbed through skin. This undermines the argument that consumers can simply avoid PFAS. The individual responsibility is insufficient, and systematic regulation is necessary. The exposure is becoming unavoidable; the government must intervene to protect public health.

Another huge challenge is that the contamination happens in the drinking water and thus the entire communities and system are affected, regardless of their lifestyle or income. The justification for urgency is clear, and

large-scale contamination indicates the PFAS pollution is not isolated but structural. Therefore, the figures strengthen the case for strict regulation and polluter accountability.

Exploring the ban and its enforcement strength:

France has addressed the sale, production, and imports as it prevents the loopholes. The ban will be able to limit PFAS only at one stage, as it would allow continued exposure. The comprehensive control helps to bring in effective bans as it would address the entire supply chain. It will also cover all the products with existing alternatives, and ensures that the ban is practical and economically feasible. The ban has also taken a deep insight into the products that come with high exposure or emission potential. The key is to bring in targeted risk reduction, in other words, prioritizing products with high exposure or emission potential.

The ban policy also brings in the importance of moving from prevention to monitoring. The testing ensures accountability and early detection. Without monitoring, the bans lose their effectiveness, and fining polluters follows the “polluter pays” principle. Discouraging the irresponsible industrial practices. These practices show that the country has realized that the laws without measurement and penalties are ineffective.

There are some notable compromises also. For instance, high-performance membranes and essential textiles are exempt due to the current lack of alternatives, and some PFAS uses are critical for healthcare, filtration, national security, and so on. The exemptions are controversial because they risk showing innovation towards safer substitutes.

The substitutes are bringing in a false sense of elimination while merely substituting one PFAS for another.



# 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.

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## CPHI MIDDLE EAST & AFRICA

Date : Apr, 13-15, 2026

City : Bangalore International Exhibition 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.

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## 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.

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## 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](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.

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## 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.



PTFE is itself a fluoropolymer PFAS. Although often described as “chemically inert” or “stable”. The characterization applies only to its use phase, and it is not a full lifecycle.

PTFE relies on PFAS processing aids and generates fluorinated waste that can contaminate air and water.

The degradation and abrasion are especially prevalent under heat or mechanical stress. PTFE can shed micro- and nano-particles that persist in the environment. At the end of life, PTFE is difficult to recycle and can form toxic byproducts when incinerated.

The challenge lies in the policy and communicating it. Presenting PTFE as a safer alternative reframes substitution as elimination, weakening regulatory intent. The precautionary statement is that the absence of acute toxicity data doesn't guarantee long-term safety, especially with substances designed to persist. The risks of repeating the same regulatory failure seen with earlier PFAS.

France firmly establishes that the shift is to be made from national policy to supranational responsibility. PFAS pollution doesn't respect political borders as these chemicals travel through air currents, rivers, groundwater, food chains, and traded goods. The France ban can reduce the domestic exposure, but it can't fully protect the French citizens as the products containing PFAS can be manufactured, imported, or used elsewhere in the European union. Therefore, harmonization is the key, and EU-wide restrictions ensure that all member states operate under the same regulatory framework, which prevents pollution havens. The production shifts to countries with weaker rules. The harmonized regulation include relocate manufacturing, rather than reformulate products, undermining environmental and health goals.

Unequal national bans create unequal protection for citizens. This contradicts the EU's principle of equal health and environmental standards. Collective EU action amplifies regulatory power,

strengthens enforcement, and accelerates innovation in safer alternatives. Therefore, the ban statement will be effective when paired with strong advocacy for binding EU-wide restrictions.

#### Takeaway:

The French PFAS ban is a critical step toward addressing one of the most persistent chemical pollution crises of the modern era. The true effectiveness will depend on scope, enforcement, and transparency. The partial restrictions, exemptions, and risks shift PFAS use rather than reducing it. On the other hand, reduced historical regulatory failures and substitutions are creating harm. PFAS pollution cannot be solved within national boundaries. France's action gains lasting significance only if it catalyzes harmonization. The EU-wide regulations also prevent regulatory loopholes that accelerate safer innovation and protect present and future generations from irreversible chemical exposure.

## BASF unveils innovative polyamide materials engineered for e-mobility

The rise of eMobility creates urgent demand for high-performance plastics, as constant battery charging elevates under-hood temperatures and chemical exposure, necessitating component lifespans of 45,000-55,000 hours for parts like pumps and valves, compared to just 5,000 hours for combustion engines.

BASF is expanding its material durability testing beyond traditional air-heat environments to include hydrolysis storage, specifically aging within water-glycol mixtures. By applying the Arrhenius equation to model the relationship between temperature and

reaction rates, the company can accurately predict material service life under standard operating conditions.



As part of a series of tests launched in August 2020, a polyamide from BASF's latest generation of materials was examined. The Ultramid is characterized by optimized hydrolysis resistance, laser markability, glass fiber reinforcement and low halogen content and thus meets all the requirements of the automotive market, even in the future.

The results show: The properties of the tested polyamide can be extrapolated to more than 100,000 hours after five years of testing and provide the automotive industry in the car and truck sector with the necessary security.

Source : India Chemical News



# Umicore and HS Hyosung Advanced Materials partner to industrialize silicon-anode materials for EV batteries

Umicore has entered into a strategic partnership agreement with Korea's HS Hyosung Advanced Materials to advance and fund the industrialization, commercialization and further development of its silicon-carbon composite anode materials for electric vehicle (EV) lithium-ion batteries.

After more than a decade of research and development (R&D), Umicore's flagship center for anode technology in Olen, Belgium, is ready to transition to industrial-scale production.

The joint venture Extra Mile Materials will further develop the technology, and scale Umicore's existing line to an industrial demonstration plant by the end of 2026 in Olen, Belgium. Umicore will hold a minority stake of 20% in Extra Mile Materials. All of Umicore's employees working for the anode materials activity will transfer to Extra

Mile Materials and retain their employment terms and conditions.

**“Umicore’s partnership with HS Hyosung Advanced Materials underscores the value of our extensive know-how and commitment to innovation in next-generation anode battery technologies in this fast-evolving market.”**

Geert Olbrechts, EVP & CTO of Umicore

“This joint venture aligns with our strategy to partner along our battery materials value chain. Scaling and

valorizing the anode material technology created by our teams in Belgium demonstrates our commitment to innovation.”

Bart Sap, CEO of Umicore

Umicore's silicon-anode technology, protected by over 30 patent families, is unlocking key benefits for the EV industry, including higher energy density, longer battery range and faster charging, while ensuring supply security at reduced cost and lower carbon emissions. Umicore's proprietary anode materials are in qualification at multiple globally leading battery cell makers.

Umicore and HS Hyosung Advanced Materials expect that closing of the transaction will occur in the coming months, pending customary regulatory approvals.

Source : Umicore

# LANXESS: Powerful oxidizing agent for cold-wash detergents

- Oxone Monopersulfate Compound for superior cleaning power and stain removal
- Supports energy-efficient cold-wash trend
- Also suitable for further Home Care applications
- LANXESS webinar on December 10, 4:00 p.m. CET

With its fast-acting and powerful oxidizing agent, Oxone Monopersulfate Compound, LANXESS is enabling detergent producers to cater

to the strong consumer trend of seeking more sustainable yet reliable washing solutions. The specialty chemicals company's oxidizing agent serves as an ingredient for cold-wash detergent formulations. It delivers exceptional cleaning power at temperatures as low as 20 °C, allowing consumers to save on energy and costs without making compromises on performance.

Oxone removes even tough stains such as those from wine, grape juice, coffee, and tea more effectively than both

sodium percarbonate (SPC) alone or in combination with tetraacetylenediamine (TAED). “With Oxone Monopersulfate Compound, we demonstrate how innovative chemistry can promote sustainability in cleaning applications – by combining strong performance with reduced energy requirements. By washing at low temperatures, consumers can save up to 27 kilograms of CO<sub>2</sub> per household annually compared to washing at 40 °C, while also reducing microfiber release,” says Dr. Kelly Board,



Technical Application Manager for Oxidation at LANXESS. “In short: Oxone opens up new possibilities for sustainable cleaning products.”

### Efficient and versatile formulation

Oxone enables comparable or superior performance with lower dosages, allowing for more compact and efficient detergent formats such as powders, pods, and tablets. Once oxidation has taken place, it fully dissolves into simple sulfate and potassium ions in less than ten seconds, supporting innovative, rapid-acting product designs.

Formulations with Oxone can be adapted to help maintain colorfastness, providing added assurance to consumers and brands. Furthermore, Oxone is chlorine free and odorless, ensuring a pleasant user experience.

### Transport and regulatory benefits

Thanks to a favorable risk classification in Class 8 instead of Class 5.1 (oxidizer), the risks during transport are reduced and storage is easier than with other oxidizers.

### Wide range of applications beyond laundry cleaning

Oxone is not only suitable for the formulation of laundry detergents, but also for many other products in and around the home, such as automatic dishwash detergents, appliance cleaners, toilet, drain and surface cleaners.

### Webinar invitation

Professionals interested in innovations in sustainable cold-wash technologies are invited to join the upcoming LANXESS webinar on December 10 at



4:00 p.m. (CET). It will provide further insights into how products can be enhanced and made more sustainable with Oxone Monopersulfate Compound. The webinar focuses on the regions EMEA, NAFTA and LATAM and will be held in English.

Source : Lanxess

## Brown University and Panasonic Energy Launch Joint Development to Advance Next-Gen Lithium-ion Battery Materials through Diagnostics Analysis

Providence, Rhode Island, USA and Osaka, Japan, October 30, 2025 — Brown University School of Engineering (Providence, Rhode Island) and Panasonic Energy Co., Ltd., a Panasonic Group Company, have begun a joint development initiative to improve the performance of lithium-ion batteries by analyzing and addressing materials degradation mechanisms. The partnership will advance analytical methods to pinpoint how materials degrade during battery charge and discharge cycles, and apply these insights to accelerate the development of next-generation battery materials with higher durability and power output

As rechargeable batteries become



increasingly vital worldwide—supporting not only the electrification of mobility but also the rapid expansion of data-driven and AI-powered infrastructure—expectations for their

performance are rising, with demands becoming more varied. Beyond the pursuit of higher energy density, industries are now demanding batteries that can deliver both high power and extended durability for a broader range of applications, from electric vehicles to industrial energy storage systems

Lithium-ion batteries gradually lose performance as their materials degrade during repeated charge-discharge cycles. Through this partnership, Brown



University School of Engineering and Panasonic Energy will develop advanced analytical methods to identify how and why these degradations occur inside the cell over long-term use. The findings will be incorporated into Panasonic Energy's materials development processes to enhance battery durability and performance. Durability-boosting technology also ensures stable operation under demanding, high input/output conditions, making these technologies particularly valuable for applications

such as fast-charging of EVs and backup power systems in data centers, where both power and reliability are critical

Associate Professor Feng Lin's laboratory in Brown University's School of Engineering leads pioneering studies using advanced materials and cell diagnostics analyses to systematically Panasonic Energy is a global leader in lithium-ion battery manufacturing, operating one of the first gigawatt-hour-scale production facilities in the United

States. For more than eight years, the company has supplied high-performance, safe, and reliable batteries to the U.S. market. By combining Brown University School of Engineering's deep expertise in materials engineering with Panasonic Energy's practical know-how in cylindrical cell technology, the two organizations aim to accelerate innovation and redefine the future of battery performance.

Source : Panasonic Group

## SK Innovation, SK On Partner with Standard Energy on Safer ESS

- Joint development agreement signed for high-safety vanadium ion battery (VIB)-based ESS
- Expands battery chemistry portfolio to include NCM, LFP, and now VIB for greater product diversity
- Collaboration combines core capabilities to advance fire safety and performance in the ESS sector

SEOUL, Korea, Jan. 6, 2026 – SK On and SK Innovation have announced a strategic partnership with Standard Energy, a leading Korean provider of vanadium ion battery (VIB)-based energy storage systems (ESS), to accelerate innovation and safety in the ESS market.

Under this new agreement, the three companies will jointly develop next-generation VIB-based ESS solutions with enhanced fire safety and high-output performance, broadening SK On's ESS portfolio beyond lithium iron phosphate (LFP) to include VIB technology. Vanadium ion batteries, which use water-based electrolytes, offer significant advantages over conventional chemistries—including a reduced risk of fire or explosion—making them ideal



for short-duration, high-output ESS applications such as data centers and industrial facilities.

A memorandum of understanding (MOU) was signed at Standard Energy's headquarters in Daejeon, South Korea, on January 5. Attendees included Lee Seok-hee, CEO of SK On; Park Ki-soo, Head of SK On Institute of Future Technology; Kim Phil-seok, Head of SK Innovation Institute of Environmental Science & Technology; and Kim Bu-gi, CEO of Standard Energy.

The partnership will focus on advancing VIB performance for short-duration ESS, used for high-power, short-cycle operations in data centers and industrial facilities. Ensuring safe, repeatable high-output performance is a key requirement in this segment. The companies will combine their technical capabilities to improve performance and cost competitiveness. SK On, drawing on its experience in large-scale battery manufacturing, will work with Standard Energy to expand collaboration across the value chain, from raw material



## MUMBAI MARKET PRICE AS ON 08/01/2026

Name of Chemical	Current Price	Location
Acetic Acid-Imported Repack	42	Mumbai
Acetic Acid-Domestic Intact	52	Mumbai
Acetic Acid-Domestic Repack	42	Mumbai
Acetone-Imported Repack	64	Mumbai
Acetone-Domestic Intact	78	Mumbai
Acetone-Domestic Intact	64	Mumbai
Acetonitrile-Imported Intact	142	Mumbai
Acetonitrile-Domestic Intact	160	Mumbai
Acetonitrile-Domestic Repack	135	Mumbai
Acrylonitrile-Imported Intact	158	Mumbai
Acrylonitrile-Imported Repack	170	Mumbai
Aniline-Imported Intact	137	Mumbai
Aniline-Domestic Intact	140	Mumbai
Benzene-Domestic Repack	69	Mumbai
Cyclohexane-Imported Intact	110	Mumbai
Cyclohexane-Domestic Intact	89	Mumbai
Cyclohexane-Domestic Repack	83	Mumbai
Cyclohexanone-Imported Intact	113	Mumbai
Cyclohexanone-Imported Repack	111	Mumbai
Cyclohexanone-Domestic Intact	125	Mumbai
Cyclohexanone-Domestic Repack	137	Mumbai
C9 Solvent (99.99% purity)-Imported Repack	117	Mumbai
C9 Solvent (Arham Petrochem)-Imported Repack	116.75	Mumbai
Dibutyl Phthalate-Domestic Intact	105	Mumbai
Diocetyl Phthalate-Domestic Intact	114	Mumbai
Ethyl Acetate-Domestic Intact	80	Mumbai
Ethyl Acetate-Domestic Repack	76	Mumbai
Formaldehyde(37%)-Domestic Repack	22	Mumbai
Methanol-Imported Repack	37	Mumbai
Methyl Ethyl Ketone-Imported Intact	113	Mumbai
Methyl Ethyl Ketone-Imported Repack	99	Mumbai
Methyl Isobutyl Ketone-Imported Intact	114	Mumbai



Methyl Isobutyl Ketone-Imported Repack	101	Mumbai
Methyl Methacrylate-Imported Intact	129	Mumbai
Mixed Xylene-Imported Repack	84.5	Mumbai
Mixed Xylene-Domestic Repack	85	Mumbai
Monoethylene Glycol-Imported Repack	51	Mumbai
Monoethylene Glycol-Domestic Intact	55	Mumbai
Monoethylene Glycol-Domestic Repack	51	Mumbai
Iso propyl Alcohol-Imported Repack	88	Mumbai
Iso propyl Alcohol-Domestic Intact	100	Mumbai
Iso propyl Alcohol-Domestic Repack	88	Mumbai
nButanol-Imported Repack	85	Mumbai
nButanol-Domestic Intact	97	Mumbai
nButanol-Domestic Repack	85	Mumbai
Ortho Xylene-Imported Repack	90	Mumbai
Phenol-Imported Repack	96	Mumbai
Phenol-Domestic Intact	104	Mumbai
Phenol-Domestic Repack	99	Mumbai
Phthalic Anhydride-Imported Intact	85	Mumbai
Phthalic Anhydride-Domestic Intact	85	Mumbai
Styrene Monomer-Imported Repack	99	Mumbai
Toluene-Imported Repack	82	Mumbai
Toluene-Domestic Repack	83	Mumbai
Vinyl Acetate Monomer-Imported Repack	84	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 10/01/2026

Product	Regions	Current prices
<b>Feedstock Prices \$/unit</b>		
Crude Oil (\$/barrel)	WTI CRUDE	58.37
	BRENT CRUDE	63.34
	MARS US	70.06
	OPEC BASKET	58.76
Natural Gas	New York	3.16



<b>Gasoline</b>	<b>RBOB</b>	<b>1.77</b>
<b>Heating Oil</b>	<b>US</b>	<b>2.12</b>
<b>Ethanol</b>	<b>US</b>	<b>1.6</b>
<b>Naphtha</b>	<b>FOB US Gulf</b>	<b>492</b>
	<b>European</b>	<b>500</b>
	<b>CFR Far East Asia</b>	<b>542</b>
<b>Propane</b>	<b>New York</b>	<b>0.63</b>
<b>Aromatics prices \$/MT</b>		
<b>Benzene</b>	<b>FOB Korea</b>	<b>660</b>
	<b>CFR Japan</b>	<b>670</b>
<b>Styrene</b>	<b>CFR Japan</b>	<b>855</b>
	<b>CFR South East Asia</b>	<b>850</b>
	<b>CFR China</b>	<b>855</b>
	<b>FOB Korea</b>	<b>845</b>
<b>Toluene</b>	<b>CFR China</b>	<b>670</b>
	<b>CFR South East Asia</b>	<b>705</b>
	<b>FOB Korea</b>	<b>670</b>
	<b>CFR Japan</b>	<b>670</b>
<b>Iso-Mix Xylene</b>	<b>CFR South East Asia</b>	<b>740</b>
	<b>CFR Taiwan</b>	<b>740</b>
	<b>FOB Korea</b>	<b>715</b>
<b>MEG</b>	<b>CFR China</b>	<b>445</b>
	<b>CFR South East Asia</b>	<b>450</b>
<b>Methanol</b>	<b>CFR China</b>	<b>263</b>
	<b>CFR Korea</b>	<b>308</b>
	<b>CFR South East Asia</b>	<b>322</b>
	<b>CFR Taiwan</b>	<b>290</b>
<b>Solvent-MX</b>	<b>CFR South East Asia</b>	<b>740</b>
	<b>FOB Korea</b>	<b>665</b>
	<b>CFR China</b>	<b>715</b>
<b>Ortho Xylene</b>	<b>CFR South East Asia</b>	<b>750</b>
	<b>FOB Korea</b>	<b>760</b>
	<b>CFR China</b>	<b>725</b>
<b>Para Xylene</b>	<b>CFR South East Asia</b>	<b>860</b>
	<b>FOB Korea</b>	<b>860</b>



	CFR Taiwan	880
Propylene	FOB Japan	705
	FOB Korea	710
	CFR China	740
	CFR South East Asia	735
Propylene Glycol	FOB Korea	785
	CFR China	785
Ethylene	CFR North East Asia	740
	CFR South East Asia	720
	FOB Japan	695
	FOB Korea	700
EDC	CFR Far East Asia	185
	CFR South East Asia	190
Butadiene	CFR China	1000
	CFR South East Asia	855
	FOB Korea	965
Benzene	FOB Rotterdam	770
Methanol	FOB Rotterdam	260
Ortho Xylene	FOB Rotterdam	1025
Para Xylene	FOB Rotterdam	840
Solvent-MX	FOB Rotterdam	690
Styrene	FOB Rotterdam	950
Toluene	FOB Rotterdam	720
Benzene C/G	FOB US Gulf	275
Toluene C/G	FOB US Gulf	269
Styrene C/LB	FOB US Gulf	40.3
Para Xylene \$/MT	FOB US Gulf	935
Mix Xylene C/G	FOB US Gulf	251
Methanol C/G	FOB US Gulf	88
<b>Intermediates prices \$/MT</b>		
Acrylonitrile	CFR Far East Asia	1100
	CFR South East Asia	1110
	CFR South Asia	1070
VCM	CFR Far East Asia	405
	CFR South East Asia	445



<b>MTBE</b>	FOB Singapore	655
	FOB US Gulf C/G	233.7
<b>Phenol</b>	CFR China	710
	CFR South East Asia	770
	FOB US Gulf	881
	FOB Rotterdam	974
<b>Acetone</b>	CFR China	500
	CFR South East Asia	590
	CFR Far East Asia	495
	FOB US Gulf	765
	FOB Rotterdam	526
<b>Caprolactum</b>	CFR Far East Asia	1265
	CFR South East Asia	1270
<b>Caustic Soda</b>	FOB North East Asia	355
	CFR South East Asia	415
<b>Ethyl Acetate</b>	FOB US Gulf	1300
	FOB Rotterdam	871
	FD North West Europe(Euro/mt)	845
<b>Butyl Acetate</b>	FOB US Gulf	1456
	FOB Rotterdam	993
	FD North West Europe(Euro/mt)	950
<b>MEK</b>	FOB Rotterdam	1040
	FD North West Europe(Euro/mt)	990
<b>IPA</b>	FOB US Gulf	944
	FOB Rotterdam	923
	FD North West Europe(Euro/mt)	890
<b>NBA</b>	CFR China	700
	CFR South East Asia	720
	CFR Far East Asia	710
<b>Octanol</b>	CFR China	920
	CFR South East Asia	945
	CFR Far East Asia	920
<b>DOP</b>	CFR China	980
	CFR South East Asia	980
	CFR Far East Asia	970



<b>Phthalic Anhydride</b>	<b>CFR China</b>	<b>755</b>
	<b>CFR South East Asia</b>	<b>780</b>
	<b>CFR Far East Asia</b>	<b>760</b>
<b>PTA</b>	<b>CFR Far East Asia</b>	<b>645</b>
	<b>CFR South East Asia</b>	<b>670</b>
<b>Acetic Acid</b>	<b>CFR Far East Asia</b>	<b>404</b>
	<b>CFR South East Asia</b>	<b>370</b>
	<b>CFR South Asia</b>	<b>360</b>
	<b>FOB China</b>	<b>305</b>
<b>VAM</b>	<b>CFR China</b>	<b>845</b>
	<b>CFR South Asia</b>	<b>730</b>
	<b>CFR South AsiaEast</b>	<b>805</b>

### 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
<b>Countries Groups</b>	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 10/01/2026

USD Exchange Rate: 89.89 INR

Producers	Current Prices (INR/kg)	Prices in USD/mt Equivalent to INR/kg	Location
Acetic Acid	37.5	415.97	Ex-Kandla
Acetic Acid	38	421.52	Ex-Mumbai
Acetonitrile-imported intact	142	1575.15	Ex-Bhiwandi
Acetone	57	632.28	Ex-Mumbai
Acrylic Acid	90	998.34	Ex-Mumbai
Acrylonitrile	103	1142.54	Ex-Kandla
Adipic Acid	112.5	1247.92	Ex-Bhiwandi
Aniline Oil	NA (heard-120 today)	Not Available	Ex-Kandla
Benzene	56.5	626.73	Ex-Vizaz
Butyl Acetate	76	843.04	Ex-Kandla
Butyl Acrylate Monomer	98.5	1092.62	Ex-Kandla
Butyl Glycol	88.5	981.70	Ex-Kandla
C9	78	865.22	Ex-Kandla
C10	89	987.24	Ex-Kandla
Caustic Soda Lye	34.5	382.70	Ex-Dahej
Chloroform	5	55.46	Ex-Dahej



Citric Acid-ANHYD	70	776.48	Ex-Bhiwandi
Citric Acid-Mono	64	709.93	Ex-Bhiwandi
Cyclohexane	75	831.95	Ex-Hazira
Cyclohexanone	95	1053.80	Ex-Kandla
DMF	58.5	648.92	Ex-Bhiwandi
DEG	42	465.89	Ex-Hazira
EDC	22.5	249.58	Ex-Kandla
Epoxy Resin	187.5	2079.87	Ex-Nhava Sheva
Ethyl Acrylate	121.75	1350.53	Ex-Kandla
Formic Acid	65	721.02	Ex-Bhiwandi
Glycerine	99.5	1103.72	CIF Nhava Sheva
N-Heptane	158.25	1755.41	Ex-Bhiwandi
Hexane	73.5	815.31	Ex-Kandla
Hydrogen Peroxide-50%	18	199.67	Ex-Bhiwandi
Isobutanol	75	831.95	Ex-Kandla
IPA	78.5	870.77	Ex-Kandla
IPA	79	876.32	Ex-Mumbai
LAB	138.5	1536.33	Imported
Maleic Anhydride-Drum	76	843.04	Ex-Mumbai
MDC	26	288.41	Ex-Dahej
MEG	43.5	482.53	Ex-Mumbai
MEK	87.5	970.60	Ex-Kandla
Melamine	70.5	782.03	Imported
Methanol	31	343.87	Ex-Kandla
Methanol	31	343.87	Ex-Mumbai
MIBK	89	987.24	Ex-Hazira
Mix Xylene-Solvent Grade	76	843.04	Ex-Kandla
Mix Xylene-Solvent Grade	77	854.13	Ex-Mumbai
MMA	125	1386.58	Ex-Hazira
N-Butanol	75	831.95	Ex-Kandla
N-Propanol	83	920.69	Ex-Kandla
NPAC	84	931.78	Ex-Kandla
Octanol	98	1087.08	Ex-Kandla
Ortho Xylene	77.5	859.68	Ex-Kandla
Phenol	82.5	915.14	Ex-Kandla



Phenolic Resin	180	1996.67	Ex-Indore
Phthalic Anhydride	85	942.87	Ex-Mumbai
Propylene Glycol	84.5	937.33	Ex-Kandla
Sodium Nitrate (50Kg Bag)	61	676.65	Ex-Make-Lasons
Styrene Monomer	93	1031.61	Ex-Kandla
Styrene Monomer	94	1042.71	Ex-Mumbai
Sulphuric Acid	18.75	207.99	Ex-Vapi
Tio2 (Anatase Grade)	225	2495.84	Ex-Bhiwandi
Tio2 (Rutile Grade)	250	2773.16	Ex-Bhiwandi
Toluene	74	820.85	Ex-Kandla
Toluene	74.5	826.40	Ex-Mumbai
VAM	79	876.32	Ex-Kandla
VAM	80	887.41	Ex-Hazira

## PRODUCER PRICES (RS/KG) OF CHEMICALS AS ON 10/01/2026

Producers	Current Price (INR/Kg)	Import parity Price in USD/MT	Location
Accord-Ethyl Acetate	66.5	739.79	Ex-Maharashtra
Accord-Ethyl Acetate	69	765.39	Ex-Maharashtra
Arham Petrochem-C9	77.75	862.45	Ex-Kandla
Arham Petrochem-C9	78.75	873.54	Ex-Ahmedabad
Arham Petrochem-C10	88.5	981.70	Ex-Kandla
Arham Petrochem-C10	88	976.15	Ex-Ahmedabad
Arham Petrochem-C10 (Imported Repack)	94.75	1051.03	Ex-Bhiwandi
Arham Petrochem-MTO/White Spirit (KL)	59.65	661.67	Ex-Kandla
Arham Petrochem-MTO/White Spirit (KL)	60.65	672.77	Ex-Ahmedabad
Arham Petrochem-De-Aromatised D40	130	1442.04	Ex-Kandla
Arham Petrochem-De-Aromatised D40	131	1453.13	Ex-Ahmedabad
Arham Petrochem-De-Aromatised D60	139	1541.87	Ex-Kandla
Arham Petrochem-De-Aromatised D60	140	1552.97	Ex-Ahmedabad
Andhra Petrochemicals-Iso-Butanol	72	798.67	Ex-Vishakhapatnam
Andhra Petrochemicals-N-Butanol	78.75	873.54	Ex-Vishakhapatnam
Andhra Petrochemicals-Octanol	90.5	1003.88	Ex-Vishakhapatnam
BASF-Adipic Acid	115	1275.65	Imported
BPCL-2-Ethyl Hexanol (B)	94.5	1048.25	Ex-Kochi



BPCL-2-Ethyl Hexanol (P)	105	1164.73	Ex-Kochi
BPCL-2-Ethyl Hexyl Acrylate (B)	115.5	1281.20	Ex-Kochi
BPCL-2-Ethyl Hexyl Acrylate (P)	125.5	1392.12	Ex-Kochi
BPCL-Acrylic Acid (B)	84	931.78	Ex-Kochi
BPCL-Acrylic Acid (P)	93	1031.61	Ex-Kochi
BPCL-Benzene	64.35	713.81	Ex-Mumbai
BPCL-Butyl Acrylate (B)	96.5	1070.44	Ex-Kochi
BPCL-Butyl Acrylate (B)	95	1053.80	Ex-Kandla
BPCL-Butyl Acrylate (P)	106.5	1181.36	Ex-Kochi
BPCL-Hexane (KL)	73.09	810.76	Ex-Mumbai
BPCL-Hexane (MT)	111.45	1236.27	Ex-Mumbai
BPCL-Iso-Butanol (B)	75	831.95	Ex-Kochi
BPCL-Iso-Butanol (P)	86	953.97	Ex-Kochi
BPCL-MTO (KL)	82.27	912.59	Ex-Mumbai
BPCL-MTO (MT)	109.1	1210.21	Ex-Mumbai
BPCL-N-Butanol (B)	77.5	859.68	Ex-Kochi
BPCL-N-Butanol (B)	79	876.32	Ex-Kandla
BPCL-N-Butanol (P)	88.5	981.70	Ex-Kochi
BPCL-Paraffin Wax	118	1308.93	Ex-Delhi
BPCL-Sulphur (Molten)	45	499.17	Ex-Mumbai
BPCL-Toluene	77	854.13	Ex-Mumbai
Deepak Phenolics-Acetone	54.25	601.77	Ex-Dahej Gujarat
Deepak Phenolics-IPA	77.5	859.68	Ex-Dahej Gujarat
Deepak Phenolics-Phenol	NA	Not Available	Ex-Dahej Gujarat
GACL-Caustic Soda Lye	35	388.24	Ex-Dahej Gujarat
GACL-MDC	26	288.41	Ex-Bharuch Gujarat
GNFC-Acetic Acid	37.5	415.97	Ex-Bharuch Gujarat
GNFC-Aniline Oil	NA	Not Available	Ex-Bharuch Gujarat
GNFC-Ethyl Acetate	70	776.48	Ex-Bharuch Gujarat
GNFC-TDI Drum	190	2107.60	Ex-Bharuch Gujarat
Grasim-MDC	26	288.41	Ex-Gujarat
GSFC-Cyclohexane	71.5	793.12	Ex-Gujarat
HOCL-Acetone	78.5	870.77	Ex-Kochi
HOCL-Phenol	102	1131.45	Ex-Kochi
HPCL-Hexane	116.26	1289.63	Ex-Mumbai



HPCL-MTO	111.86	1240.82	Ex-Mumbai
IOCL-Banzenene	63	698.84	Ex-Vadodara Gujarat
IOCL-DEG	43.8	485.86	Ex-Odisha(Paradip)
IOCL-DEG	44.8	496.95	Ex-Panipat
IOCL-LAB	153	1697.17	Ex-Gujarat
IOCL-MEG	49.4	547.98	Ex-Odisha(Paradip)
IOCL-MEG	50.4	559.07	Ex-Panipat
IOCL-PTA	75.5	837.49	Ex-Panipat
IOCL-Paraffin Wax	105	1164.73	Ex-Delhi
Jubilant-Ethyl Acetate	69.5	770.94	Ex-Maharashtra
Laxmi-Ethyl Acetate	72	798.67	Ex-Maharashtra
Meghmani-Caustic Soda Lye	35	388.24	Ex-Bharuch Gujarat
Meghmani-MDC	26	288.41	Ex-Ankleshwar Gujarat
NIRMA-LAB	153	1697.17	Ex-Vadodra
Reliance-Caustic Soda Lye	35	388.24	Ex-Gujarat
Reliance-DEG	44	488.08	Ex-Jamnagar
Reliance-LAB	NA	Not Available	Ex-Vadodra
Reliance-MEG	50.2	556.85	Ex-Jamnagar
Reliance-Mix Xylene	73	809.76	Ex-Jamnagar
Reliance-PTA	75.2	834.17	Ex-Dahej Gujarat
Reliance-Toluene	76	843.04	Ex-Jamnagar
SI GROUP-Phthalic Anhydride	91.5	1014.98	Ex-Navi Mumbai
TATA Chemicals-Soda Ash light	34	377.15	Ex-Bhiwandi

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sourcing and materials development to cell technology and battery management systems. Meanwhile, SK Innovation will drive electrolyte additive innovation and explore vanadium recovery from refining processes to enhance cost competitiveness. Together, they aim to deliver differentiated VIB solutions that meet evolving market demands for safety, performance, and value.

This initiative further strengthens SK On's battery chemistry portfolio, which now encompasses nickel-cobalt-manganese (NCM), LFP, and VIB. VIB uses a water-based electrolyte that reduces fire and explosion risks while delivering high power suited for short-duration ESS. Standard Energy's VIB ESS solutions have already demonstrated robust safety in Korea's regulatory sandbox and have been deployed in high-traffic subway stations and buildings without incident. Standard Energy was the world's first to commercialize VIB for ESS applications and has since validated its technology through successful field deployments for

a range of customers. The company was also recognized by TIME magazine as the only Korean firm among the "World's Top Green Tech Companies 2025."

Lee Seok-hee, CEO of SK On, said, "Through this partnership, we will jointly develop ESS vanadium ion batteries with outstanding fire safety, further strengthening our product portfolio. Leveraging our world-class technological competitiveness, SK On will continue to deliver new value to customers."

**Kim Bu-gi, CEO of Standard Energy, commented, "By joining forces with SK On and SK Innovation, we aim to accelerate the commercialization of vanadium ion batteries—**

**complementing lithium-ion battery technology—to set a new safety and performance standard for ESS in environments where both are critical, such as data centers and urban infrastructure."**

Korea's second ESS central contract market bidding this year has made fire safety a key evaluation criterion. SK On highlights its advanced early-detection safety technologies for ESS, including electrochemical impedance spectroscopy (EIS), which can identify abnormal signs at least 30 minutes before a thermal event could occur—further strengthening a proactive approach to risk management and prevention.

Source : S K Innovation

## Arkema starts up its new Rilsan® Clear transparent polyamide unit in Singapore

Arkema (Paris:AKE) is pleased to announce that its new Rilsan® Clear transparent polyamides production unit, located on its Singapore platform, is now fully operational. This milestone strengthens Arkema's leadership in high-performance polymers, giving the Group the largest transparent polyamide production capacity in Asia.

This successful start-up represents a major step forward for Arkema, as the new unit triples the Group's global production capacity of Rilsan® Clear transparent polyamides. This investment of around US\$20 million, announced in July 2025, is part of the

major growth projects in which Arkema has recently invested to support its strategic roadmap on Specialty Materials.

Designed for operational excellence and reliability, this new unit will enable Arkema to meet the growing demand for sustainable high-performance transparent materials across key markets such as eyewear, AR/VR and smart consumer electronics, industrial filtration, healthcare devices and home appliances.

"We are very proud of this strategic expansion dedicated to transparent

polyamides, further strengthening our position as the leading global producer of specialty polyamides", said Laurent Tellier, Senior Vice-President High Performance Polymers and Fluorogases. "It marks the next step in developing our key platform in Singapore, contributing to our strategy to develop local and competitive supply close to our customers in the region."

Rilsan® Clear transparent polyamides deliver a unique combination of high performance, aesthetics and sustainability. They offer lightweight, high transparency, flexibility and chemical resistance, while being fully



recyclable through Arkema's Virtucycle® program. Arkema is the leading producer of bio-based transparent polyamides with its flagship grades Rilsan® Clear Rnew® G850 and G820, which contain respectively 45% and 62% bio-based carbon origin.

With this additional capacity, Arkema reaffirms its commitment to supporting customers in Asia and worldwide through resilient and competitive local supply chains, while contributing to the transition toward more sustainable

materials.

Building on its unique set of expertise in materials science, Arkema offers a portfolio of first-class technologies to address ever-growing demand for new and more sustainable materials. With the ambition to become a pure player in Specialty Materials, the Group is structured into 3 complementary, resilient and highly innovative segments dedicated to Specialty Materials - Adhesive Solutions, Advanced Materials, and Coating Solutions -

accounting for some 92% of Group sales in 2024, and a well-positioned and competitive Intermediates segment. Arkema offers cutting-edge technological solutions to meet the challenges of, among other things, new energies, access to water, recycling, urbanization and mobility, and fosters a permanent dialogue with all its stakeholders. The Group reported sales of around € 9.5 billion in 2024, and operates in some 55 countries with 21,150 employees worldwide.

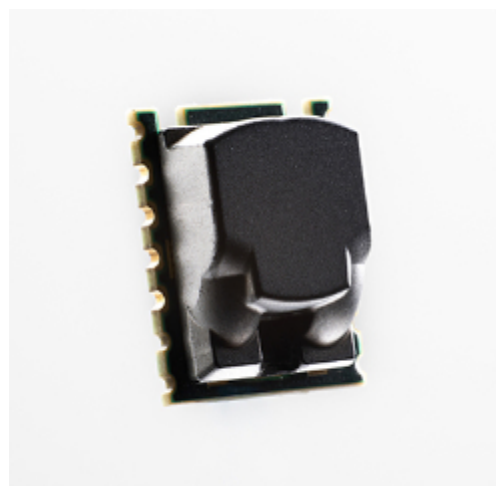
Source : Arkema

## Senseair launches next-generation CO2 sensor featuring 75% smaller size and SMD-solderability for demand-controlled HVAC systems

Senseair, Swedish subsidiary of Asahi Kasei Microdevices, has developed the "S12 CO2" as a next-generation CO2 sensor for demand-controlled ventilation (DCV) in zero-energy buildings and battery-powered indoor air quality (IAQ) monitoring. The new model is approximately 75% smaller in volume than its predecessors and can be used as a surface-mount device (SMD) on circuit boards while maintaining high accuracy and low power consumption. This enables sensor integration in applications where installation was previously difficult. Senseair has already begun sample distribution and plans to initiate mass production in 2026.

In recent years, legal frameworks to enhance the energy efficiency of buildings have become stricter worldwide. Particularly within the EU, the Energy Performance of Buildings Directive Open new window adopted in 2024 requires new buildings to comply with the zero-emission standard. These buildings have very low energy needs, which are largely covered by onsite and

nearly renewable energy sources. This legislation will come into effect for new public buildings by 2028 and for all other new buildings by 2030.



To contribute to achieving this zero-emission level for buildings, intelligent DCV systems are emerging as a highly effective alternative to conventional temperature-controlled ventilation. DCV systems automatically adjust the ventilation based on CO2 levels, thus enabling both reduction in energy consumption and comfortable IAQ.

However, DCV systems require the installation of CO2 sensors across the entire building, and constraints in design and installation space have so far proved to be major challenges.

Senseair's new "S12 CO2" sensor features a redesigned structure based on the company's NDIR (non-dispersive infrared absorption) sensor technology. With a measurement range of 400 – 10,000 ppm and an accuracy of +/- (30 ppm + 3% of reading), the new sensor maintains the performance of its predecessor CO2 sensors, "Sunrise" and "Sunlight," but comes with a significantly smaller packaging size of 18 mm x 15 mm x 7 mm. This compact size enables the effective use of available space. It enables SMD reflow surface mounting on circuit boards, offering a discreet and elegant installation in air conditioning equipment or wall-mounted monitors without compromising design aesthetics.

**Compliant with global building standards**



For the retrofit market, where cable installation is often challenging, the Senseair “S12 CO2” sensor offers the same ultra-low power consumption as the “Sunrise” and “Sunlight” sensors. Its energy efficiency, SMD-solderable design, and compact size enable sleek, battery-powered CO2 monitors that allow easy installation with a wide degree of freedom.

The “S12 CO2” sensor will be deployed for IAQ monitoring in building energy management systems (BEMS) within office buildings and commercial facilities, primarily in Europe, North America, and Asia. Further application fields include air conditioning units and heat exchangers in the residential sector.

sensor will comply with globally recognized standards, including ANSI/ASHRAE Standard 62.1-2022 Addendum d, RESET Grade B, and WELL Building Standard® (WELL v2™), ensuring worldwide relevance and impact.

Source : Asahi KASEI

Like its predecessors, the “S12 CO2”

## “DURABIO” plant-derived bioengineering plastic adopted for the crystal-shade AI speaker in Dongfeng Nissan's “Teana”

Mitsubishi Chemical Corporation (Head Office: Chiyoda-ku, Tokyo; President: Manabu Chikumoto; hereinafter “MCC”) announces that its plant-derived bioengineering plastic “DURABIO™” has been adopted for the AI speaker components in the new “Teana” that was launched in China by Dongfeng Nissan Passenger Vehicle Company\* in November 2025. DURABIO™ is a bioengineering plastic primarily made from plant-derived isosorbide. Compared to conventional polycarbonate resins, it features higher transparency and superior optical properties. While being a plant-derived polymer, the material is also excellent in weather resistance and durability.

The top of the dashboard of the new “Teana” features an AI speaker that enables voice-based interaction and operation. The speaker has an inverted pyramid design. When illuminated, six light pillars rhythmically emit light in 256 colors and create a crystal-like, colorful, and transparent texture, bringing a sense of dynamism to the interior of the car. DURABIO™ was selected for its high designability such as superior transparency and optical properties, making it suitable for creating a luxurious and vibrant car interior space,



as well as for its high durability that makes it a resin usable without requiring a clear coat.

MCC will continue to provide high-value-added products by expanding the DURABIO™ lineup.

\*Dongfeng Nissan Passenger Vehicle Company is a Chinese joint venture between Nissan Motor Co., Ltd. and Dongfeng Motor Group.

Source : Mitsubishi Chemical Corporation

## From Air to Plastics: Norsk e-Fuel and Braskem Partner to turn Captured Carbon into Long-Lasting Products

Norsk e-Fuel AS, a pioneer in Power-to-Liquid (PtL) technology, and Braskem, a global leader in polymers

and biopolymers, have announced a strategic collaboration to explore the

possible integration of e-Naphtha into the plastics value chain. This partnership aims to accelerate the development of



plastics derived from carbon that would otherwise be released into the atmosphere, reinforcing both companies' commitment to a circular future.

Norsk e-Fuel is driving the industrial rollout of PtL technology by building large-scale facilities that convert fossil-free electricity, water, and captured CO<sup>2</sup> into synthetic fuels and feedstocks. The company's plan foresees at least three plants in operation by 2032, with a combined annual capacity of more than 200,000 tons of e-Fuels. Around a quarter of this output could be supplied as e-Naphtha - a versatile feedstock used to produce plastics.

Braskem's sustainability strategy, "Keeping Carbon in the Loop", focuses on retaining carbon within products and the economy through renewable, circular, and carbon-optimized solutions. The company already produces Im green™ bio-based polyethylene at an industrial scale-

renewable plastic made from sugarcane ethanol-and offers mass balance certified solutions for markets where segregated routes are not yet feasible. By potentially processing e-Naphtha into polypropylene and other essential materials, Braskem aims to expand its portfolio with innovative plastics that could have a significantly reduced climate footprint.

**"e-Naphtha is more than a by-product; it is a valuable feedstock for creating long-lasting, circular products," said Lars Bjørn Larsen, CCO of Norsk e-Fuel. "By capturing carbon and embedding it into durable, recyclable materials, we keep carbon in use and out**

**of the atmosphere."**

"Plastics are essential to modern life, and by producing them with captured carbon, we keep that carbon in the economy-not in the air," said Walmir Soller, Vice President for North America, Europe, and Asia (NAMEA) and CEO of Braskem BV. "This collaboration reflects our commitment to innovation and to building value chains that enable circularity and carbon neutrality."

The collaboration will focus on developing a framework for integrating e-Naphtha into plastic production, assessing market opportunities, and engaging with customers seeking circular solutions. It also highlights the role of carbon capture utilization (CCU) in creating new value chains for the plastics industry, circulating carbon through products, not emissions.

Source : Braskem

## Jeonbuk National University Researchers Highlight Advancements in Chemical Looping Fluidized Bed Reactors

JEONBUK-DO, South Korea, Jan. 14, 2026 /PRNewswire/ -- Traditional techniques of converting fossil fuels for heat and power generation and chemical production increase carbon footprint, harming society and environment. To mitigate this problem, carbon capture and storage technologies aimed at lowering carbon dioxide emissions and encompassing renewable energy utilization, circular economy, and green chemical synthesis are promising. Chemical looping is one such innovative technology. These processes—representing efficient technologies for hydrogen and chemical production applications—involve the cyclic

oxidation and reduction of metal oxide particles in fluidized bed reactors.

In a recent study, a team of researchers led by Dr. Jester Lih Jie Ling, a post-doctoral researcher at Jeonbuk National University, has comprehensively reviewed the latest innovations in chemical looping. Their insightful findings were made available online on 7 October 2025 and have been published in Volume 256 of the journal *Renewable Energy* on 1 January 2026.

Dr. Ling highlights the major contributions of their work. "Our work highlights key advancements in

fluidized-bed reactors that enhance reforming, gasification, and hydrogenation within chemical looping systems. It also emphasizes enhanced oxygen carrier materials with higher reactivity, durability, and resistance—critical attributes for long-term, stable operation."

The researchers highlight various bed material criteria for both oxygen carriers and feedstocks in reactors, including oxygen vacancy, fuel/feedstock type, carbon deposition, agglomeration, and economical and environmental considerations. Importantly, the technological advancements in chemical



looping in fluidized bed reactors enables the use of liquid and solid feedstocks, in addition to a wide variety of chemical pathways.

This review further suggests that the characteristics of oxygen carriers are significant from a microscopic perspective. They impact the yield and purity of the synthesized chemicals. Therefore, the synthesis method of the oxygen carriers plays a pivotal role in determining the overall performance of the process. Some representative methods include sol-gel, spray-drying, mechanical mixing, impregnation, coprecipitation, and freeze granulation techniques.

Considering the huge importance of oxygen carriers—such as perovskite, spinel, core shell, and Cu, Fe, Ni, and Mn-based carriers in chemical looping

fluidized bed reactors, the team elaborates upon their structure and physical properties, as well as their performance during complex multiredox cycles. In this way, they contribute to the development of a physical standard for oxygen carriers in various energy and chemical conversion processes, including hydrogen production via steam reforming and water splitting, ammonia synthesis through nitrogen looping, syngas-derived fuels and chemicals, and light olefins and selective oxidation products.

Furthermore, the present work emphasizes the importance of controlling fluidization regime and constructing particle models that combine thermodynamic properties and hydrodynamic motions for yield optimization in chemical looping processes. It also highlights the loss due

to thermal and chemical reaction stresses as an area of interest for future research. "The implementation of chemical looping processes in fluidized bed reactors is in alignment with the increasing demand for sustainable and low carbon renewable energy technologies, particularly when biomass is used as a feedstock with solar thermal energy for bioenergy carbon capture storage applications. Its benefits encompass low-emission power generation with inherent carbon dioxide separation, carbon footprint reduction in chemical production, particularly hydrogen, and industrial decarbonization. Overall, this review is expected to guide the further development of chemical looping fluidized bed reactors," concludes Dr. Ling.

Source : Jeonbuk National University

## Archroma and HeiQ partner to bring revolutionary antimicrobial and odor-control solutions to textile industry

**P**ratteln, Switzerland, January 14, 2026 – Archroma, a global leader in specialty chemicals towards sustainable solutions, and HeiQ, a Swiss deeptech materials innovator active in functional textiles and sustainable fibers, have entered into a co-marketing agreement that combines their complementary strengths to deliver advanced, planet-conscious anti-odor and antimicrobial technologies to brands, retailers, and textile mills worldwide. Together, Archroma and HeiQ will provide brands and textile manufacturers access to an expanded portfolio of high-performance, sustainable effects, underpinned by global reach, application expertise, and proven market innovation.

"This partnership marks an exciting chapter for Archroma and HeiQ, and a huge step forward for the textile industry," said Dharendra Gautam, VP Commercial, Archroma. "By uniting our global reach and application know-how with HeiQ's powerful innovation engine, we are bringing high-performance, sustainable technologies to more customers and accelerating the industry's transition towards a more planet-conscious textile value chain."

"HeiQ has always been driven by a mission to pioneer deeptech material innovation for people and planet," said Carlo Centonze, CEO of HeiQ. "Together with Archroma's extensive network and expertise, we are scaling our technologies globally, ensuring that brands and mills can access functional, sustainable solutions that enhance product performance while lowering environmental impact."

The collaboration enables HeiQ's advanced technologies to be delivered through Archroma's well-established global customer network, making it easier for textile manufacturers to integrate functional, compliant, and sustainable performance effects into their products. The alliance is also about scaling innovation. Together, we will empower brands and manufacturers to meet consumer demands for hygiene, freshness, and sustainability.

Source : Archroma



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- Membership approved only to verified Members
- View all your incoming Leads/ Enquiries
- Feature Your Products/Tech.
- No Fake Enquiries
- Post Multiple Buy Enquiries Broadcasted to Suppliers
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