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DYES &

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EDITORIAL

CHEMICAL MARKET

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

Indian Chemical Market Poised to Reach $600-$700 Billion by 2040: A Growth Perspective

Indian Chemical Market Poised to Reach $600-$700 Billion by 2040: A Growth Perspective

The Indian chemical industry has emerged as a vital player in the global chemical market, driven by strong domestic demand, increasing exports, and favorable government policies. With its robust growth trajectory, experts predict that the industry is set to reach a valuation between $600 billion and $700 billion by 2040. This remarkable expansion will be fueled by key factors such as industrial diversification, technological advancements, sustainable practices, and evolving consumer trends.

India's Chemical Industry: A Pillar of Economic Growth

The chemical industry in India contributes significantly to the country's GDP, employment generation, and industrialization. As one of the fastest-growing markets in the world, India's chemical sector currently stands at around $220 billion and is expected to grow at a CAGR of 9-10% over the next two decades. This makes it one of the key drivers of India's economic progress and industrial expansion.

Several subsectors, including petrochemicals, specialty chemicals, agrochemicals, and pharmaceuticals, have demonstrated remarkable resilience and adaptability in the face of global challenges. These subsectors are poised to benefit from increasing domestic demand, a strong export market, and strategic investments in capacity expansion and research & development (R&D).

Key Growth Drivers for the Indian Chemical Market

1. Rising Domestic Demand

India's rapid urbanization, industrialization, and an expanding middle class have significantly increased domestic consumption of chemicals. The demand for specialty chemicals used in construction, automotive, textiles, and personal care products is growing, driving investment in these segments. Additionally, agrochemicals use due to modernized farming techniques and increased food production needs will further contribute to the industry's growth.

2. Strengthening Export Market

India is emerging as a global hub for chemical exports due to its competitive manufacturing costs and adherence to international quality standards. Indian chemical manufacturers are increasingly catering to markets in Europe, North America, and Asia, benefiting from supply chain disruptions in China and growing global demand for sustainable chemical solutions.

The government's Production Linked Incentive (PLI) schemes, aimed at boosting domestic manufacturing and exports, will further strengthen India's position in the global chemical supply chain.

3. Investments in Innovation and R&D

Investment in research and development is becoming a focal point for chemical companies. Advanced materials, bio-based chemicals, and green chemistry innovations are gaining prominence as industries shift toward sustainable solutions. India's growing expertise in process innovation, catalysis, and material sciences will be instrumental in shaping the future of the chemical sector.

4. Sustainability and Green Chemistry Initiatives

Environmental regulations and sustainability concerns are influencing the Indian chemical industry's growth strategy. Companies are increasingly adopting green chemistry principles, reducing carbon footprints, and exploring renewable feedstocks. The adoption of circular economy models and waste recycling processes will help the industry achieve long-term sustainability while remaining cost-competitive.

5. Government Policies and Infrastructure Development

The Indian government has taken several proactive steps to support the chemical industry's growth, including policies focused on industrial corridors, chemical parks, and ease of doing business. Moreover, investments in infrastructure, logistics, and digitalization are enhancing operational efficiency across the value chain.

Challenges and Opportunities

There are challenges such as regulatory compliance, volatile raw material prices, and competition from global players. These challenges present opportunities for Indian companies to focus on value addition, process efficiency, and product differentiation.

The adoption of Industry 4.0 technologies, including artificial intelligence (AI), automation, and data analytics, will help streamline production processes and optimize resource utilization. Digital transformation will be a key enabler in enhancing supply chain visibility, improving safety standards, and driving overall efficiency.

Future Outlook: The Road to $700 Billion

The Indian chemical industry is well-positioned to achieve its ambitious target of reaching $600-$700 billion by 2040. This journey will require strategic investments, policy support, and a commitment to sustainability. Key trends shaping the industry's future include:

- Expansion of Specialty Chemicals: The growing demand for specialty chemicals in high-value industries such as pharmaceuticals, electronics, and clean energy solutions
- Focus on Circular Economy: Companies will need to integrate waste recycling, resource optimization, and renewable energy to align with global sustainability goals.
- Mergers & Acquisitions (M&A): Consolidation in the industry will lead to stronger companies with enhanced capabilities to compete on a global scale.
- Skilled Workforce Development: The industry must invest in talent development to support innovation, R&D, and process efficiency.

Lastly, become a part of Chemical Market Leads Platform to reach out to the global audience.

-Rajiv Parikh

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Inorganic Chemicals	No/ of Units Per Pack	Price Rs.
Acid Slurry (Soft)	50Kgs	127.00
Alum- Ferric	50Kgs	24.00
Ammonium Bicarbonate	25Kgs	28.00
Ammonium Bi fluoride	50Kgs	178.00
[sugar-grade]	50Kgs	178.00
Ammonium Carbonate	50Kgs	92.00
Ammonium Chloride	50Kgs	22.00
Ammonium Nitrate	50Kgs	30.00
Ammonium Phosphate (Mono)	50Kgs	135.00
Ammonium Sulphate	50Kgs	22.00
Antimony Trioxide	50Kgs	2,500.00
Barium Chloride	50Kgs	58.00
Bleaching Powder (33% Cl)	25Kgs	14.00
Borax (Granular)	50Kgs	72.00
Boric Acid (Tech.)	50Kgs	120.00
Calcium Carbonate (Activate)	50Kgs	20.00
Calcium Carbonate (Precipitated)	50Kgs	19.00
Calcium Chloride Lump 70%	50Kgs	12.00
Calcium Chloride-Anhydrous	50Kgs	28.00
Camphor Oil	200Litrs	135.00
Caustic Potash (Flakes)	50Kgs	82.00
Caustic Soda (Flakes)	50Kgs	51.00
Caustic Soda (Prills)	50Kgs	92.00
Chromic Acid Flakes	50Kgs	280.00
Chlorinated Xylene	25kgs	85.00
Copper Sulphate	50Kgs	220.00
Di ammonium Phosphate	50Kgs	34.00
Dioctylmalite	180kgs	82.00
Ferric Chloride (Anhydrous)	50Kgs	42.00
Ferrous Sulphate – crystals	50Kgs	16.00
Hydrochloric Acid	Naked	6.00
Hydrogen Peroxide 50%	50Kgs	33.00
Hyflosupercell	22.7Kgs	138.00
Litharge	50Kgs	220.00
Lithopone B301(China)	25 Kgs	124.00
Magnesium Carbonate (Indian)	50Kgs	125.00
Magnesium Sulphate	50Kgs	16.00
Mercury	34.5Kgs	7,200.00
Napthaline Balls	50Kgs	130.00
Nickel Chloride	25Kgs	620.00
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Sodium Bisulphite	50Kgs	52.00
Sodium Chlorite 50% (India)	50Kgs	240.00
Sodium Chlorite 80% (India)	50Kgs	280.00
Sodium Cyanide	50Kgs	650.00
Sodium Fluoride	50Kgs	150.00
Sodium Formate	50Kgs	53.00
Sodium Hexameta Phosphate 68%	50Kgs	128.00
Sodium Hydrosulphite [China]	50Kgs	180.00
Sodium Metabisulphite	50Kgs	35.00
Sodium Nitrate	50Kgs	52.00
Sodium Nitrite (China)	50Kgs	68.00
Sodium Silicate	Naked	28.50
Sodium Sulphate (Anhydrous)	50Kgs	15.00
Sodium Sulphide 50-52% (Flakes)	50Kgs	58.00
Sodium Sulphide 58-60% (Flakes)	50Kgs	52.00
Sodium Sulphite 92%	50Kgs	56.00
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Titanium Dioxide (Rutile - R-902)	25Kgs	265.00
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BUY INQUIRIES

Product	Quantity	Grade

Sodium Hypochlorite

1 Tonnes **Chemical**

Details : Chemical; Type: Sodium Hypochlorite(Bleach), Composition: Chlorine: Min 110 Gpl, Alkalinity(Measured by Hcl): Min 14gpl Ok, Physical Form: Liquid, Container Type: Tanker, Color: Transparent; Fft: Specific Gravity: 1.1 - 1.2 Sodium Hypochlorite, 110gpl, Tanker

CLICK HERE TO VIEW

Powai, Mumbai, Maharashtra, India

2,4-Dichlorophenylacetonitrile

500 Kgs **Chemical**

Details : 2,4-Dichlorophenylacetonitrile 6306-60-1 100 kg & 500 kg

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Hyderabad, Telangana, India

Cold Plastic Paint 2k

200 Kgs **Industrial**

Details : Product cold plastic (2k) paint Quantity:200 kg Location:Riyadh, Kingdom of Saudi Arabia Used: Industrial paint And i need hardner for Methyl Acrylate

CLICK HERE TO VIEW

Riyadh Saudi Arabia

Soda Ash Light

400 Tonnes **Chemical**

Details : Appearance: Snow white, free-flowing powder; free from lumps, grits, and other visible impurities. Moisture: Maximum of 1%. pH: Ranges between 10-11. Density: Ranges from 0.5-0.7 g/cm^3. Sodium oxide (Na_2O%): Minimum of 57.25%. Na_2CO_3 (%): Minimum of 99%. Water insoluble (%): Maximum of 0.1%.

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Ankleshwar, Gujarat, India

Nickel Sulphamate

500 Litres **Technical**

Details : Packing Size:- 25 Ltr Can Spec : IS 1809 : 1979 Technical Grade Description:- Please quote the best price with lead time & COA/MSDS.

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Indiranagar, Bangalore, Karnataka, India

BUY INQUIRIES

Product	Quantity	Grade

Toluene

21000 Kgs **VirginPure**

Details : Looking to establish a recurring supply arrangement for high-quality Toluene in bulk. Quantity: 21,000 kg , For trading purposes

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Ankleshwar, Gujarat, India

Toluene

25 Tonnes **Industrial**

Details : 25mt toluene industrial grade,in tanker loadex kandla 60 days credit

CLICK HERE TO VIEW

Mumbai, India

Acetone

30 Tonnes **Industrial**

Details : 30 mt acetone in tanker load exkandla, 60 days credit ,delivered ghaziabad uttar pardesh

CLICK HERE TO VIEW

India

Lithium Borohydride

500 Grams **Any**

Details : Lithium Borohydride CAS No:- 16949-15-8 Qty:- 500 gm Shipping location:- Sonipat, Haryana Description/Use/Application:- R&D use

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Gaziabad, Uttar Pradesh, India

XANTHAN GUM FOOD GRADE 80 MESH

40 Tonnes **Not Applicable**

Details : Shipping location:- CIF offer to Mombasa Port. Currently in need of this item to support our operations, and we would like to know if your company can supply this product. We value quality and require suppliers that can provide us with consistent and reliable products that meet our stringent standards.

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Ellesmere Port, Cheshire West and Chester, UK

BUY INQUIRIES

Product	Quantity	Grade

Xanthan Gum

200 Kgs **None**

Details : Application - Cosmetic Use . Xanthan Gum transparent Make-Jungbunzlauer CAS No:- 11138-66-2

CLICK HERE TO VIEW

Ghaziabad, Uttar Pradesh, India

Cyanuric Acid CAS#: 108-80-5

1 Tonnes **Industrial**

Details : Need it to export to China on a repeat basis.

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Chennai, Tamil Nadu, India

Epibromohydrin CAS No:- 3132-64-7

100 Kgs **Industrial**

Details : Please quote the best CIF Air (Shanghai, China) price, with shortest lead time & COA/MSDS

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China

4-Piperidone Hydrochloride Monohydrate 99% CAS No:- 40064-34-4

1 Kgs **Industrial**

Details : Please share your best offer along with the COA, delivery time, packing detail and payment terms.

CLICK HERE TO VIEW

Ahmedabad, Gujarat, India

Starvis 3003F BASF CONSTRUCTION POLYMERS GmbH

200 Kgs **Chemical**

Details : Looking to buy 200kg Starvis, 1000kg Vinapor 2941 DF and 100 kg Kelco Crete DG-F of genuince BASF material

CLICK HERE TO VIEW

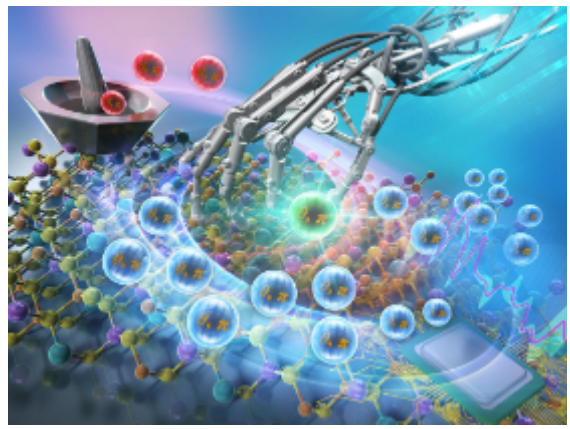
Melbourne

MANA Scientists Employ Active Machine Learning to Enhance Thermoelectric Performance of Materials

TSUKUBA, Japan, Jan. 17, 2025 / PRNewswire/ -- Scientists from the Research Center for Materials Nanoarchitectonics (MANA) have integrated machine learning with traditional materials science to expedite the discovery of kesterite-type thermoelectric materials, paving the way for efficient energy conversion technologies.

Kesterite-type materials, like Cu2ZnSnS4, are promising thermoelectric (TE) materials that convert waste heat into electricity. These non-toxic materials are composed of abundant, easily accessible elements and exhibit a figure of merit (zT), a quantity level that measures thermoelectric efficiency, of greater than 1 at temperatures between 300 and 800K (26 to 526C). Around 500K, kesterites undergo a transition from an ordered cationic structure to a disordered one, which affects their TE properties significantly. However, identifying optimal manufacturing conditions is time-consuming and requires multiple experiments.

Researchers from MANA used machine learning to accelerate this process. In just four experimental cycles, they optimized the sintering process, improving the thermoelectric performance of Cu2.125Zn0.875SnS4 by 60%. The study was led by Dr. Cedric Bourges from the International Center for Young Scientists, along with Guillaume Lambard from the Center for Basic Research on Materials as well as Naoki Sato, Makoto Tachibana, Satoshi Ishii, and Takao Mori from MANA, NIMS, Japan.



The researchers employed Active Learning with Bayesian Optimization (ALMLBO), which analyzes sintering parameters--such as heating rate, sintering temperature, holding time, cooling rate, and applied pressure--alongside thermoelectric properties obtained from experiments. This approach recommended new experimental conditions, and the process was repeated until the thermoelectric properties improved, indicated by a stabilized zT.

The team began with data from 11 samples prepared using spark plasma sintering, combining copper, zinc, tin, and sulfur powders under partial vacuum. The ALMLBO model predicted sintering conditions that achieved a record maximum zT of 0.44 at 725K. "This method showcases how integrating machine learning with traditional materials science accelerates discovery and optimization in complex material systems," say the authors. This approach has the potential to be extended to other materials, enabling rapid innovations in photovoltaics, batteries, and electronics.

Read the full report : https://www.nims.go.jp/mana/ebulletin/index.html

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Chlorine Dioxide Gas added into AAMI TIR 17

BRANCHBURG, N.J., Jan. 23, 2025 / PRNewswire/ -- The Association for the Advancement of Medical Instrumentation (AAMI) recently released the Technical Information Report (TIR) 17, Compatibility of Materials Subject to Sterilization. This newest edition of TIR 17 now incorporates chlorine dioxide gas and its impact on materials after processing. ClorDiSys, headquartered in Branchburg, New Jersey, heavily contributed to this section and provided testing results, studies, and peer reviewed papers to offer a scientifically backed rating for materials treated with chlorine dioxide gas.

Currently the United States Food and Drug Administration (FDA) is seeking alternative sterilization methods from

both ethylene oxide and Gamma irradiation due to their environmental risks. Chlorine dioxide gas sterilization is indeed the closest alternative to ethylene oxide, with significant advancements as well. It is non-carcinogenic, non-explosive, and lacks harmful residuals. A key point is that chlorine dioxide is a true gas, meaning that it will penetrate tight areas and fill a chamber completely and evenly, rather than condense onto surfaces or limit penetration as a vapor would. Unlike other low temperature sterilization methods, chlorine dioxide can also successfully sterilize cellulosic materials. Since it is non-explosive at use concentrations, chlorine dioxide can sterilize embedded batteries, whereas ethylene oxide causes many restrictions to advanced technology that features these.

ClorDiSys' chlorine dioxide gas generation method was developed by Johnson and Johnson and produces a non-acidic gas that is gentle on materials and is an EPA registered sterilant. This generation method greatly contributes to the high material compatibility generally reflected in TIR 17 and differs from other some other methods of generation. ClorDiSys is an FDA registered contract sterilization facility, but also manufactures sterilization chambers, allowing for sterilization to be brought in-house. Cycles frequently are 1/10th of the time that an equivalent ethylene oxide cycle would take, and if processing is performed in-house, the supply chain can even be further reduced.

Established in 2001, ClorDiSys is a New Jersey based business manufacturing sterilization equipment and providing services. ClorDiSys developed its technology through Johnson and Johnson, and chlorine dioxide gas has been providing true sterilization of medical devices for over 25 years.

Read the full report : https://www.clordisys.com/

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Scientech Selects Verdagy To Implement 320 Mw Of Green Hydrogen Electrolysers

MOSS LANDING, Calif . , Jan. 22, 2025 /PRNewswire/ -- Verdagy, a leading green hydrogen electrolysis company, announced that it has entered into a strategic partnership with Petron Scientech, a company with over 35 years of experience in renewable sustainable chemicals and biofuels process technologies. Petron will utilize 320 MW of Verdagy's eDynamic® electrolyzers to produce over 45 kilotons per year (KTA) of green hydrogen for integration into its first biorefinery project for the production of SAF, renewable diesel, and e-methanol, resulting in a CO2e reduction of 500 KTA or over 15 megatons with green hydrogen alone and combined with biorefinery, resulting in a reduction of 2 megatons/year or over 60 megatons of CO2e over the life of the project.

"Petron is developing several low-carbon, sustainability-focused biorefineries that reduce millions of tons of carbon emissions compared to fossil-based feedstock fuels, chemicals, and plastics. The company is collaborating with major airlines for the purchase of SAF made using Petron's ethanol and bioethylene technologies and with shipping companies for the purchase of e-Methanol, produced using green hydrogen. We were looking for a green hydrogen solutions partner that would integrate well with our renewable biorefineries/chemicals, have leading performance, and the technological expertise to scale to multiple GW in a capital-efficient manner. Verdagy is a perfect fit for the requirements and we look forward to collaborating with the company on various projects globally," said Petron Scientech CEO Yogi Sarin.

"We are excited to collaborate with Petron to grow the SAF and biofuels markets. Verdagy's mission is to provide green hydrogen at fossil-parity costs, without subsidies, within five years, to drive mass adoption and significantly reduce carbon emissions. Our electrolysers pair seamlessly in real-time with intermittent renewable energy sources, and our industry-leading efficiency and operating range maximise asset utilisation, leading to the lowest levelised cost of hydrogen (LCOH) in the world today," explained Verdagy CEO Marty Neese .

The two companies are collaborating on several biorefinery projects to produce SAF, e-methanol, and biochemicals and polymers. Verdagy opened its 1 GW electrolyzer factory in Silicon Valley in 2024, where the electrolyzers will be manufactured.

Read the full report :hhttps://verdagy.com/

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Strengthening Ties The Strategic Importance of the India-Australia Energy Alliance

Vinodhini Harish

Introduction:

It's time to build a collaborative framework to advance projects in the renewable energy sector, including solar power technologies, green hydrogen production and energy storage technologies. India and Australia came together to propose a trade agreement to build on the earlier Economic Cooperation and Trade Agreement (ECTA). This initiative reduces dependence on fossil fuels, achieves climatic goals and bolsters renewable energy sectors in both India and Australia. In this article, we have discussed this trade agreement, its benefits and implications. If you are interested in learning how it affects the renewable energy sector, then please continue to read the article as it is packed with insights. Let's begin.

Strengthening collaboration across renewable energy, trade, defence and critical materials: CECA.

The big news! India and Australia forge renewable energy and economic alliances! The two countries have taken a significant step forward in their bilateral relations by launching an ambitious renewable energy Partnership (REP) and committing to a Comprehensive Economic Cooperation Agreement (CECA). This announcement was made by Prime Ministers Narendra Modi and Anthony Albanese during the second annual Conclave, this program was held alongside the G20 summit in Rio De Janeiro. The initiatives aim to strengthen collaborations across renewable energy sectors that include trade, defence, and critical materials. It helps both nations transition to cleaner energy sources, contributing to global climatic goals. The initiative also supports economic growth by encouraging trade and investment and opening new economic opportunities which benefit industries and create job opportunities.

Strategic partnerships:

During the discussions, the leaders reaffirmed their commitment to building a comprehensive strategic partnership between the two nations. They have also highlighted the collaboration in key areas such as defence, security, trade, education, skills development, sports, space, mobility cultural ties and so on.

Based on the strategic collaboration, the REP aims to facilitate collaboration in renewable energy technology, investments and supply chains. These are the crucial factors of the sectors. Both countries are involved in sharing their technologies for efficient solar panels, advanced energy storage systems and green hydrogen production.

The bilateral cooperation and the partnership encourage investments in renewable projects. For instance, Australia's expertise in energy storage and the country's growing green hydrogen initiatives can create a symbiotic relationship for scaling up operations.

Boosted mutual trades and benefits:

The policy support provided by the agreement emphasizes regulatory alignment to promote faster adoption of renewable energy and foster innovation in energy storage solutions.

Furthermore, the ECTA Economic Cooperation and Trade Agreement which preceded the CECA has resulted

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STANFORDS STEER STUDY CAN SODIUM-ION BATTERIES RIVAL LITHIUM-ION

Vinodhini Harish

Introduction:

What is the future of energy storage if we don't rely on lithium? As the global demand for sustainable energy solutions accelerates, the search for viable alternatives to lithium-ion batteries has gained urgency. Sodium-ion batteries with their potential to cut down costs and be more resilient to supply chains, have emerged as a potential contender. However, the questions about their energy density, price competitiveness, and scalability remain still. A recent study conducted by Stanford's Doerr School of Sustainability and the SLAC-Stanford Battery Center, through their STEER program, delves into these challenges and opportunities, thereby providing a roadmap for sodium-ion technology's role in the energy transition. This interesting subject is covered in the article, we have also explored market trends and thought-provoking questions. So, let's begin.

Standford sodium-ion battery study says the technology will need more breakthroughs to compete.

Standford University study says that sodium-ion batteries will need more breakthroughs to compete with lithium-ion(Li-ion) batteries. They are considered the most promising alternatives to lithium-ion batteries due to their lower manufacturing costs and more resilient supply chains. However there are challenges, the sodium-ion batteries store less energy per pound compared to lithium-ion batteries. So, even though the material costs are cheaper, due to the storage issues, the cost per unit of energy is comparatively higher. Now this poses a significant hurdle for widespread commercial adoption unless breakthroughs in research improve their performance and storage issues.

A notable new initiative for energy solutions:

A recent study conducted by a collaboration between the Standford Doerr School of Sustainability's Precourt Institute for Energy and the SLAC-Standford Battery Center sheds light on the potential of sodium-ion batteries.

Their research incorporated a program that is named STEER(Standford Technology, Economics and Energy Roadmap), a program that assesses new energy technologies and advises on where to invest and innovate. The massive study evaluated over 6000 scenarios to evaluate the conditions under which sodium-ion batteries might compete with lithium-ion alternatives.

Since the price of lithium-ion batteries rose for the first time in 2022, the study's lead author, Adrian Yao, who is also the founder of STEER highlighted the importance of the research in the recent events. The increase in the pricing has sparked discussions about alternatives like sodium-ion. He also emphasized that sodium-ion batteries hold potential, the only challenge is the path to price competitiveness remains uncertain.

Lessons learnt from the study:

Rising lithium-ion costs spur demand for alternatives:

The rising price of lithium-ion batteries for the first time in 2022 has triggered an urgent need to explore alternative battery chemistries.

Lesson: external market factors such as resource scarcity and supply chain disruptions play a crucial role in shaping energy storage markets. It also highlights the importance of diversifying battery technology options to reduce reliance on critical materials such as lithium, cobalt, and nickel.

Sodium-ion batteries show promise but face challenges:

Sodium-ion batteries hold considerable potential due to their reliance on abundant and low-cost sodium. However, their path to price competitiveness remains unclear.

Lesson: While sodium-ion batteries could address material shortages and cost issues, their energy densities and performance must improve significantly to compete with lithium-ion batteries in high-demand applications.

The role of economic and technological modelling:

The STEER program evaluated over 6,000 scenarios to understand under what conditions sodium-ion batteries might compete with lithium-ion alternatives. This comprehensive approach provides a clear framework for decision-making.

Lesson: Advanced modelling and scenario analysis are essential for assessing the viability of emerging technologies. This ensures that investments and innovations are strategically aligned with market needs and technological capabilities.

Uncertainty around price competitiveness:

While sodium-ion batteries have cost-saving potential, there is uncertainty around achieving economies of scale and improving performance metrics remains a significant challenge.

Lesson: Achieving price competitiveness requires not just technological advancements but also coordinated efforts in scaling production, refining supply chains, and thereby creating market demand.

Sodium-ion's niche role in the market:

The study suggests that sodium-ion batteries may not fully replace lithium-ion batteries but could serve specific market segments such as grid storage and low-cost applications.

Lesson: Technologies should be tailored to their strengths rather than positioned as one-size-fits-all solutions. Sodium-ion batteries could complement lithium-ion batteries by targeting applications where cost and resource availability are more critical than energy density.

What are the Challenges and industry involvement?

Sodium-ion batteries and lithium-ion batteries are on either side of the battle. The key point to consider is increasing the energy density while avoiding the usage of expensive materials such as nickel. Therefore, the developers must focus on this factor.

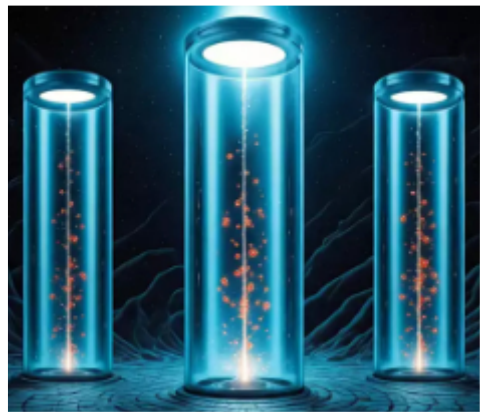
The current designs heavily rely on nickel and that is the reason for the rising costs. Achieving energy densities comparable to lithium-iron-phosphate batteries is another crucial goal.

Market trends and comparing Sodium-ion vs. Lithium-ion batteries:

The lithium-ion battery market has experienced remarkable growth over the past two decades and has been driven by the surging demand for electric vehicles, consumer electronics, and grid energy storage. By 2023, the lithium-ion battery market was at a value of about $100 billion and it is expected to grow with a growth rate of 13% over the next decade. The dominance of lithium-ion batteries stems from high energy densities, scalability and decades of optimization in terms of design and production. This is because lithium-ion batteries store more energy per unit of weight, which is a crucial factor for EVs and portable devices. Also, decades of R&D and economies of scale have significantly reduced costs. You can also observe their utilization across applications from smartphones to renewable energy storage.

In contrast, the sodium-ion battery market is still in its nascent stages but is still gaining traction. Experts project that the sodium-ion battery market will grow to $2-$4 billion by 2030 if the developers address technological and production challenges are addressed.
Sodium-ion batteries rely on abundant and widely available sodium instead of lithium, thereby offering a potential solution to supply chain and cost concerns. Sodium is one of the most plentiful elements on Earth, which reduces material costs and supply chain risks. However, there are some technological hurdles which should be addressed for them to become a low-cost alternative, especially for grid energy storage.

Leading market players in the industry such as CATL, and BYD have announced their plans to scale up sodium-ion battery manufacturing at lower costs. Additionally, sodium-ion batteries are emerging as a strong candidate for applications such as grid energy storage, where the cost and resource abundance are more critical than energy density.



Looking ahead at the bigger picture: Supply chains and Geopolitical factors:

STEER's study has benefitted greatly from the input provided by industry experts in battery manufacturing, electric vehicles and energy storage systems. One of the co-directors of STEER, Sally Benson explained that the industry feedback ensured that the study itself is highly relevant to the real world challenges and opportunities.

The study also emphasized the importance of diversifying energy storage technologies. Relying on lithium-ion batteries exposes the industry to economic and security risks. For instance, China controls over 90% of the global supply of graphite which is a key material in lithium-ion batteries and therefore it imposed restrictions on its exports. Supply chain disruptions like this could agitate interest in alternatives such as sodium-ion batteries.

STEER plans to expand its research into critical areas of energy technologies such as long-storage or long-duration storage, hydrogen, and industrial decarbonization. The approach of the program combines commercial deployment experience, technology road mapping and system thinking to guide the research and investment in the most promising directions.

They aim to focus on holistic solutions that consider the entire energy ecosystem, and thereby identify the most effective pathways for advancing

the global energy transition.

Closing thoughts, but opening questions:

The collaboration between Standford's Doerr School of Sustainability, the Precourt Institute for Energy and the SLAC-Stanford Battery Center provides a roadmap for sodium-ion batteries as a potential challenger to lithium-ion dominance. While Sodium-ion batteries present an opportunity to alleviate reliance on scarce and costly materials, their current limitations energy density and uncertainty in achieving price parity- highlight the challenges of transitioning to alternative technologies. Nevertheless, with targeted research, strategic investments, and collaborative innovation, sodium-ion batteries could carve a niche in energy storage markets, especially for grid storage and low-cost applications. But what about the future? Will sodium-ion batteries achieve the technological breakthroughs needed to make them a viable competitor? How will global supply chains for critical materials evolve and what is the role of a policy and industry in accelerating the shift? Can we afford to rely so heavily on lithium-ion or must we act now to diversify? We leave you with questions as these underscore the urgency of exploring alternatives in the race for a sustainable energy future.

MAZDA INTRODUCE THE ALL-NEW 'MAZDA6E' BATTERY EV IN EUROPE

Mazda Motor Europe, responsible for the European operations of Mazda Motor Corporation (Mazda), today announced the introduction of "Mazda6e," the all-new Battery EV (BEV) in Europe. Premiered at the Brussels Motor Show 2025 in Belgium on January 10, the Mazda6e will go on sale summer of this year.

Mazda6e is the European version of the Mazda EZ-6, the midsize sedan BEV unveiled at the Beijing Auto Show in April 2024. The all-new BEV is designed to attain the driving performance and functionality to meet European customers' needs.

An electric vehicle (EV) is a vehicle that uses a battery system to power the vehicle, instead of a gasoline engine. EVs can reduce or eliminate the need for liquid fuel.

The Mazda6e was developed through the collaboration between Mazda and Changan Automobile Co., Ltd, Mazda's 20-year partner in China. The Mazda6e BEV boasts Mazda's signature design, craftsmanship and driving performance, while coming with Changan Automobile's electrification and smart-cabin technologies.

An electric vehicle battery is a rechargeable battery used to power the electric motors of a battery electric vehicle (BEV) or hybrid electric vehicle (HEV).

Based on the design theme, "Authentic Modern," the Mazda6e's simple and flowing coupe form expresses the automobile's inherent charm coupled with a novelty unique to electric vehicles. The meticulously-tuned braking and handling performance, which respond linearly to driver input, produce Jinba Ittai—a sense of "car and driver as one."

The Mazda6e also features smart functions, including an intelligent drive system that provides support for the driver as well as accident mitigation technology and smart cabin with voice, touch, and gesture controls, all of which is aimed to raise the bar for safety and convenience.

Source: Mazda Motor

AUTEL ENERGY DEBUTS AT CES 2025: LAUNCHING STRATEGIC SOLUTIONS FOR SMART ELECTRIC VEHICLE INFRASTRUCTURE

Autel Energy, a trusted pioneer in electric vehicle (EV) charging technology, is reshaping the EV charging landscape with its comprehensive suite of charging solutions. With global electric vehicle sales growing 25% in the first quarter of 2024 compared with the same period last year, the accelerated shift towards electrification highlights the urgent need for reliable and scalable charging infrastructure. Autel Energy offers high-power DC charging solutions, advanced AC charging solutions and smart PV-ESS-EVSE integration, all enhanced through cutting-edge cloud services . Together, these solutions ensure unparalleled efficiency, flexibility and profitability for fleet operators, commercial sites and multi-site charging stations.

The core of Autel's strategy is a series of charging platforms and a comprehensive cloud platform . These two platforms work together to provide one-stop charging solutions to meet the needs of on-the-go charging, fleet charging with Millimeter Charging System (MCS) function, and destination charging. and residential charging and other major scenarios.

With a solid foundation in cutting-edge technology and customer-first design, Autel Energy achieved significant growth of 77.8% in the first three quarters of 2024 compared with the same period last year, once again solidifying its focus on driving sustainable innovation and providing partners and customers Leadership in exceptional value. Autel's products have also earned esteemed recognition for their design excellence, including accolades such as the Red Dot Design Award. Upcoming product lines will continue to reflect this commitment to high standards of design excellence, reinforcing the brand's dedication to quality and user experience.

"At Autel, we are driven by our unwavering mission to empower a cleaner, smarter, and more connected future," said Michelle Luo, Chief Revenue Officer, North America, Autel Energy. "Our innovative solutions are designed to meet the changing needs of electric vehicle adopters. needs while advancing global sustainability goals. CES 2025 represents a critical moment in our journey as we continue to lead the development of smart energy solutions."

Autel Energy's extensive business footprint is based on a strong global network of local service teams to ensure customized support for different regional markets. Autel has state-of-the-art manufacturing facilities in North Carolina, USA, and Haiphong, Vietnam, which are well-positioned to meet growing market demands while adhering to the highest industry standards. By driving transformative progress in sustainable mobility, Autel is actively shaping the future of energy and transportation around the world.

Source: businesswire.com

YADEA LAUNCHES SODIUM BATTERY ELECTRIC TWO-WHEELERS, LEADING A REVOLUTION IN THE ELECTRIC MOBILITY INDUSTRY

Yadea, the global leader in electric two-wheelers, hosted a grand launch event in Hangzhou, China, unveiling its latest electric two-wheeler powered by Yadea's groundbreaking sodium battery technology. The launch coincides with the opening of CES 2025 in the United States, showcasing Yadea's technological innovation in the field of electric mobility.

Yadea has always been committed to advancing the electric two-wheeler industry. The newly launched electric two-wheeler equipped with sodium battery technology represents a breakthrough in battery innovation, driving the industry towards greater efficiency and sustainability. Compared to traditional lithium batteries, sodium batteries offer enhanced safety, environmental friendliness, and longer lifespan. These attributes make them particularly promising for high-frequency usage in electric two-wheelers.

Yadea's sodium battery technology, based on sodium-ion batteries, offers significant advantages in cost and environmental sustainability due to the abundance of raw materials. Unlike lithium batteries, which rely heavily on rare metals, sodium batteries utilize more renewable resources, reducing environmental impact while enhancing battery stability and performance.

The newly launched Yadea sodium battery technology electric vehicle boasts high energy density, delivering exceptional performance in range, charging efficiency, and safety. Benefit of the HuaYu Sodium Superfast Charging Ecosystem, users can charge the battery to 80% in just 15 minutes, enhancing riding convenience. Additionally, the Yadea's Sodium Battery has passed more than 20 rigorous safety tests, ensuring it remains fire- and explosion-proof under extreme conditions such as puncture and compression, significantly improving overall safety.

The sodium battery of Yadea's new electric vehicle achieves an energy density of 145 Wh/kg, offering a cycle life of up to 1,500 cycles at room temperature, ensuring durability for up to five years. Additionally, It comes with a three-year warranty service. The battery excels in low-temperature performance, maintaining a discharge retention rate of over 92% at 20°C, making it ideal for use in colder regions.

As the global trend toward green mobility accelerates, electric two-wheelers are becoming the preferred choice for more consumers due to their eco-friendliness and convenience. Yadea remains committed to driving innovation in technology, delivering more efficient, safer, and environmentally friendly mobility solutions to consumers worldwide, and advancing the development of global green transportation.

Source: prnewswire.com

CHROMATIN BIOSCIENCE'S SYNTHETIC PROMOTER SUPPORTS ESOBIOTEC'S ESO-T01 CAR-T THERAPY AS IT ENTERS THE CLINIC

EDINBURGH, Scotland, Jan. 17, 2025 /PRNewswire/ -- Chromatin Bioscience is pleased to announce its ongoing collaboration with EsoBiotec, which has successfully advanced its ESO-T01 in vivo CAR-T candidate into clinical trials. ESO-T01 is the first in vivo B-cell maturation antigen (BCMA) CAR-T candidate to reach the clinical stage and utilises a synthetic promoter designed using Chromatin Bio's proprietary promoter design platform, chromatinLENS, exclusively for EsoBiotec as part of its innovative approach to immunotherapy.

EsoBiotec's ESO-T01, developed using its ENaBL platform, is a T cell targeted lentiviral vector expressing a BCMA-targeted CAR construct for the treatment of multiple myeloma. This construct is regulated by a T cell-specific synthetic promoter developed in collaboration with Chromatin Bioscience. Early studies demonstrated highly effective in vivo transduction, with the BCMA CAR transgene expressed specifically in T cells, leading to the generation of a large population of circulating BCMA CAR-T cells that persisted throughout the study. These results highlight the long-term durability and efficacy of the engineered T cells, marking an important milestone for the therapeutic.

"ESO-T01 is the first in vivo BCMA CAR-T candidate to advance to the clinical stage, showcasing the capabilities of our ENaBL platform technology that reprograms immune cells within the body to combat cancer," stated EsoBiotec CEO Jean-Pierre Latere, Ph.D. "While various treatments exist for multiple myeloma, including ex vivo CAR-T options, many come with severe side effects and are limited by manufacturing capacity, logistical challenges, and high costs. We are excited to collaborate with Chromatin Bioscience to integrate this innovative synthetic promoter, aiming to enhance the safety and efficacy profile of ESO-T01."

Chromatin Bioscience's chromatinLENS platform allows for the identification of highly specific, cell-type selective gene regulatory elements from the dark genome, offering significant advantages in minimising off-target effects while ensuring robust and durable therapeutic efficacy. These promoters are critical in ensuring the success of advanced therapies like ESO-T01, where targeted expression in T cells is paramount for the safety and efficacy of the treatment.

"EsoBiotec's progress to the clinic is an exciting development in the field of gene therapy," said Michael Roberts, CEO and Founder of Chromatin Bioscience. "Our synthetic promoters are designed to provide precision and durability in gene expression, and we are pleased that they are playing a role in ensuring the success of ESO-T01. This collaboration represents the power of combining cutting-edge gene therapy with targeted gene expression technologies to offer new treatment options for patients."

Source : Chromatin Bioscience

N4 PHARMA ANNOUNCES PRE-CLINICAL DEVELOPMENT OF AN ORAL RNA IBD TREATMENT USING NUVEC: N4 101

DERBY, United Kingdom — 4th December 2024: N4 Pharma Plc (AIM: N4P), the specialist preclinical stage biotech company announces a new lead programme, N4 101. This orally-delivered inflammation inhibitor for Irritable Bowel Disease (IBD) uses Nuvec®, the company's novel silica non-viral, non-lipid nanoparticle delivery system, to overcome the challenges with current IBD treatments. N4 101 is N4 Pharma's second lead programme, in addition to ECP 105, also in pre-clinical development, for the prevention of scarring post glaucoma surgery, using the company's other proprietary delivery system, LipTide®.

Original treatment of IBD (Crohn's Disease and Ulcerative Colitis) was dominated by immunosuppressive agents that produce significant side effects. Newer therapies are based on tumor necrosis factor (TNF)-alpha inhibitors – antibody therapeutics that suppress the tissue-damaging cytokine produced by hyperactive macrophages, a

hallmark of the disease – or small interfering RNAs (siRNAs) directed at silencing proinflammatory cytokines. However, both of these treatment approaches face challenges including side effects and only being available as injectables, which can hinder patient compliance.

To address the unmet need for effective, patient-friendly IBD treatment, N4 101 is an oral TNF-alpha inhibitor that contains dual loaded nucleic acids and aims to achieve local delivery in the gut and targeted uptake by the macrophages involved in inflammation. The dual action of N4 101 will simultaneously reduce excessive TNF-alpha production and promote the body's own anti-inflammatory response.

In vitro testing of reduction in TNF-alpha activity and increase in anti-inflammatory actions to optimise ratio of dual activities has been completed showing a good response from its dual loaded nanoparticles. The next phase of pre-clinical research on N4 101 will involve in vivo testing of an oral capsule to demonstrate release in large intestine and reduced inflammation in an appropriate animal model. Key in vivo results from the animal model of IBD will be available by mid-2025 to extrapolate dosage and regime for clinical evaluation and pre-IND submission.

Nigel Theobald, Chief Executive Officer of N4 Pharma commented: "With an estimated 10 million people globally suffering from Crohn's disease and ulcerative colitis[i], theIBD treatment market is expected to reach $35.1bn by the end of 2032, growing at a CAGR of 5.7% from 2022 to 2032.[ii] This growth highlights the potential for new therapies to improve patient outcomes and address limitations of existing treatments.

We are optimistic that via Nuvec's ability to dual-load nucleic acids, protect them, and target delivery to the macrophage cells through oral administration, N4 101 has real potential to improve patient lives. Next steps for the company will be to advance preclinical studies and prepare N4 101 for a Clinical Trial Authorisation/Investigational New Drug filing in the coming years."

N4 Pharma's other lead programme, ECP 105, is a simple and effective anti-fibrotic therapy to maximise surgical success in glaucoma surgery by reducing post-surgical scarring, without exposing patients to the risk of cytotoxic medications, which are currently used off-label.

Source : N4 PHARMA

IPCA TO MARKET NOVALEAD'S PATENTED, REPURPOSED DRUG DIULCUS® FOR THE TREATMENT OF DIABETIC FOOT ULCER (DFU)

The approval is based on Phase III study which established that NovaLead's patented drug branded as Diulcus®, which will be marketed in India by Ipca Laboratories Ltd. Diulcus® promotes the complete closure of DFU significantly better than Standard of Care, which is the present treatment of choice. Currently there is a global unmet medical need for the treatment of DFU.

With over 15% Diabetic patients suffering from DFU at least once in their lifetime, DFU is the most prevalent complication caused by chronic diabetes. The approval of this patented repurposed drug is significant because DFU is the leading cause for lower limb amputations globally.

The approval of Diulcus® marks a pivotal moment for the people suffering from DFU, who until now had few effective drug options for complete wound closure. With 20% higher incidence of complete wound closure among DFU patients demonstrated in its pivotal Phase III trial over current standard of care, Diulcus® provides significantly superior treatment option to physicians treating DFU patients. Approval of Diulcus is also a demonstration of effective Public-Private partnership as its development was part funded through Grant-In-Aid from BIRAC, a Government of India initiative.

Diulcus® is a novel topical formulation of an active pharmaceutical ingredient which was originally approved for the treatment of Tachycardia as an intravenous injection. NovaLead has been granted patents for it in several countries including regulated markets of USA, EU and Japan.

Diulcus® will be made available to the patients of DFU by Ipca Laboratories Ltd. (Ipca) through an exclusive IP licensing arrangement with NovaLead for Indian market.

"We are delighted to partner with NovaLead through an IP Licensing arrangement to bring Diulcus® for DFU patients in India. It demonstrates Ipca's commitment towards to patients suffering from unmet medical need of DFU management and its focus on the diabetic sector. We are lining up for making Diulcus® available in India market from August, 2024." Said Mr. Premchand Godha, Executive Chairman of Ipca Laboratories Ltd."

Source : IPCA

ARAMCO PLANS TRANSITION MINERALS JV WITH MA'ADEN

- Collaboration harnesses Aramco's extensive geoscience data, digital capabilities, and subsurface knowledge and Ma'aden's decades of mining expertise
- Aramco identifies promising lithium concentrations exceeding 400 parts per million in its existing area of operations
- Possible collaborations could potentially commence commercial lithium production by 2027
- Companies sign Heads of Terms to explore new opportunities in transition minerals

Aramco, one of the world's leading integrated energy and chemicals companies, and Ma'aden, the largest multi-commodity mining and metals company in the Middle East and North Africa region, today announced the signing of non-binding Heads of Terms, which envisages the formation of a minerals exploration and mining joint venture (JV) in the Kingdom of Saudi Arabia. The proposed JV would focus on energy transition minerals, including extracting lithium from high concentration deposits and advancing cost-effective direct lithium extraction (DLE) technologies. Commercial lithium production could potentially commence by 2027.

The proposed JV is expected to extend Aramco's capabilities into an adjacent sector, leveraging its technological innovation and skills in resource and data management. It would seek to unlock the potential of the Kingdom's high-value mineral resources, with the aim of helping meet growing demand for lithium and other transition minerals both domestically and globally. The JV is expected to further harness natural resources utilizing a wealth of subsurface data, as well as emerging technologies, to advance the Kingdom's economic diversification and energy ambitions.

There is significant potential for the extraction of energy transition minerals in the Kingdom. For example, as part of its operations, Aramco has identified several areas with a high lithium concentration of up to 400 parts per million. The JV is expected to benefit from Aramco's significant expertise and operations, including the use of existing infrastructure, industry-leading drilling operations, and more than 90 years of geological data in its area of operations.

Nasir K. Al-Naimi, Aramco Upstream President, said: "This announcement reflects Aramco's focus on positively contributing to the global energy transition. The proposed JV will enable extraction of energy transition minerals, contributing meaningfully to the growth of more sustainable energy solutions while diversifying our portfolio for a lower-carbon future. We expect that this partnership will leverage the world's leading upstream enterprise to apply significant low-cost advantages, industry experience, technological innovation, accumulated subsurface knowledge and an integrated supply chain ecosystem, with a view to meeting the Kingdom and potentially the world's projected lithium demand."

Darryl Clark, Ma'aden Senior Vice President of Exploration, said: "Ma'aden has been undertaking one of the world's largest single-jurisdiction exploration programs across the Arabian Shield, to unearth the estimated $2.5 trillion mineral endowment. This proposed JV would enable us to accelerate exploration of the Arabian Platform, combining Aramco's vast knowledge of the area with Ma'aden's extensive mining and exploration expertise."

Lithium is a fundamental component of the energy transition, essential for production in fast-growing sectors such as electric vehicles, energy storage, and renewables. The total global demand for lithium has tripled over the past five years, and its compound annual growth rate is anticipated to exceed 15% per annum through 2035. The JV could potentially help meet the Kingdom's forecasted demand for lithium, which is expected to grow twenty-fold between 2024 and 2030, supporting an estimated 500,000 electric vehicle batteries and 110 GW of renewables.

The planned JV, which is subject to customary closing conditions including regulatory approvals, was announced during the Future Minerals Forum in Riyadh.

Source : Aramco

DUPONT™ MOLYKOTE® HP-300 GREASE PROVEN TO MEET STRICT HYDROGEN PURITY STANDARDS

GENEVA, Switzerland, Jan. 21, 2025 /PRNewswire/ -- DuPont (NYSE: DD) today announced that DuPont™ MOLYKOTE® HP-300 Grease has successfully met rigorous hydrogen purity standards in accordance with ISO 14687:2019.

In collaboration with HyCentA Research GmbH, MOLYKOTE® developed an innovative lubricant testing protocol aligned with these standards. The grease underwent several weeks of exposure to hydrogen at a pressure of 700 bar, followed by a hydrogen gas and particle contamination analysis. The results showed MOLYKOTE® HP-300 did not significantly contaminate hydrogen, ensuring compatibility with critical hydrogen applications such as fuel cell stacks. This achievement marks a significant step forward in advancing hydrogen technologies.

Pure hydrogen can be easily contaminated by any material with which it comes into contact, including lubricants. This necessitates critical testing to ensure purity for safety and performance. For hydrogen grades used in transportation applications, certain impurities with concentrations even as low as 4 parts per billion have the potential to compromise the integrity of the fuel cell. This rigorous assessment supports MOLYKOTE® HP-300 as a potential lubricant solution for hydrogen-exposed components in applications such seal and threaded connections, reducing contamination risk while maintaining the integrity of critical parts. The grease's performance in extreme conditions helps to support safe and reliable hydrogen storage and transportation and use of hydrogen as a next generation fuel.

In addition to its ability to help maintain hydrogen purity, MOLYKOTE® HP-300 helps to enable resistance against hydrogen and many chemicals while providing excellent low temperature (-40 °C) performance, critical for applications such as vehicle refueling. It does not support hydrogen embrittlement and is compatible with a wide range of substrates including most elastomers and plastics.

By reducing the risk of contamination in hydrogen systems, DuPont is helping to advance cleaner energy solutions. MOLYKOTE® HP-300 grease is a well-suited solution that meets the stringent demands of the hydrogen energy industry.

Source : Dupont

ARKEMA INTRODUCES BIO-BASED ACRYLIC BINDERS TO LOWER THE PRODUCT CARBON FOOTPRINT OF PERFORMANCE TEXTILES

COLOMBES, France, Jan. 22, 2025 / PRNewswire/ -- Arkema, a leader in Specialty Materials, has launched its new range ENCOR® bio-based waterborne dispersions designed for textile printing and finishing applications. These binders, with up to 30% bio-based content(1), and up to 40% carbon footprint reduction(2) compared to traditional textile resins, are supporting the textile industry's efforts to decrease their product's carbon footprint, supporting a more sustainable lifestyle.

"The textile value chain being responsible for 6 to 8% of the worldwide emissions (3), with an increasing demand, there is an important need to transform and reduce the carbon footprint of the sector. Bio-based solutions set the stage for the next generation of more sustainable textile products, supporting our customers to achieve their sustainability and carbon reduction goals" said Helene PERNOT - Global Sustainability Marketing Director @Coating Solutions.

"Arkema's approach encompasses the entire lifecycle": From safer product, such as formaldehyde and APEO-free (4) formulations that comply with Oeko-Tex® Eco Passport standards (6) and/or are suitable for food contact (5), to the use of renewable and lower carbon feedstocks, said Patricia BEURDELEY- Global Market Manager Nonwovens & Textile @Coating Solutions. "We also focus on end-of-life management, with work to enhance the biodegradability of our future grades, extending durability, as well as improving color solidity and washing resistance."

Sourch : Arkema

CULT-FAVORITE SKINCARE BRAND MAD HIPPIE VENTURES INTO BODYCARE WITH LAUNCH OF NEW ULTRA RICH BARRIER CREAM!

NEW YORK, Jan. 21, 2025 / PRNewswire/ -- Mad Hippie, the brand that attained a massive cult following among skincare gurus and beauty lovers alike for their innovative range of high-performance products that are infused with clean ingredients and skin saving nutrients, is kicking off the new year by expanding their offerings to include a new bodycare staple: the Mad Hippie Ultra Rich Barrier Cream.

Just in time for the colder months of the year which often lead to dry, flaked or cracked skin, the Mad Hippie Ultra Rich Barrier Cream ($17.99) is designed to combat these woes with deep antioxidant rich hydration while boosting your skin's natural barrier defense against environmental stressors. This creamy formula also features super hydrators such as Vegan Lanolin and Hyaluronic Acid that leave skin soft to the touch alongside Vitamin C and Niacinamide to even skin tone and fight oxidative stress.

"So many of us have problem areas where we find we are constantly applying a moisturizer to combat cracking or flaking, particularly in the winter months. We really wanted to create a formula specifically to nourish and hydrate the very driest skin." says Mad Hippie Co-Founder, Dana Stewart, "Not only does our new Ultra Rich Cream meet the high standards we set for all of our products, we're also excited to expand our offerings into bodycare as it is something our customers have been requesting for a long time."

"This new launch encompasses all of the things that our customers have come to love from our existing product range: cruelty-free/vegan formulas, powerful actives, and clean ingredients- plus, it is packaged in a tube made of sustainably harvested sugarcane bioresin." says Co-Founder Sam Stewart.

Mad Hippie's Ultra Rich Barrier Cream is available on MadHippie.com now and at ULTA Beauty in-store and online now!

Source : Mad Hippie

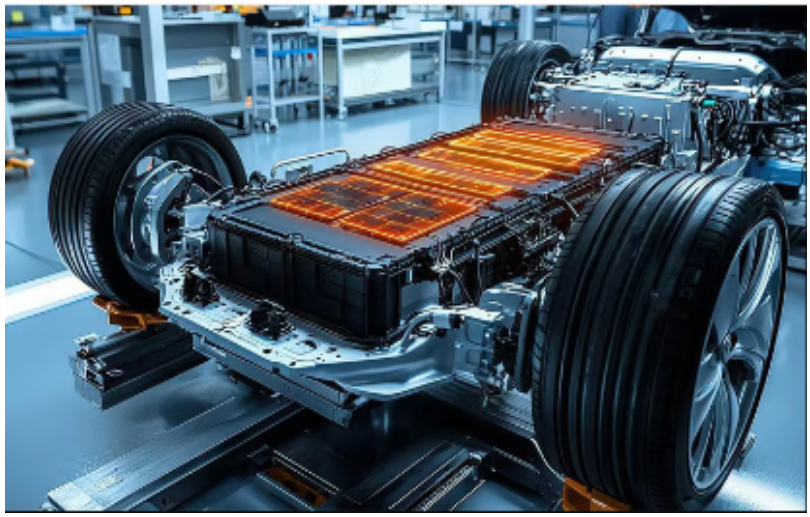
TATA ELXSI AND MINESPIDER PARTNER TO LAUNCH MOBIUS+ FOR BATTERY LIFECYCLE TRACEABILITY

An Advanced Platform that Combines Blockchain and Analytics to Optimize Battery Sustainability and Compliance Across Global Markets

- MOBIUS+ complies with evolving global battery passport regulatory mandates, including EU Battery Passport, US Inflation Reduction Act, and Global Battery Alliance (GBA) recommendations
- Battery Passports are expected to deliver 10-20% cost savings in recycling and maintenance through predictive insights and advanced analytics
- They are also expected to reduce emissions across the battery lifecycle by up to 20%, aligning with sustainability goals

Bengaluru, January 21, 2025 – Tata Elxsi, a global leader in design and

technology services, has joined forces with Minespider, a blockchain-powered traceability solutions provider, to launch MOBIUS+, an advanced battery lifecycle management platform. Designed to address the growing need for sustainability, compliance, and performance optimization in the battery industry, MOBIUS+ aims to revolutionize the way batteries are managed from producton to recycling.



This state-of-the-art platform integrates advanced data analytics, real-time monitoring, and compliance features to deliver actionable insights for OEMs and the entire battery ecosystem, including material suppliers, cell and module manufacturers, and recyclers. These capabilities enable better performance tracking, maintenance, and sustainability management, making MOBIUS+ a cutting-edge solution in the mobility ecosystem.

The collaboration between Tata Elxsi and Minespider brings together unparalleled expertise. Minespider contributes its blockchain-based battery passport solution, enabling seamless compliance with global regulations, including those in Europe and the United States. Tata Elxsi leads the development and delivery of the MOBIUS+ platform as a future-proof and scalable solution for global markets and takes the lead for deployment in the India market.

Key Features and Benefits

1. **Data Onboarding and Integration:** A seamless interface for vendors to upload and manage their data, ensuring compliance and accuracy across the supply chain.
2. **Centralized Repository:** A secure, cloud-based system that consolidates data for easy access and analysis by OEMs and stakeholders.
3. **Advanced Analytics Support:** Enable valuable insights through powerful analytics features of MOBIUS+, helping companies monitor battery performance, enhance design, and optimize lifecycle management.
4. **Regulatory Compliance:** Designed to meet global standards, including the EU Battery Regulation, MOBIUS+ ensures companies stay ahead of compliance requirements.
5. **API Integration:** The platform supports integration with third-party systems, enabling effortless data exchange across the ecosystem.
6. **Custom Workflows:** OEM's and Tier1 can create tailored workflows using the MOBIUS+ platform, leveraging battery data to build vertical analytics use cases, thereby maximizing Return on Investment (ROI).

"Our collaboration with Minespider is a commitment to drive innovation in sustainable mobility. With MOBIUS+, we aim to set a new benchmark for battery lifecycle management, providing customers with compliance-ready solutions, advanced tools, and data-driven insights to create a more sustainable and transparent future in mobility," said Anil Radhakrishnan, Chief Product Officer, Tata Elxsi.

"Partnering with Tata Elxsi enables us to bring our blockchain expertise to a comprehensive platform that supports the industry's drive for transparency and compliance," said Nathan Williams, Founder & CEO, Minespider. "By embedding battery passports into MOBIUS+, we're providing a foundation for secure, reliable data that supports global sustainability goals."

MOBIUS+ will have its global launch at the Bharat Mobility Show, where Tata Elxsi and Minespider will showcase live demonstrations of the platform's capabilities, including its analytics use cases and compliance features. The event will highlight the readiness of MOBIUS+ for deployment in the Indian market, as well as its global scalability.

Tata Elxsi and Minespider are committed to continuously evolving MOBIUS+ to meet future regulatory and market demands. The platform's innovative architecture ensures scalability and adaptability, opening possibilities for expansion into non-mobility sectors like logistics and energy.

Source : TATA Elxsi

CENTURY LITHIUM AND ORICA SPECIALTY MINING CHEMICALS SIGN MOU FOR SODIUM HYDROXIDE FROM ANGEL ISLAND

VANCOUVER, BC, Jan. 21, 2025 / PRNewswire/ - Century Lithium Corp. (TSXV: LCE) (OTCQX: CYDVF) (Frankfurt: C1Z) (Century Lithium) is pleased to announce it signed a non-binding memorandum of understanding (MOU) with Orica Specialty Mining Chemicals (Orica) on January 16, 2025. The non-binding MOU outlines the intent of Century Lithium and Orica to formalize a multiyear offtake agreement for Orica to purchase sodium hydroxide (NaOH) from Century Lithium's wholly owned Angel Island project near Silver Peak, Nevada. Orica is one of the world's leading mining and infrastructure solutions providers, and a major US manufacturer and supplier of specialty mining chemicals to Nevada's mining industry.

"The non-binding MOU with Orica marks a key milestone for Angel Island," said Century Lithium President and CEO, Bill Willoughby. "The MOU outlines the first expected agreement of its kind for the project and involves a large portion of the surplus sodium hydroxide anticipated during the early years of operation. We are excited to work with Orica and have their support at this stage of development at Angel Island."

Orica President Specialty Mining Chemicals Andrew Stewart said: "This collaboration signifies our commitment to strengthening and unlocking Nevada's manufacturing and mining sectors. By securing a reliable source of sodium hydroxide from Angel Island, we strengthen the local supply chain and reinforce our dedication to innovative US manufacturing solutions for our customers in North America."

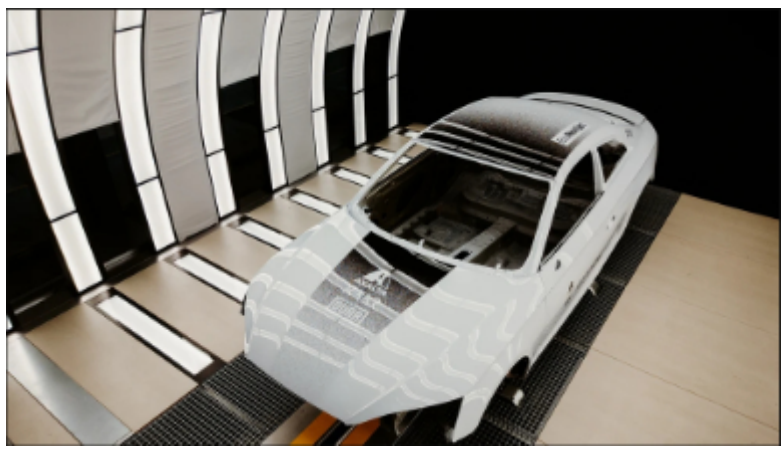
Century Lithium patent-pending process for extracting lithium from the claystone at Angel Island combines chloride leaching with direct lithium extraction and uses salt, in the form of solid sodium chloride or saline brine, to make the reagents for leaching and pH control. In addition to lithium, the process produces surplus sodium hydroxide, the sales of which are anticipated to underpin low operating costs for Angel Island's primary product, lithium carbonate.

Source : Century Lithium Corp.

AXALTA AND DÜRR PARTNER ON AUTOMOTIVE DIGITAL PAINT TECHNOLOGY

Bietigheim-Bissingen, January 22, 2025 – Axalta Coating Systems (NYSE: AXTA), a leading global coatings company, and Dürr Systems AG, a leading mechanical and plant engineering firm, have entered into a partnership to provide a digital paint solution, combining Axalta's NextJet™ technology with Dürr's robotics integration.

Digital paint, also referred to as overspray-free application, is an advanced paint application that allows for precise paint placement. Under the terms of the agreement, Dürr will serve as the robotics integrator for Axalta NextJet™ for light vehicle Original Equipment Manufacturers (OEM).



"The maskless application of paint for two-tone and graphics takes collaboration," said Hadi Awada, President, Global Mobility Coatings,

Axalta. "Through our partnership with Dürr, we can better serve OEM customers, building on Axalta's coatings know-how and Dürr's robotics integration. Together we are driving the future of digital paint technology."

Dr. Lars Friedrich, CEO, Dürr Systems AG, added "We are excited to collaborate with Axalta on the next generation of digital paint. As a pioneer in the field of overspray-free application, Dürr understands the requirements that OEMs demand for individual designs on their vehicles. This agreement will enable our joint technology to come faster to market and meet the needs of our customers."

This partnership leverages the digital paint expertise Axalta and Dürr have each cultivated over recent years. In 2023, Axalta and Xaar announced their digital paint partnership that brought their unique capabilities together to offer solutions to light vehicle OEMs. Xaar will continue to be an integral part of the digital paint solutions that Axalta and Dürr will offer to the OEM market.

Demonstrations with Axalta NextJet™ on Dürr robotics have already begun at Dürr's test center in Bietigheim-Bissingen, Germany. OEMs can reach out to their Dürr or Axalta representative for more information.

Source : DURR

SHEIN MARKS A MILESTONE WITH THE DEVELOPMENT OF AN INNOVATIVE POLYESTER RECYCLING PROCESS

Technology to be made available to partner fibre manufacturers for large-scale production in June 2025, with targeted annual production capacity of 3,000 metric tonnes

SINGAPORE, Jan. 22, 2025 / PRNewswire/ -- SHEIN, the global online on-demand fashion lifestyle retailer, has marked its latest milestone in its evoluSHEIN strategy with the development of an innovative polyester recycling process with Donghua University, a leading research institute specialising in textile innovation and research, as part of a multi-year collaboration.

This innovative polyester recycling process accepts a wider range of materials, including both pre- and post-consumer polyester feedstock, such as textile waste and polyethylene terephthalate (PET) bottles. This offers greater flexibility in sourcing for feedstock, and as a result, improved cost efficiency compared to the recycled polyester options currently used in SHEIN's products. Testing by Donghua's team of researchers has also shown that the recycled polyester fabrics produced through this process can be recycled repeatedly without significant impact on the material properties of the resulting fabric, as the inputs are chemically broken down, refined, and reconstituted at the polymer level.

At this stage of the project, SHEIN will be partnering with selected partner fibre manufacturers, to scale up the technology from a laboratory-scale setting to a facility capable of producing recycled polyester fibres at a larger commercial scale. The facility is expected to start large-scale production of polyester fibres in June 2025, with an annual target production output of 3,000 metric tons.

Leonard Lin, President of EMEA, Global Head of Public Affairs, and General Manager of Singapore, SHEIN said, "Our goal is to leverage innovation and technology to help solve industry-wide challenges. In line with our evoluSHEIN strategy, we have invested in the research and development of a new polyester recycling process that allows us to incorporate a broader variety of feedstock, achieve better cost efficiencies, and recycle

polyester multiple times without compromising the material properties of the polyester produced. This will be a critical step towards our goal of reducing our reliance on virgin polyester and supporting a broader industry transition. SHEIN will continue to look for more opportunities to partner with ecosystem players to accelerate use of recycled polyester".

This collaboration with Donghua University is in line with SHEIN's commitment to transition 31% of the polyester used in SHEIN-branded products to recycled polyester by 2030. SHEIN also continues to support innovation in circular solutions and encourage adoption of next-generation fibres. In September 2024, SHEIN launched the evoluSHEIN x Anitta collection, featuring styles made with Regracell® – a soft, breathable fibre made from a mix of recycled textile waste and FSC-certified wood inputs. In addition, SHEIN has partnered with Aloqia (formerly Queen of Raw) since 2022, to incorporate deadstock fabrics - leftover materials from other brands - into exclusive, limited-edition designs. A limited-edition SHEIN X Rescued collection was launched in May 2024, showcasing designs by SHEIN X designers using deadstock materials sourced through SHEIN's partnership with Aloqia.

Source : Shein

INTERNATIONAL NEWS

GREAT LAKES FILTERS NOW OFFERING ELECTROCOAGULATION (EC) TECHNOLOGY TO DESTROY PFAS "FOREVER CHEMICALS" ON-SITE, REDUCING COSTS AND LIABILITY FOR INDUSTRIAL WASTEWATER TREATMENT

Great Lakes Filters now offering Electrocoagulation (EC) Technology to Destroy PFAS "Forever Chemicals" On-Site, Reducing Costs and Liability for Industrial Wastewater Treatment

PFAS compounds, notorious for their resistance to degradation, pose a significant environmental and health risk due to their stability and bio-accumulative properties. Michigan currently enforces a 12ppt limit. Compliance with these stringent regulations has previously required expensive and complex treatment methods, including pre-filtration and off-site disposal. Great Lakes Filters' new EC technology destroys PFAS compounds at their molecular level, eliminating the need for secondary processing and reducing liability by preventing the transportation and disposal of hazardous materials.

Unlike existing PFAS capture technologies such as dissolved air flotation, ion exchange resin (IXR), granular activated carbon (GAC), nanofiltration (NF), and reverse osmosis (RO), which only separate or adsorb PFAS without fully eliminating them, EC technology breaks the fluorine-carbon bond within the PFAS structure, rendering the chemicals harmless. This process also removes both dissolved and suspended solids, kills pathogens and viruses, and consistently meets water standards, all while significantly lowering operational and capital expenses.

Key benefits of EC technology:

- On-site PFAS destruction: No need for off-site trucking, reducing costs and liability.
- Mitigated pre-filtration: Simplifies the process and lowers operational

complexity.

- Lower treatment costs: Offers the lowest cost per gallon treatment compared to any other PFAS technology.
- Compliance with regulatory limits: Meets U.S. EPA and Michigan discharge standards.
- Turn-key solution: Includes construction, installation, and financing.
- No need for licensed operators: Simplifies management and reduces overhead.
- Clean discharge: Effluent meets existing sewer discharge standards.

"We're thrilled to offer this breakthrough technology to industries facing the challenges of PFAS contamination," said Matt Utley, President of Great Lakes Filters. "Our electrocoagulation technology doesn't just capture PFAS, it destroys them at the point of treatment. This reduces operational costs, limits liability, and ensures compliance with the toughest regulations."

Source : Great Lakes Filters

ENERKEM ANNOUNCES APPROVAL OF THE ECOPLANTA PROJECT

- Ecoplanta project receives approval: a major step forward with Enerkem's innovative waste-to-methanol technology

MONTREAL , Jan. 30, 2025 / PRNewswire/ -- Enerkem, a global provider of technology that enables the production of low-carbon fuels and chemicals from waste, is proud to announce that Repsol's Board of Directors has officially approved the Financial Investment Decision (FID) for

the Ecoplanta project, marking an important milestone in the drive toward the supply of sustainable fuels and products.

Repsol's Ecoplanta project will leverage Enerkem's cutting-edge technology to transform non-recyclable municipal waste into sustainable methanol that can be used as a feedstock to produce circular materials and advanced biofuels, contributing to the decarbonization of transport and chemicals.

"We are delighted with Ecoplanta's FID approval, which will play a key role in advancing our commitment to sustainability and circularity," said Michel Chornet, CEO of Enerkem. "Enerkem's innovative technology will enable Ecoplanta to have a significant impact on efforts to increase waste recycling, as well as decarbonize hard-to-abate sectors."

Located in El Morell, Spain, the Ecoplanta plant will help address significant environmental challenges by diverting around 400,000 tonnes of non-recyclable municipal waste from landfills or incineration. Using Enerkem's advanced gasification technology, the plant will convert this waste into 240,000 tonnes of methanol per year. The plant is scheduled to be commissioned in 2029.

"Our technology has already demonstrated its ability to convert waste into valuable and sustainable products on a commercial scale, and we are confident that Ecoplanta will be an inspiring example for others on the path to decarbonisation. I would like to thank Repsol, Technip Energies, the European Innovation Fund* and our employees for this great achievement. The journey begins," explained Chornet.

Source : PRNewswire

Continued from Page 22

in a 40% increase in bilateral trade within these two years. The growth also impacted the tariffs and enhanced market access for goods and services, and a focus on strategic industries such as clean energy.

Many products related to the industry, including renewable energy equipment, benefit from lower tariffs and thus it boosted trade volumes.

The collaborative frameworks have also simplified trade logistics, making it comfortable for both countries to exchange high-value goods.

The renewable energy market that is driven by this agreement is poised for growth. India aims to produce 5 million tons of green hydrogen annually by 2030. Collaborating with Australia, a global leader in renewable energy exports, can help meet the target while fostering technological and financial synergies.

The countries can help each other and look after their limitations. As the demand for grid-scale storage grows, Australia's lithium reserves and expertise can address India's energy storage needs. India's vast solar installation plans align with Australia's advanced photovoltaic technologies thereby offering mutual benefits.

Committing to a stable Indo-Pacific:

The leaders discussed the regional and multilateral issues associated with global trade. They also discussed unhindered maritime movement, especially through critical waterways like the South China Sea.

They have also discussed promoting collaboration among nations regardless of size or power and threats such as territorial disputes, piracy and militarization that could destabilize the region.

They have also discussed respecting the nation's established borders and ensuring no external force compromises the geographical and political autonomy.

For instance, considering the key disputes in the Indo-Pacific region, several nations such as Vietnam, The Philippines and Malaysia challenge China's extensive territorial claims under its Nine-Dash line. There are ongoing tensions along the Line of Actual Control (LAC) that affect the regions of Ladakh.

Therefore upholding territorial integrity is crucial in maintaining peace and preventing escalation of conflicts.

Multilateral Cooperation:

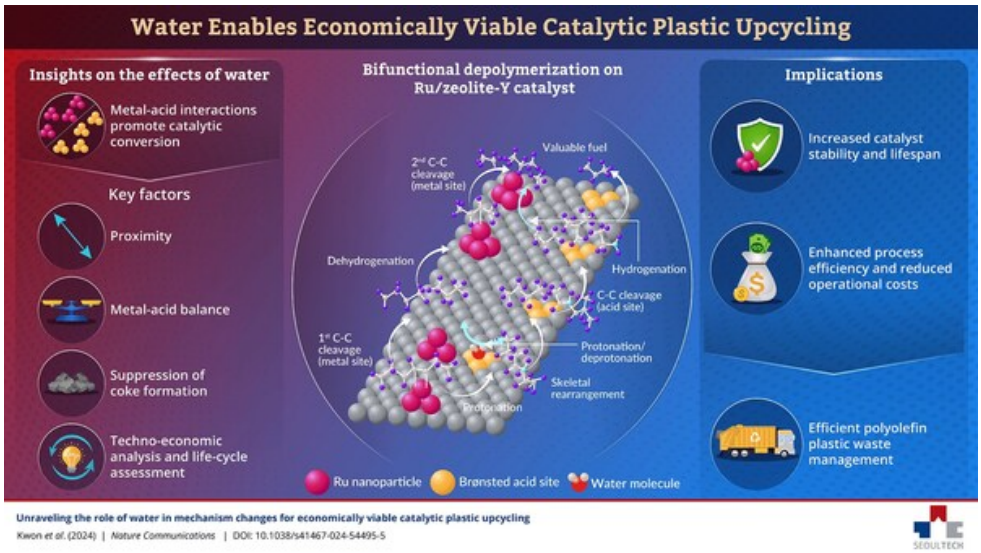
Strengthening alliances such as the Quad which is compromising India, Australia, Japan and the US to collectively address the regional challenges. Collaborating with ASEAN nations and fostering platforms like the East Asia Summit to ensure broader participation in security and economic frameworks.

Take away:

The India-Australia renewable energy partnership and CECA exemplify how these nations can work collaboratively to address critical global challenges. By leveraging each other's strengths in renewable energy and trade, they are working towards building a greener future while promoting stability in the Indo-Pacific region. This region defines the pulse of the global geopolitics. The initiatives challenge the status quo, asking whether more countries can adopt similar cooperative frameworks to balance economic ambitions with environmental and territorial integrity. Will the success of this partnership inspire others to align sustainability with diplomacy?

Water as a Waste Management Source: SEOULTECH Researchers Revolutionize Catalytic Plastic Recycling

SEOUL, South Korea, Jan. 21, 2025 / PRNewswire/ -- Plastics are undeniably useful materials that have found their way into virtually all human activities. However, with yearly global plastic production exceeding 400 million tons, the environmental threat posed by increased plastic consumption and disposal, contributing to its pollution, is also bigger than ever. Considering that only one-tenth of all plastic waste is recycled, new technologies that can help tackle this growing problem are urgently required.



Catalytic recycling techniques, such as hydrogenolysis and hydrocracking, are emerging chemical processes that can break down plastic waste into simpler components using catalysts. Traditional recycling involves melting and remolding plastics into lower-quality materials, whereas catalytic recycling can convert plastics into valuable chemicals and fuels, enabling a more sustainable and efficient reuse. Though certainly promising, catalytic recycling methods need further refinements before they are ready for adoption on an industrial scale.

In a recent study published in Nature Communications online on 29 November, 2024, a research team led by Professor Insoo Ro of Seoul National University of Science and Technology, Korea, recently made a breakthrough discovery in the catalytic recycling of polyolefins, which comprise 55% of global plastic waste. As explained in their article, the researchers revealed the surprising benefits of adding water during polyolefin depolymerization when using ruthenium (Ru)-based catalysts.

After synthesizing and experimenting on various Ru-based catalysts on different supports, the team found that catalysts with both metal and acid sites exhibit dramatically improved conversion rates when water is added to the reaction mixture. "The addition of water alters the reaction mechanisms, promoting pathways that enhance catalytic activity while suppressing coke formation," explains Dr. Ro, "This dual role improves process efficiency, extends catalyst lifespan, and reduces operational costs."

The researchers investigated the reaction mechanisms in detail, shedding light on the effect of Ru content and the proximity and balance between metal and acid sites. Under optimal conditions, Ru/zeolite-Y catalysts showcased a 96.9% conversion rate for polyolefins.

Finally, to explore the viability of this type of catalytic recycling, the team conducted a techno-economic analysis and a life cycle assessment of the proposed approach. The results clearly underscored the potential of implementing a real commercial-scale process using Ru/zeolite-Y catalyst. "The addition of water not only enhances carbon efficiency, it improves economic and environmental performance, also increases the conversion of polyolefins to valuable fuels like gasoline and diesel," highlights Dr. Ro. Adding further, he says, "This approach thus represents a viable alternative to conventional waste management practices and offers a solution to reduce landfill and ocean pollution caused by polyolefins—the largest contributor to plastic waste."

Overall, this breakthrough in catalytic depolymerization could revolutionize how we deal with plastic pollution and help us efficiently deal with this serious environmental threat. The research team has high hopes that this technology will evolve over the next few years to the point that mixed plastic waste can be processed without pre-sorting, making recycling efforts more cost-effective and simpler to implement. "By demonstrating a sustainable and economic approach to transforming plastic waste into valuable resources, our research could help drive policy changes, inspire investment in advanced recycling infrastructure, and foster international collaborations to address the global plastic waste crisis. Over time, these advancements promise cleaner environments, reduced pollution, and a more sustainable future," concludes Dr. Ro on an optimistic note.

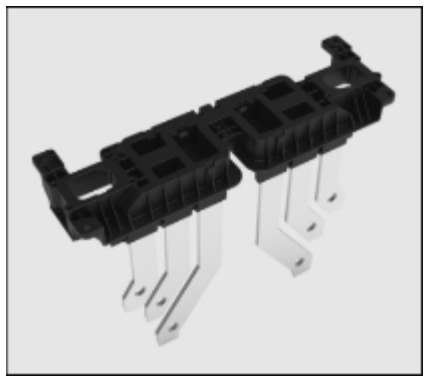
Source : Seoul National University of Science and Technology (SEOULTECH)

BASF launches innovative Ultramid® T6000 grade for electric vehicle applications

- Flame-retardant Ultramid® T6000 polyphthalamide is used in terminal blocks, providing a new reliable solution for the electric vehicle industry
- The new flame-retardant grade enhances safety with excellent thermal shock resistance and electrical isolation
- Non-halogenated flame retardant minimizes corrosion risks and meets safety needs

Shanghai, China - January 13, 2025 - BASF's newly developed flame retardant (FR) grade of Ultramid® T6000 polyphthalamide (PPA) is now used in terminal block application. This upgraded solution replaces non-FR material, enhancing safety for the inverter and motor system in electric vehicles (EVs).

Ultramid T6000 bridges the gap between traditional PA66 and PA6T, offering superior mechanical and dielectric properties, particularly in humid conditions and at elevated temperatures. Its easy processing and low corrosion on tools make it the preferred choice for complex automotive applications. With its wide range of pre-color options, including vibrant shades, Ultramid T6000 enhances aesthetic flexibility while maintaining high performance standards.



"As safety becomes increasingly vital in the design and material selection for metal components in EVs, such as wiring terminals and busbars, BASF is committed to developing innovative solutions for the EV industry. Our goal is not only to meet today's design needs but also to equip our customers with the tools to develop cutting-edge technologies that address future technical requirements and safety standards," said Eng Guan Soh, Vice President, Business Management Engineering Plastics, Performance Materials Asia Pacific, BASF.

The FR grade of Ultramid T6000 is specifically designed for EV applications, offering exceptional high strength ideal for terminal block use. This innovative material enhances the durability of electrical systems in new energy vehicles by withstanding thermal shock from -40°C to 150°C for 1,000 cycles and provides excellent electrical isolation for terminal blocks and high voltage busbars, significantly improving safety on the vehicle's 800V platform. A standout feature is its non-halogenated flame retardant, which minimizes the risk of metal corrosion and meets stringent safety standards, ensuring protection for vehicle occupants in the event of a fire.

Additionally, its remarkable strength, stiffness, and dimensional stability allow for the creation of complex designs that can endure the rigors of automotive assembly, while also facilitating the integration of multiple functions into single components, ultimately simplifying assembly and enhancing space efficiency in EVs.

Source : BASF

Hydrogens Role in a Net-Zero World Zurich and Aons Groundbreaking Insurance Initiative

Vinodhini Harish

Introduction:

How many colours are associated with the naming of types of hydrogen? Have you heard of Green hydrogen, blue hydrogen, brown, yellow, turquoise and even pink? These are essential colour codes or nicknames used within the energy industry to differentiate between the types of hydrogen. They get their colour codes based on the type of production used, and these colour definitions change with time and even between countries. The invisible gas has no visible difference despite their colour descriptions, however, in this article, we have explored its massive potential and its enormous potential as a fuel. Do you know that hydrogen emits only water on combustion yet produces about three times more energy per unit weight than gasoline? Dive into the article to explore more about the potential of hydrogen and the opportunities that lay ahead in

the context.

Blue hydrogen and green hydrogen: Best alternatives to power cities:

Blue hydrogen and green hydrogen are the best alternatives for solving the climate crisis and improving energy security. These grey, blue and green hydrogen are capable of revolutionizing power generation, transportation and industrial processes and creating a better greener future. Let's learn how.

Climate crisis might seem deceptively simple, but burning fossil fuels and switching to renewable sources of energy and electrification is never that easy.

There are several industrial processes in-between and the carbon-intensive activities are not easy to electrify. They either require massive amounts of heat, manufacturing of iron, steel and glass or the current battery technology with the power density doesn't suffice for long-distance transport like shipping or air travel.

Is there any potential solution to save us? Yes! Hydrogen!

Clean hydrogen has massive potential in energy generation and it can play a critical role in the energy transition. The green and blue hydrogen alongside other hydrogen-based fuels such as synthetic methane, ammonia and methanol are excellent alternatives with less environmental impact.

What is its potential? How massive it is?

Hydrogen is a clean energy source and emits only water on combustion, thereby in the energy industry, is termed as a Zero-emission energy carrier. This positions it as a critical alternative to fossil fuels in mitigating climatic changes and reducing air pollution.

Hydrogen delivers nearly 3 times more energy per unit of weight than gasoline and offers higher energy efficiency for multiple applications.

Its versatility is excellent and it is suitable for powering vehicles ranging from cars, and buses to trains, ships and aircraft.

It converts renewable energy into storable fuel that can be used to generate electricity when demand is high or when renewable sources are unavailable.

It can potentially replace natural gas for residential, commercial and industrial heating and can be indispensable in industries such as steelmaking, refining and chemical production. It is also capable of helping to decarbonize heavy industries.

The most significant advantage of hydrogen is its ability to store energy from renewable sources such as solar energy and wind energy thereby addressing the intermittency problem of renewables by allowing surplus energy to be stored as hydrogen and used on demand.

Hydrogen can be stored for long periods and is thus ideal for balancing seasonal energy demands. It can also be liquefied or compressed and then transported through pipelines, ships or trucks, thereby enabling global energy trade.

Hydrogen is central in the decarbonizing sector, without them the transition is extremely difficult.

Heavy industries such as steel, and cement production rely on high-temperature processes where hydrogen can offer its support.
On the other hand, hydrogen-based fuels such as ammonia are perfect for aviation and maritime shipping.

Some of the reliable reports cover the massive benefits of hydrogen. According to studies by the Hydrogen Council, hydrogen could meet 24% of global energy needs by 2050!

Therefore it is evident that the hydrogen economy is projected to generate trillions of dollars in value and create millions of jobs across the globe.

Since it effectively replaces fossil fuels, hydrogen could prevent about 6 gigatons of CO_2 emissions annually by 2050!

Clean energy milestone: Zurich and Aon Launch comprehensive hydrogen project coverage:

Zurich's role reinforces its commitment to sustainability through innovative insurance products, customer engagement and support for emerging clean technologies. Aon has utilized its expertise in brokering and risk management to tailor solutions that mitigate the intricacies of hydrogen projects.
Zurich Insurance Group and Aon's innovative clean energy insurance facility represents a strategic leap towards the global net-zero transition by addressing the unique needs of hydrogen projects.

The facility provides risk management solutions that suit the hydrogen projects and it provides coverage for projects that budget up to USD 250 million. It also addresses the diverse risks associated with hydrogen production including construction, operation and potential environmental liabilities.

The strategic focus is on blue and green hydrogen, which are considered mature hydrogen technologies. Blue hydrogen is produced from natural gas using carbon capture technologies to reduce carbon emissions while creating a lower-carbon alternative to conventional fossil fuels.

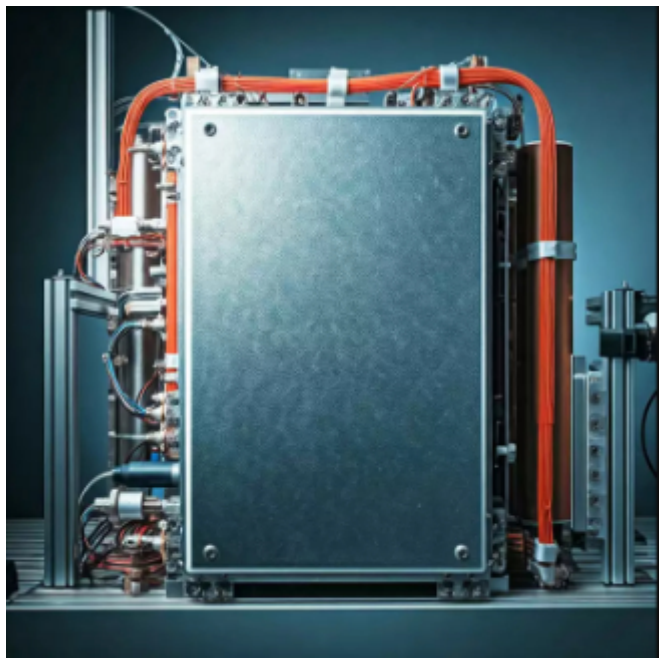
The green hydrogen produced through electrolysis powered by renewable energy achieves zero emissions in both production and end-use.

The facility is designed to support projects worldwide and encourage the adoption of hydrogen as a clean energy source in diverse markets and geographies. They have also created this insurance solution after two years of extensive research and consultation with industry stakeholders and the goals are:

Mitigate financial risks that deter investments in clean hydrogen projects.

Provide confidence and backing to the stakeholders, financiers, governments and project developers.

The capital expenditures for the eligible projects can go up to USD 250 million and Zurich acts as the lead insurer. Aon serves as the exclusive broker leveraging their expertise to address specific project-related risks. However, the initiative aligns with Zurich's broader strategy in facilitating the transition to a low-carbon economy through customer-focused solutions and innovation. The new clean energy insurance facility combines several types of coverage into one easy-to-manage policy. It includes protection for construction, delays in starting operations, ongoing activities, business interruptions, transporting materials and third-party liabilities. The policy also covers carbon capture, utilization, and storage(CCUS) technologies thereby offering complete support for every stage of hydrogen production. The facility has already received more interest and subscriptions from the insurers than expected and showing strong demand for sustainable solutions and growing willingness in the insurance industry to support new and emerging risks.



What can be done in the future, and what are the challenges that are ahead?

Despite its promise, hydrogen's widespread adoption faces significant challenges.

Green hydrogen production is expensive and due to the high costs of electrolyzers and renewable energy, it is costly.

Developing a global hydrogen supply chain requires significant investment in expenses such as storage, transport and distribution systems.

Bold government actions, subsidies and international collaborations are needed to create demand and scale production.

Take away:

Hydrogen holds a transformative potential as a clean and versatile energy source while addressing global challenges. Its ability to deal effectively with the challenges in aspects of energy generation, storage, decarbonization and ability to replace fossil fuels is considered a great breakthrough. However, this potential requires overcoming challenges such as high production costs, infrastructure limitations and bold policy support. With the collaborative efforts from governments, industries and insurers such as Zurich and Aon, hydrogen can become a driving force in achieving a sustainable net-zero future!

Beyond Silicon The Emergence of 26.39 Percentage Efficient Perovskite Solar Cells and How Huaqiao University Achieved it

Vinodhini Harish

Introduction:

Is it possible to power the cities more sustainably without compromising efficiency? As the global push for renewable energy intensifies, the question arises: Are traditional silicon solar cells still the best option, or has the time come to embrace game-changing alternatives? Perovskite solar cells' remarkable efficiency and low-cost potential have emerged as the next big leap in photovoltaic technology. But what makes these cells so revolutionary? Why have they captured the attention of scientists and industries alike? In this article, we have taken a deep dive into

the subject, the revolutionary journey, the challenges and the groundbreaking innovations. If you are interested in knowing the history and the story of how the team of researchers at Huaqiao University has set a new benchmark for solar efficiency, this article will be a one-stop shop for all the information you would want to learn. Let's begin!

Groundbreaking invention at Huaqiao University:

There have been some long-standing challenges in the concept of Perovskite solar cell technologies, and those have been the focus of a team of solar engineers at Huaqiao University, in collaboration with researchers from the City University of Hong Kong and the Chinese Academy of Sciences. The team introduced a cutting-edge ultrathin p-type polymeric interlayer that transformed the efficiency and stability of PSCs while paving the way for more sustainable and scalable solar energy solutions.
The solar engineers at Huaqiao University have successfully addressed ion diffusion and stability challenges and this advancement has marked a significant step towards replacing silicon in the solar sector.

A team of solar engineers at Huaqiao University joined hands with a pair of chemists from the City University of Hong Kong and another colleague from the Chinese Academy of Sciences for the project and they developed an improved perovskite solar cell with 26.39% efficiency. This invention utilizes a hole-selective interlayer that inhibits ion diffusion to improve the device's stability.

The history of solar technology reveals the struggle of scientists to replace silicon in solar cell production, as they intend to eliminate the complexity and cost of manufacturing due to silicon. They came to know that the mineral perovskite which is made of calcium titanate is a promising replacement and it can effectively overcome hurdles such as durability, scalability, cost and environmental impact.

However, the scientists wanted to improve perovskite cell efficiency and were waiting till they were ready for use and equipped with utmost efficiency. In this new study, the team from China affirms that their approach will potentially overcome the inherent instability of perovskite cells due to ion migration.

In their approach, they created a super-thin p-type polymeric layer with a spin coating of PDTBT2T-FTBDT and named it D18. When it went to testing, it exhibited strong ion-blocking abilities between a layer of perovskite and the hole transport layer. The solar cells generate holes in them due to light absorption and they are referred to as positively charged particles, these holes serve as guides towards the anode.

On testing further, layer D18 installed in a functioning solar cell inhibited ion diffusion between the layers and worked very well as intended, even better than the polymers they tried. They also demonstrated that it enhanced the energy alignment at the interface level which is between the hole transport layer and the perovskite which enables efficient hole extraction.

Therefore testing of the solar cell with the D18 installed in it exhibited an efficiency of 26.39% with an aperture area of 0.12 cm2. It also showed an initial efficiency of 95.4% after running for 1,100 hours while demonstrating improvements in durability as well.

The D18 polymer Interlayer: A game changer in Ion diffusion Management:

The team of scientists have developed this ultrathin (~7nm) layer of D18 (PDTBT2T-FTBDT) polymer, which they have designed as a hole-selective interlayer. This interlayer is effective in preventing ion migration which is considered a critical factor in PSC degradation, and it also maintains efficient charge transport.

The Ion Diffusion barrier: The D18 polymer effectively blocked the movement of ions such as lithium, methylammonium, formamidinium and iodide. These ions, when left unchecked, migrate across layers and degrade the material's structural integrity and performance.

Hole selectivity: D18 facilitated the efficient extraction and transport of photo-generated holes, which ensured minimal loss of charge carriers while improving overall energy conversion efficiency.

2. Enhanced energy alignment and conformal coverage:

The D18 polymer did more than the role of a barrier, it also optimized the interaction between the perovskite absorber layer and hole transport layer (HTL):

Energy level alignment: the D18 polymer minimized the energy loss and facilitated smoother charge transfer just by aligning the energy levels between the perovskite and HTL. This alignment is crucial for achieving higher efficiency in PSCs.

Uniform coating: The high fluid of the D18 polymer solution enables it to form a conformal coverage over the perovskite surface, which is even at the grain and grain boundary levels.

This uniform layer provided robust ion-blocking capabilities under thermal and operational stress.

Both these ion-blocking and enhanced energy alignments led to an unprecedented efficiency milestone.

The PSCs achieved a record-breaking 26.39% efficiency, certified at 26.17% for an aperture area of 0.12 cm^2. Larger cells have demonstrated impressive efficiencies of 25.02% showing the scalability of this approach.

The cells retained 95.4% of their initial efficiency after 1,100 hours of continuous operation under maximum power point tracking. This marks a significant leap in durability, addressing one of the major challenges of perovskite technology.

Where did the inspiration come from? **Inspiration from proton exchange membrane (PEM) fuel cells.**

The concept of a hole-selective interlayer was inspired by PEM fuel cells, where the proton exchange membrane allows selective proton transfer while blocking other chemical species. Likewise, the D18 polymer serves as a selective pathway for charge carriers while preventing detrimental ion migration.

The ultrathin nature of the D18 polymer, coupled with its ease of application through spin-coating, suggests a cost-effective and scalable production process.

By reducing degradation caused by ion diffusion, the technology can effectively minimize waste and improve the lifespan of solar cells, aligning with sustainable energy goals.
This achievement at Huaqiao University signifies a pivotal moment in the evolution of PSC technology. By addressing the ion diffusion and stability challenges head-on, the team has set a new benchmark for efficiency and durability in renewable energy solutions, bringing us closer to a future powered by affordable and sustainable solar energy.

Perovskite cell market and demand:

The impact of these inventions is more likely to be welcomed as the Perovskite cell market has witnessed substantial growth in recent times due to its potential to disrupt traditional photovoltaic technologies. The perovskite materials offer high efficiency at lower production costs, attracting interest from industries focused on renewable energy. Their versatility, light-weight properties and ability to be integrated into flexible or transparent substrates make them highly desirable for applications beyond standard solar panels, including wearables and building integrated photovoltaics.

As energy demands increase worldwide, the demand for PSCs is growing, particularly in the regions focused on reducing carbon emissions and advancing renewable energy infrastructure.

However, the sector was facing challenges related to ion diffusion and stability.

Ions such as lithium, Methylammonium and iodide can migrate within the cell, disrupting the interface between the layers and causing efficiency losses.

The perovskites are highly sensitive to heat and hygroscopic, which makes them vulnerable to degradation when exposed to a humid environment and due to heat sensitivity, it can degrade the structure and performance over time.

The chemical reactions at interfaces are another challenge, as unwanted reactions between the layers can lead to defects and further impact the durability and performance.

These challenges were effectively addressed by the invention by Huaqiao University in the PSC technology.

Exploring the journey from silicon to the future of perovskite solar cells:

As we know, the demand for perovskite solar cells is at its peak due to their potential to revolutionize solar energy technology. With the increasing global emphasis on renewable energy and the drawbacks of silicon-based solar cells, PSCs are emerging as viable alternatives. They are lightweight and comfortable for several applications including portable solar devices. They don't consume much of manufacturing costs and the advancements related to the material are continuing.

Overcoming ion diffusion and stability challenges:

In the development of PSC, one of the major hurdles is ion diffusion, where ions such as lithium, methylammonium and iodide migrate between the layers. This leads to:

Instability

Degradation of the hole transport layer (HTL)

Reduced efficiency and shortened lifespans.

How silicon is replaced, the history and transition:

Silicon-based solar cells have long been in the solar cell industry due to their higher efficiency and proven reliability. However, it is complex in the manufacturing process and very energy-intensive such as purification, crystallization and wafer production. These make them expensive and less sustainable.

The mineral perovskite material which is primarily composed of calcium titanate emerged as a promising alternative in the 2000s and the synthesis of organic and inorganic perovskite materials could potentially mimic silicon's efficiency while being cheaper and easier to produce.

For instance, the calcium titanate in perovskite proves to exhibit excellent

characteristics such as higher stability, compatibility, light absorption capabilities and charge transport properties. These attributes make calcium titanate derivatives ideal for use in solar cells.

On the other hand, there were some challenges in replacing silicon with perovskite materials, they include:

The durability of the material, as perovskites are sensitive to moisture, oxygen and thermal stress and thus they can rapidly degrade.
The transition from lab-scale fabrication to large-scale production proved to be difficult due to variability in the material properties. The material also includes lead in several perovskite formulations and thus it poses toxicity concerns.

Although the production costs are lower, achieving consistency in quality and long-term stability adds to the overall expenses.

What the future holds for perovskite cells?

Efficiency improvements: Researchers are working towards optimizing the material compositions, interfaces and device architectures to push efficiencies closer to the theoretical Shockley-Queisser limit. It is expected that tandem solar cells that combine perovskites with silicon and other materials are a notable innovation that is expected to deliver efficiency beyond 30%.

Scaling up of production: Advancements and efforts are made towards developing roll-roll printing and solution processing techniques, which are compatible with flexible and lightweight substrates. These innovations can drastically reduce production costs and make them more accessible. Several companies are already piloting PSC production lines and moving towards commercialization.

Environmental and material sustainability:

The manufacturing of perovskite materials has raised environmental concerns that include the focus on lead-free alternatives such as tin-based perovskites. Although lead-based perovskites are exhibiting superior performance the ongoing advancements are expected to close this gap. Additionally, the researchers are working towards efficient recycling and safe disposal of PSCs to mitigate environmental impact.

Integration with emerging technologies:

Perovskite solar cells are well-suited for integration into varied emerging applications.

Building integrated photovoltaics: Transparent and semi-transparent PSCs can be integrated into building windows and facades and this enables transforming buildings into energy producers.

Wearable and flexible electronics: Due to their lightweight and flexible nature, these PSCs can be utilized with portable solar devices and wearables.

Space applications: The high-efficiency-to-weight ratio, PSCs are ideal for powering satellites and other space technologies.

Agrivoltaics: Semi-transparent PSCs could be integrated into agricultural settings thereby allowing light transmission for crops while generating electricity.

Take away:

The journey from traditional silicon-based solar cells to highly efficient perovskite alternatives represents a significant leap in renewable energy technology. While challenges such as ion diffusion, stability and scalability have tested the researchers, breakthroughs such as the Ultrathin D18 polymeric interlayer by Huaqiao University demonstrated the immense innovation potential. By achieving an efficiency of 26.39% these advancements bring us closer to a future where clean, affordable, and durable energy solutions power the world. As we continue to refine and perfect this technology, perovskite solar cells could very well define the next chapter in sustainable energy.

Indian Petrochemical Industry is Becoming Self-Reliance-MRPLs Toluene Facility is a Leap Towards it

Vinodhini Harish

Introduction:

Indian petrochemical sector is witnessing great heights and milestones in recent times. Robust growth and modernization are backing its growth. Recent reports stated that the industry is projected to attract

investment of over $87 billion in the next decade. The growth aligns with the country's rising demand for petrochemicals which is driven by infrastructure development and industrialization. The investments in green hydrogen and renewable energy have also been integrated into the petrochemical sector to align with the country's sustainability goals. In that series of successes, the minister of petroleum and Natural gas, Shri Hardeep Singh Puri, inaugurated Mangalore Refinery and Petrochemicals Limited's (MRPL) latest product, Toluene, during his visit to the Mangaluru refinery. In this article, we have explored this context and gathered some insights too. Let's begin.

MRPL's initiative and its contribution to bridging the gap:

MRPL's newly inaugurated toluene facility has an annual production capacity of 40TMT, marking a substantial 25% increase in the nation's current domestic production levels. By reducing India's reliance on imported Toluene, the facility is expected to save around $3 million annually in foreign exchange, significantly strengthening India's economic position in the global petrochemical market.

Now, Toluene is an aromatic hydrocarbon and is considered a cornerstone of numerous industries, including pharmaceuticals, chemicals, paints and defence. Its versatility and wide applications make it a crucial input in several high-demand processes. India's annual toluene demand stands at approximately 650TMT, with domestic production currently meeting only about 160 TMT of this requirement. Imports are necessary to meet the industrial demands, exposing the country to fluctuating global prices, logistical costs and foreign exchange outflows.

The estimated foreign exchange loss due to Toluene imports is significant. Addressing the gap by bolstering domestic production could save millions annually. This initiative also aligns with the government's Atmanirbhar Bharat (Self-reliant India) initiative, reducing the dependency on international markets. This also boosts India's resilience against supply chain disruptions caused by geopolitical or economic events.

The launch of this facility exemplifies the country's growing competitiveness in the global petrochemical sector. By leveraging advanced technology and operational efficiencies, MRPL is not only reducing dependency on imports but also creating a robust platform for industrial growth.

Economic benefits:

Foreign exchange savings: Import reduction will lead to an annual savings of approximately $3 million.

Cost competitiveness: Local production reduces logistical costs and ensures consistent supply benefiting the downstream industries.

Implications for the petrochemical sector:

MRPL's toluene facility signals a broader trend of strengthening domestic manufacturing in petrochemicals- a sector critical to industrial and economic development. The facility's operations will:

Reduce reliance on imports, enhancing India's energy security.

Contribute to industrial growth in associated sectors such as paints, defence and pharmaceuticals.

Drive foreign exchange savings, improving the country's balance of payments.

Additionally, the increased availability of domestically produced Toluene will support downstream industries, reducing production costs, and improving supply chain efficiencies.

MRPL's innovation and sustainability initiatives:

MRPL is considered a key player in India's energy sector and is renowned for its focus on innovation, sustainability and social responsibility. Its diverse product portfolio and strategic initiatives, such as operating an Aromatics Complex and driving aviation fuel supply through SMA, underscores its commitment to supporting India's energy and economic needs. Through the company's consistent contributions to the country's industrial and social landscape, it exemplifies the spirit of Atmanirbhar Bharat.

Mangalore Refinery and Petrochemicals Limited (MRPL) classified as a category 1 Miniratna Central Public Sector Enterprise (CPSE), operates a state-of-the-art refinery with a capacity of 15 MMTPA in Mangaluru, Karnataka. It manufactures an extensive range of petroleum products such as Naphtha, LPG, Diesel, Aviation turbine Fuel and Polypropylene. Renowned for its commitment to innovation and sustainability, MRPL has received accolades from the Ministry of Petroleum and Natural Gas (MoPNG).

Their key accomplishments include:

Pharmaceutical ingredients: Pioneering the production of essential raw materials for critical healthcare applications. They have ventured into producing high-quality raw materials essential for manufacturing active pharmaceutical ingredients (APIs) and intermediates. These inputs are crucial for the further growth of medications addressing critical health challenges such as chronic diseases and infectious conditions.

Therefore by ensuring the reliable domestic supply of these materials, MRPL not only reduces the dependency on the imports but also supports the country's growing pharmaceutical sector.

Plastic circularity: Driving advancements in sustainable recycling and reuse practices to promote environmental sustainability. The company has been involved in recycling technologies to transform post-consumer plastic waste into reusable materials, minimizing environmental impact.

Aviation fuel supply: Through its joint venture, shell MRPL Aviation Fuels and Services Limited (SMA), MRPL caters to the fuel requirements of major Indian airports, reinforcing its strategic role in the aviation sector. MRPL's joint venture, Shell MRPL Aviation Fuels and Services Limited (SMA) plays a crucial role in the aviation sector by supplying high-quality aviation turbine fuel (ATF). This collaboration ensures uninterrupted fuel availability to airlines at major Indian airports, supporting both domestic and international air travel.

Their efforts and refining techniques have helped to advance operational efficiency and reliability in aviation. This partnership has also strengthened the country's aviation infrastructure.

Comparing global leaders and MRPL:

- **Production efficiency:** Compared to the global petrochemical giants such as BASF(Germany) and SABIC(Saudi Arabia), MRPL has scaled their production while maintaining competitive operational efficiency. The company has also reduced their logistics costs and achieved sustainability in its supply chain by leveraging localized resources and strategic refining processes.

- **Self-reliance and export-driven strategies:** The global leaders are focusing on exports to maintain dominance in international markets. Whereas MRPL emphasizes domestic self-reliance and this has reduced the country's dependency on imports.

  Especially the company's toluene production targets specific national needs, creating a balanced approach to export potential and import substitution.

- **Sustainability Alignment:** Global leaders such as DOW Chemical and ExxonMobil are known for their investments in green technologies, MRPL has also invested in green technologies but with a greater focus on affordability and scalability for emerging markets.

  You can observe the differentiation by considering the company's alignment with the country's climate goals under the Paris Agreement and these competitors adopt slow transitions to sustainable practices.

- Innovation and R&D: The multinational corporations benefit from expensive R&D budgets and MRPL's targeted innovations in the pharma ingredients and aromatics demonstrate resource-efficient ingenuity.

  Collaborations with the government and private entities ensure MRPL stays ahead in niche areas such as aviation fuels and bio-based solutions.

Take away:

MRPL's strategic initiatives reflect its dedication to innovation, sustainability and industrial growth. By addressing critical gaps in pharmaceutical raw materials, promoting environmentally sustainable plastic reuse, and supporting the aviation sector through reliable fuel supply, MRPL exemplifies the country's vision of a self-reliant economy. These efforts not only reduce reliance on imports but also position MRPL as a significant contributor to India's global competitiveness in the petrochemical sector. The journey towards a sustainable self-sufficient future is a collective one and MRPL stands as a champion of innovation or change and possesses the potential to achieve the vision.

Evaluating India s Ethanol Blending Program Balancing Energy Needs and Environmental Concerns

Vinodhini Harish

Introduction:

The world is driving towards sustainability and India's ethanol blending program represents a bold stride towards achieving energy independence while mitigating environmental concerns. With an ambitious target of reaching 20% ethanol blending in petrol by 2025, the program seeks to diminish reliance on imported crude oil, projected to save the country approximately $4 billion annually. In this article we have delved into the multifaceted aspects of India's ethanol blending program, examining both its promising potential and the challenges it faces. Let's begin.

India's ethanol blending program: a Dual-edged sword.

The Indian government aims to achieve 20% ethanol blending (E20) in petrol by 2025, up from approximately 10% in 2023. This ambitious target is projected to reduce crude oil imports saving about $4 billion annually, and lower GHG emissions by 10 million tons.

The initiative showcases benefits in many aspects, such as economic growth, reduced greenhouse gas emissions. As the country endeavours to integrate greater volumes of ethanol into its fuel mix, critical issues related to water usage, land management, and food security come to the forefront.

India's ethanol blending program, aimed at reducing emissions and boosting energy self-reliance, faces significant challenges related to water usage, land management, food security, and overall sustainability. While the program aims to reduce dependence on crude oil imports, lower greenhouse gas emissions, and promote rural incomes, its reliance on water-intensive crops such as sugar cane, rice, and corn raises concerns.

Producing 1 litre of ethanol from sugarcane requires approximately 2860 litres of water. India's annual ethanol demand for E20 blending is projected at 1016 crore litres, requiring an estimated 2.9 litres of water for sugarcane-based ethanol production alone.

The country's leading sugarcane-producing states, including Maharashtra, for example, dedicate 4% of their cultivated area to sugarcane, which consumes over 60% of the state's irrigation water. Similarly, Punjab and Haryana face alarming declines in groundwater levels, largely due to irrigation-intensive farming.

Recent reports from the **Central Ground Water** Board (2024) demonstrate that 60% of monitored wells have shown a decline in water levels over the last decade, raising concerns about over-extraction for ethanol crops. In some regions, including parts of Haryana, groundwater levels fail at 1.2 meters per year.

However, there are land use challenges: Ethanol vs. food security:

To meet the E20 targets, an additional 5.5 million hectares of land may be required, raising concerns about food security, and environmental sustainability. India already allocates over 5 million hectares to sugarcane, often at the expense of critical food crops such as pulses and oil seeds.

The diversion of agricultural land for ethanol crops may also lead to deforestation and biodiversity loss.

Now the challenge is that endless sugarcane monoculture depletes soil fertility, increasing dependence on chemical fertilizers and agrochemicals. According to 2024 reports by the Indian Council of Agricultural Research(ICAR), reprised sugarcane cultivation has reduced soil productivity by 25% in key regions over the past decade.

What is ethanol blending?

Ethanol blending refers to the procedure of combining ethanol, which is a renewable biofuel derived primarily from biomass such as sugarcane, corn or agricultural waste, with conventional fossil fuels such as petrol or gasoline. The mixture is then used as a fuel for vehicles. Ethanol blending is denoted by the percentage of ethanol in the blend. For example:

E10: 10% ethanol +90% petrol

E20: 20% ethanol +80% petrol

This program aims to reduce reliance on fossil fuels, mitigate greenhouse gas (GHG) emissions, and improve air quality.

What are all the processes involved in ethanol blending?

Ethanol is produced through fermentation of sugar-rich feedstocks such as sugarcane, molasses or starch-

based crops. For example, corn, and wheat.

Agricultural residues and waste materials are used for second-generation ethanol, which is more sustainable.

The ethanol produced using these processes is sent to blending facilities. Dedicated storage systems or tanks are used to store ethanol and petrol separately to maintain quality.

Ethanol and petrol are mixed in pre-determined proportions such as E10 or E20 at specialized blending facilities or depots. Automated systems ensure precise blending to meet regulatory standards. The blended fuel is transported to fuel stations for retail distribution. Vehicles with compatible engines can use this fuel seamlessly.

Modern petrol engines can handle lower ethanol blends without modifications. Whereas higher blends such as E20 or E85 may require flex-fuel vehicles or slight engine adjustments to optimize performance and efficiency.

Key features:

Ethanol is a biofuel derived from plants, which makes it a renewable and cleaner alternative to fossil fuels.

Combustion of ethanol emits fewer pollutants, including carbon monoxide and particulate matter.

Ethanol has a high octane number, that improves fuel efficiency and engine performance.

Ethanol blending reduces the lifecycle emissions of fuels, which contributes to a lower carbon footprint.

Ethanol blends also reduce the reliance on imported crude oil while enhancing the national energy security.

Benefits:

Lower GHG emissions help in combating climatic changes

Reduction in tailpipe pollutants improves air quality.

Reduces the need for crude oil imports and thereby saves foreign exchange.

Supports farmers by creating demand for feedstocks such as sugarcane, and corn

Ethanol blending helps in energy transition, as it promotes the transition to cleaner, renewable energy sources.

Impact on GHG emissions reduction in India:

India's ethanol blending program has had a notable impact on reducing the emission of greenhouse gases, achieving a reduction of approximately 10 million tons of C02 equivalent emissions by 2023. This is achieved through:

Lower carbon intensity of ethanol: ethanol has a lower carbon footprint compared to other fossil fuels during combustion. During combustion petrol releases significant carbon dioxide, ethanol being a biofuel, emits Co2, which is absorbed during the crop's growth, creating a more balanced carbon cycle.

By blending 10% ethanol with petrol (E10), India has effectively displaced millions of litres of petrol usage, directly reducing emissions from fossil fuel combustion.

Ethanol production in India utilizes sugarcane, molasses, surplus rice, as well as agricultural waste. This prevents waste accumulation and reduces methane emissions from decomposing biomass.

Transition to second-generation ethanol (2G) derived from crop residues enhances sustainability further by minimizing land use changes and associated emissions.

Impact on ethanol blending due to crude oil imports:

Ethanol blending programs directly downsize the dependence on crude oil by substituting a portion of petroleum-based fuels with ethanol, a bio-based renewable fuel. In countries like India, which imports a significant portion of its crude oil, ethanol blending contributes to:

Lower import volume:

Ethanol can potentially replace petrol or diesel in specified proportions. For example: E10 contains 10% ethanol and 90% petrol.

India achieved its 10% ethanol blending target in 2023, saving approximately 4 billion litres of petrol annually.

This substitution reduces crude oil imports, helping to alleviate the economic burden of oil price fluctuations and trade deficits.

Reducing dependence on imported crude enhances energy self-sufficiency and protects the economy from global market volatility.

Ethanol blending has the potential to

save India $4 billion annually on its oil import bill and free resources for other developmental priorities.

Other benefits of the program:

The Indian government has helped in reducing crude oil imports by 181 lakh metric tons, saving foreign exchange, and reducing CO2 emissions.

Expanding feedstock for ethanol production

Lowering GST rate to 5% on ethanol
Amending the Industries (Development and Regulation)Act to allow the free movement of ethanol across states

Providing an interest subvention scheme to increase ethanol production capacity

Take away:

To conclude, India's efforts to enhance ethanol blending as a part of its energy strategy epitomize the delicate balance between progress and sustainability. While the program holds promise for reducing greenhouse gas emissions and fostering economic growth, it must carefully navigate the associated challenges, particularly concerning water conservation and food security. By investing in sustainable agricultural practices and diversifying feedstocks, India can strengthen its natural resources for future generations. The path forward will require innovative solutions and collaborative efforts to ensure that the benefits of this transition are equitably shared across the nation.

Shifting hues in global automotive colors: Embracing the rising popularity of warm niche colors

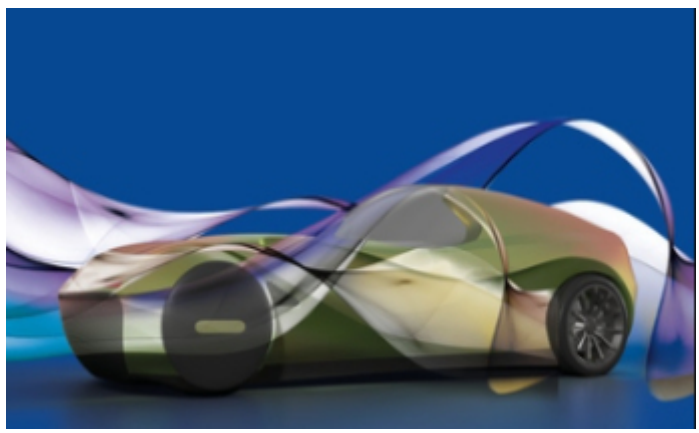
In 2024, the global automotive color landscape continued to evolve as consumers move away from traditional favorites like white and silver. This shift is paving the way for increased popularity of vibrant hues, warm neutrals, and a more diverse palette across the industry, as stated by BASF Coatings in the latest Color Report for Automotive OEM Coatings.

Specifically, while white remains the top choice among consumers, warm shades such as yellow and beige are increasingly appealing, and green has risen in popularity across all regions. Achromatic colors like black and gray are also gaining traction.

EMEA: Beige gains popularity as achromatic colors continue steady growth

Achromatic colors in the EMEA region have steadily increased from 72% in 2021 to almost 80% in 2024, underscoring the appeal of neutral tones.

White remains the most favored color, closely followed by gray. Notably, beige is gaining popularity, nearly doubling its market share.



"Beige and neutral colors evoke a sense of calm and sophistication, reflecting the desire for stability in a fast-paced world," said Mark Gutjahr, global head of Automotive Color Design at BASF. "They allow consumers to express their individuality while ensuring a timeless elegance in automotive design."

Americas: Gray is proving to be one of the most versatile and captivating colors

With its vast range of tones, from cool metallics to warm, earthy shades, gray offers depth and sophistication that can be surprisingly vibrant. This year's color distribution reveals a striking shift toward gray tones, now capturing almost 20% of the total market share. Black has dropped by 2 percentage points compared to 2023, while white cars have seen an even more significant decline of 5 percentage points.

"Gray is redefining automotive style,

gaining popularity for its versatile sophistication as preferences shift away from traditional white and black," said Victoria Fislage, Senior Design Manager at BASF Coatings.

Asia Pacific: Black dominates, yellow blossoms

Achromatic colors remain the top choice for 83% of consumers, with black gaining 2 percentage points in popularity, reinforcing its association with elegance. In contrast, white has seen a decline of over 2 points.

Meanwhile, chromatic colors, particularly yellow, are on the rise, with softer tones like pastel and greige yellow leading the way. These shades resonate with themes of AI-human harmony and sustainability, especially in electric vehicle design. Those are reflecting a shift toward harmonious, optimistic color palettes.

"Earthy and pastel yellows capture today's values – functionality, sustainability, and coexistence with nature," said Chiharu Matsuhara, head of Automotive Color Design for Asia Pacific.

The Color Report for Automotive OEM Coatings by BASF Coatings offers an in-depth exploration of color trends in the automotive industry, analyzing preferences on both global and regional levels. The color distribution referred to in the report was calculated by BASF Coatings on the basis of the available information regarding global automotive production and paint application to passenger cars.

Source : BASF

2nd Rosefield Conference for Lubricants and Fuels Sets New Benchmark with Global Participation and Innovative Insights

The 2nd Rosefield Conference for Lubricants and Fuels was a phenomenal success, bringing together over 400 delegates from around the globe for two days of groundbreaking insights and unparalleled networking. With 34 dynamic exhibition stalls and 35+ visionary speakers leading thought-provoking sessions, the event truly set a new benchmark for collaboration and innovation in the industry. The resounding success of the inaugural Lubricants and Fuels Conference inspired us to organize the second edition on a significantly larger scale, aligning with our mission of bringing all stakeholders together.

The conference featured 34 exhibition stalls from diverse industries, including specialty chemicals, lubricants, packaging, additives, component manufacturers, distributors, and lab service providers. The exhibition garnered an overwhelming response over two days, making it a grand success.

In addition to these achievements, we

broadened our awards categories to celebrate the remarkable contributions of industry leaders, evaluated through a robust and structured jury process. It was an honor to host delegates and speakers from around the globe, creating unparalleled networking opportunities to drive the industry forward.The conference agenda was carefully curated to address contemporary challenges and opportunities within the lubricants and fuels sector, with a special emphasis on the ongoing industry transition driven by the alternative fuels revolution.

Mr. Ali Alsadi of ADNOC highlighted ADNOC's global leadership in sustainable energy and its expansion into India's $7 billion lubricant market in his Keynote Address. He emphasized ADNOC Distribution's focus on high-quality Group 3 base oils and top-grade lubricants to meet India's growing industrial and automotive needs. India remains a key part of ADNOC's growth strategy, driven by partnerships, innovation, and quality solutions.

The "Emerging Fuel Technologies" session at the conference emphasized the crucial need for India to transition to cleaner and more sustainable fuels. Moderated by Mr. Shailendra Gokhale, the panel featured industry experts like Mr. S Lakshminarayanan from IOCL, Mr. Sanjay Kumar from HPCL, and Mr. Subhankar Sen from BPCL. The session explored the role of government policies, industry perspectives, and emerging trends in shaping India's energy landscape. The panelists

discussed alternative fuel options including ethanol, biodiesel, compressed biogas (CBG), hydrogen, and electric vehicle (EV) technologies, with an emphasis on their potential to contribute to a more sustainable future.

Mr. Sethuramalingam T of Tata Motors went on to explain the diversification of fuel types, emphasizing the move from gasoline and diesel to alternative fuels like CNG, LNG, flex-fuel engines, hydrogen, biodiesel, and ethanol blends in diesel. These shifts necessitate complex modifications to engine and fuel system designs. He highlighted safety concerns with hydrogen, which requires specialized testbeds due to its high flammability and low energy density. Mr. Krishnan Sadagopan of Ashok Leyland, discussed the critical role of engine components, specifically the piston ring, in determining lubricant performance given the extreme temperatures experienced in different types of engines. He emphasized the current phase of technological transition as the "messy middle," where various fuel types like CNG, ethanol, methanol, and hydrogen coexist.

In a session led by Mr. Sanjay Awasthi, the focus was on India's robust economic growth and its implications for the lubricant industry. As the world's fifth-largest economy, India is poised for continued growth, supported by a young, digitally empowered population, political stability, and infrastructure development. Awasthi highlighted key trends shaping India's future, including a growing middle class and the government's "Make in India" initiative, which is set to boost manufacturing and drive demand for industrial lubricants. He also projected significant growth in the automotive sector, driven by the expanding middle class.

The session on "Automotive Lubricants" at the Rosefield Energy Tech conference, moderated by Mr. Kedar Gore, explored the impact of emerging fuel technologies on lubricants amid India's shift to sustainable energy. Dr. Y.P. Rao, former CTO of Gulf Oil, highlighted the need for fuel-agnostic oils to handle ethanol blends and hydrogen, while emphasizing thinner lubricants and evolving standards. Dr. Rahul Misra of Lubrizol Corp. stressed the importance of thermal management and dielectric strength in EVs, addressing issues like thermal runaway and electrical arcing. Mr. Akhileshwar Jha of Valvoline outlined challenges with ethanol's hygroscopic nature and announced a versatile lubricant for ethanol, CNG, and hydrogen. The session underscored the industry's need to innovate for a diversifying fuel landscape.

The "Industrial Lubricants" session at the Rosefield Energy Tech conference highlighted their critical role in supporting India's growth across sectors. Moderator Dr. T. Singh discussed the demand for high-performance lubricants to enhance machinery lifespan and meet environmental regulations, noting the rise of eco-friendly bio-lubricants despite cost challenges. Dr. Kalpendra Rajurkar of Veedol emphasized the need for advanced metalworking fluids for lightweight materials in industries like aerospace and construction. Mr. Shekhar Deshmukh of Quaker Houghton highlighted tailored lubricant solutions for the steel industry, including rolling and fire-resistant hydraulic oils. Mr. Udey Dhir of VAS Tribology Solutions stressed sustainable practices like condition-based lubricant management to reduce consumption and waste. The session showcased industrial lubricants' evolving role in meeting technological and sustainability demands.

The "E-Fluids" session at the Rosefield Energy Tech conference, moderated by Vikas Gupta of Nandan Petrochem, highlighted the growing importance of e-fluids in the EV industry. Santosh Kumar from Shell discussed challenges like compatibility, efficiency, and safety, emphasizing high-quality base stocks and evolving standards. Dr. Kalpendra Rajurkar of Veedol stressed thermal management, eco-friendly formulations, and India's potential in bio-sourced e-fluids.

Anand Kumar from Afton Chemicals explained SAE J3200 guidelines, cost sensitivity, and the evolving lifespan of e-fluids. The session underscored the challenges and opportunities in innovating sustainable solutions for the electrified automotive sector.

Day 1 concluded with the Rosefield Awards 2024 ceremony, celebrating innovation, dedication, and excellence in the lubricants and fuels sector. Building on the success of the inaugural edition, this year's awards recognized outstanding contributions across an expanded range of categories, honoring the industry's brightest minds and groundbreaking achievements. The event highlighted advancements in technology, sustainability, and growth, showcasing the remarkable efforts shaping the future of the industry.

Day 2 began with the session on "India and Global Base Oil Demand", moderated by Dhananjay Kumar Rai of HPCL, explored global base oil market trends, challenges, and opportunities. Rai discussed the impact of geopolitical conflicts, sustainability, and the shift from Group 1 to Group 2 and 3 oils. Sudip Shyam of Mocoh highlighted India's growing demand, driven by "Make in India" and robust contracts to address supply chain disruptions. Karuna Sadasivam of Ergon International focused on naphthenic base oils, their unique benefits, and growth drivers. Soma Chattopadhya of IOCL detailed India's transition to higher-quality base oils and IOC's integrated expansion approach. Sarvesh Tomar of BPCL emphasized the demand for lower viscosity lubricants, forecasting growth in Group 3 oils

alongside BPCL's production and Green Hydrogen initiatives.

Following session, "India-Middle East Trade and Opportunities," led by Ranjan Guha of Adnoc Lubricants, highlighted the company's global expansion strategy, aiming to operate in 100 countries by 2029. Guha emphasized Adnoc's focus on high-quality, Group 3 base oil products, its innovative solutions like EV fluids and carbon-neutral oils, and the strategic benefits of operating from the UAE. He also encouraged Indian businesses to leverage their strengths in talent and quality to expand globally.

The session on "Digital & AI Integration in the Fuel & Lubricant Business" underscored the transformative potential of digital platforms and AI in revolutionizing the industry. Adnan Ahmad emphasized the urgency for adoption, warning that the sector risks obsolescence without swift action. Puneet Krishna highlighted how digital platforms streamline processes, enhance collaboration, and improve profitability, while addressing affordability and accessibility concerns. Dhruv Raj Gupta showcased real-world AI applications, such as maintenance tools and predictive platforms, advocating for a phased approach to AI adoption to boost productivity, performance, and strategic decision-making. The session emphasized the necessity of embracing innovation to stay competitive in a rapidly evolving market.

The concluding session of the conference, titled "Roundtable Discussion: Collaborative Approaches to Future Challenges," was moderated by Dr. SSV Ramakumar, a distinguished industry expert with over 35 years of experience. This engaging session brought together an esteemed panel of speakers, including Ravi Chawla, Managing Director of Gulf Oil Lubricants; Arijit Basu, Managing Director of Veedol Corporation; Nitin Mengi, Chairman and Managing Director of Lubrizol India; Saugata Basuray, Executive Director of Castrol; and Srinivas Ch, Executive Director - Lubes at HPCL. The discussion focused on addressing critical challenges facing the industry while emphasizing the importance of collaboration to foster innovation, enhance sustainability, and build resilience in a rapidly evolving market.

The discussion underscored the need for deeper collaboration among stakeholders, including lubricant manufacturers, additive suppliers, and OEMs, to navigate emerging challenges such as advanced engine technologies, alternative fuel integration, and stringent environmental regulations. Panelists advocated for the adoption of innovative technologies like AI-driven data analytics to enhance lubricant formulations and streamline development processes.

Addressing counterfeit products, the panel highlighted the urgency of implementing cost-effective product verification technologies and stricter regulations to protect consumers and foster fair competition. In terms of sustainability, the session emphasized Extended Producer Responsibility (EPR) compliance, advocating for robust collection and re-refining platforms to incorporate re-refined base oils into formulations without compromising quality. Speakers also stressed the importance of consumer-centric strategies, noting the increasing demand for high-performance, value-driven products. Industry players were urged to prioritize digitization and innovative market approaches to strengthen distribution networks and improve accessibility.

The conference concluded with a strong sense of purpose and collaboration, bringing together diverse perspectives to address the evolving landscape of the lubricants and fuels industry. With actionable insights, innovative ideas, and a focus on sustainability, the event successfully set the stage for future advancements and partnerships, reaffirming its role as a pivotal platform for industry leaders. Rosefield is now gearing up to organize the 4th edition of the Rosefield Conference on Circular Economy in Used Oil in May 2025, followed by the next edition of the Rosefield Conference for Lubricants and Fuels in November 2025.

Source : Chemical Market

Baytown breakthrough: Our next-generation hydrogen burner can help decarbonize a key industry

- Our new burner for steam crackers can run up to 100% hydrogen fuel.
- At our Baytown Olefins Plant, we're the first to demonstrate this technology at industrial scale.
- Our demonstration achieved a 90%* reduction in direct CO2 emissions.
- We've reached another milestone in our mission to help reduce emissions from key industries.

Any list of "hard-to-decarbonize" sectors typically includes the chemical industry. That's because producing olefins–the building blocks for plastics and other modern materials–requires a large amount of heat. In fact, temperatures inside the furnaces that "crack" hydrocarbon molecules into olefins exceed 2,000 degrees Fahrenheit.

But what if these furnaces could run on hydrogen, a fuel that produces no CO2 emissions when combusted?

That would be a game changer.

And that's exactly what ExxonMobil is doing right now at our olefins plant in Baytown, Texas, where we've designed and installed pyrolysis burners that can operate on up to 100% hydrogen fuel. A total of 44 burners were installed in one of the plant's steam cracking furnaces.

Commercial testing of these next-generation burners began in December. We tested at 98% hydrogen, which is the maximum hydrogen concentration currently available for commercial demonstration at the site, and we were able to produce ethylene and other olefins identical to those produced via traditional methods.

We're proud to be the first company in the world to successfully demonstrate this technology at industrial scale.

"We're leading the way on hydrogen because with global demand for plastics continuing to grow, finding ways to reduce emissions from olefins production is crucial," said Dan Holton, senior vice president of ExxonMobil Low Carbon Solutions.

Getting "hydrogen-ready"

What's next? We plan to install these 100% hydrogen-capable burners in additional steam cracking furnaces at our Baytown Olefins Plant over the next few years.

We're getting "hydrogen-ready" because we're planning to build a plant at Baytown that would produce up to 1 billion cubic feet per day of hydrogen. And not just any hydrogen: Ours will have very low carbon intensity because we will capture and store more than 98% of the CO2 emissions associated with its production.

Switching to hydrogen can significantly reduce CO2 emissions. For example, at the furnace in which we installed the new burners, we demonstrated a 90%* reduction in direct CO2 emissions from the furnace during our tests.

We hope our successful commercial test can encourage other manufacturers to make a similar switch. By using hydrogen to reduce emissions from olefins production, we can help reduce the carbon footprint of many essential products – everything from food packaging to car parts to medical equipment.

Today, pyrolysis burners are largely fueled by hydrocarbons, particularly natural gas.

The successful demonstration of these burners was the culmination of more than four years of work by our scientists, engineers and other specialists.

We are proud to be leading the way on hydrogen. As a landmark report by the National Petroleum Council said, hydrogen can reduce emissions at a lower cost to society than other options – while also supporting economic growth, creating jobs and strengthening energy security.

Like your stove's burner, only much bigger

Here are a few more things to know about our new burner technology:

- They're big: Each burner has more than 500 times the heat output of the largest burners on a typical kitchen stove.
- They're advanced: Typical pyrolysis burners can't handle the unique challenges posed by high concentrations of hydrogen, which burns faster and hotter than traditional fuels like natural gas. Our new burners can do this reliably and safely – and our furnaces are designed to withstand those temperatures.
- They're our design: We don't just operate these burners – we also designed them. ExxonMobil is the world's only operator of steam cracking furnaces with in-house furnace and burner technology, with more than 45 years of design and operating experience.

Source ExxonMobil

EVENTS AND CONFERENCES

INTERDYE CHINA

Date : Apr. 16-18, 2025

City : Shanghai World Expo Exhibition & Convention Center

Country : China

Website : https://www.chinainterdye.com//en/category/63.html

Description : The Shanghai World Expo Exhibition And Convention Center(SWEECC) is one of the leading exhibition centers for international events worldwide, with advanced structure and facilities, convenient transportation, as well as its eco-friendly infrastructure.

WATER EXPO

Date : Feb. 26-28, 2025

City : Chennai Trade Centre

Country : India

Website :https://www.waterexpo.biz/

Description : The 18th Edition of Water Today's WATER EXPO 2025 in Chennai will introduce yet another avenue for many organisations in the water and wastewater industry. In 2025, many start-ups are looking to do a promising business, while those established can use this platform as a stage to reaffirm their position among industry buyers and end users. In Chennai, the Water Expo will work as an effective business hub to connect manufacturers & distributors with buyers, professionals, dealers, municipalities, contractors, and potential decision-makers from several industrial sectors. The upcoming event will also feature developments and opportunities for startups, emerging companies, and distributorship networks across India. The event is a platform for manufacturers of equipment, technologies, products, and processes in the different water and wastewater sectors like sewer infrastructure, industrial water & effluent, sanitation, environmental services, water quality, drinking water supply, effluent treatment plants, sewage treatment plants, and industries.

48TH DYE+CHEM SRI LANKA INTERNATIONAL EXPO

Date : Mar. 13-15, 2025

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

Country :Sri Lanka

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

Description : 1. The garment industry provided 52% of Sri Lanka's total export earnings in recent years, and 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
2. The majority of Sri Lanka's textile dye chemical imports come from Singapore, India, and Pakistan; according to current reports, the country ranks third in the world for textile dye chemical imports!
3. Sri Lanka is largely dependent on imported chemicals and dyes. Compared to its local production, Sri Lanka imports a substantial amount of chemicals and dyestuffs annually, which makes them a major draw for exporting nations

4. 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
Th5. e largest and oldest Exhibition of its kind, Dye+Chem Sri Lanka provides Fine & Specialty Chemicals and Dyes to the Sri Lankan industry, and it is surely becoming even more relevant
6. The 48th Dye+Chem Sri Lanka 2025 is a significant International Exhibition with worldwide Dyestuffs and Fine and Specialty Chemical Manufacturers. It highlights Sri Lanka's complete Textile and Apparel Industry as well as the other significant manufacturing sectors of the nation
7. Participate in the one-of-a-kind Exhibition. Meet and connect with potential buyers through the Expo

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CPHI JAPAN

Date : Apr. 9-11, 2025

City : East Halls 4, 5 & 6, Tokyo Big Sight, Tokyo, Japan

Country : Japan

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

Description : The event successfully concluded with 720 exhibiting companies and 21,159 unique attendees from 60 countries around the world. We invited the global pharma community to convene under one roof for three days of networking, forging important alliances and propelling the Japanese pharma sector forward.

SAUDI ARABIA COATING SHOW

Date : May 13-15, 2025

City : Dhahran Expo, Dammam, Saudi Arabia

Country : Saudi Arabia

Website :https://www.saudiarabiacoatingsshow.com/

Description : The Saudi Arabia Coatings Show is the only dedicated coatings trade exhibition in Saudi Arabia that brings the coatings industry together. The event creates the perfect environment for manufacturers, raw materials suppliers, distributors, buyers and technical specialists like formulators and chemists from the coatings industry to meet face-to-face and do business. That's not all, the event offers the opportunity to gather insight into the latest processes, exchange ideas with industry leaders and build a strong network in the region. For three days, the trade exhibition facilitates serious business and networking opportunities for the coatings community.

CPHI NORTH AMERICA

Date : May 20-22, 2025

City : Pennsylvania Convention Center, Philadelphia

Country : North America

Website : https://www.cphi.com/americas/en/Exhibit/exhibit/why-exhibit.html?utm_source=google&utm_medium=paid-search&utm_campaign=hln25cpn-ed-exhibitor-bof&gad source=1&gclid=CjwKCAiAzPy8BhBoEiwAbnM9Oz1SkdCMkcZytotVtDa7kho0Ohvzpk1WNqFXiSy50ScxTfzdhe5CGBoCCbEQAvD_BwE

Description : 01. Expand your network and capture high quality leads 02. Access to the global supply chain under one roof
03. Increase brand awareness

CphI - Informa Group			
No	**Exibitions**	**Date**	**Place**
1	CPhI North America	May 20-22, 2025	Pennsylvania Convention Center, Philadelphia
2	CPhI Barcelona	TBD	Fira Barcelona Gran Via, Spain
3	CPhI Middle East & Africa	Dec 8-10, 2025	Riyadh, Saudi Arabia
4	CPhI China- Virtual CPhI	June 24-26, 2025	Shanghai New International Expo Center
5	CPhI Japan	Apr 09-11, 2025	Tokyo, Japan
6	CPhI Korea	Aug 26 - 28, 2025	COEX, Seoul, Korea
7	CPhI India	Nov 25-27, 2025	Noida, India
MECS (Coating Show)			
1	Asia Pacific Coatings Show	Sept 3-5, 2025	Indonesia
2	Saudi Arabia Coatings Show	May 13-15, 2025	Dammam Saudi Arabia
3	Middle East Coatings Show	Apr 14-16, 2026	Dubai World Trade Centre
4	Coatings For Africa	June 24-26, 2026	Johannesburg, South Africa
DYE+CHEM			
1	Dye+Chem Morocco International Expo	Nov 5-7, 2025	Morocco
2	48rd Dye+Chem Sri Lanka International Expo	March 13-15, 2025	Colombo Sri Lanka
3	Dye+Chem Bangladesh International Expo	Sept 3-6,2025	Bangladesh, Dhaka
4	50th Dye+Chem Brazil International Expo	Nov 2025	Brazil
Red Carpet Events			
1	Bangladesh Int'l Dyes, Pigments and Chemicals Expo	TBD	Dhaka, Bangladesh
Turkey (Arkim Group)			
1	InterDye Textile Printing Eurasia	TBD	Istanbul, Turkey
2	Paint Istanbul TURKCOAT	2026	Istanbul
3	Paint Expo Eurosia	Oct 01-03, 2025	Istanbul Expo Center / Istanbul Fuar Merkezi
Other Exhibitions			
1	Paint India	Jan 30-31, 2025	Bombay Exhibition Centre, Mumbai
2	Expo Paint and Coating	Jan 21-23, 2025	Dhaka, Bangladesh
3	CIPI	TBD	Mumbai, India
4	Chemspec Europe	June 4-5, 2025	Koelnmesse, Germany
5	ChemUK Expo	May 21-22, 2025	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 16-18, 2025	Shanghai, China
9	Paint Expo Germany	Apr 14-17, 2026	Messe Karlsruhe Germany
10	India Chem	Oct 2026	Mumbai Exibition Centre, India
11	Water Expo 2025	Feb 26-28 2025	New Delhi
12	Inacoating 2025	July 29-31, 2025	JlExpo Kemayoran, Jakarta - Indonesia

POLYVANTIS demonstrates its expertise in the building & construction market at BAU 2025 with solutions for aesthetic designs and enhanced sustainability

- POLYVANTIS showcases its versatile portfolio of LEXAN™ sheet, EUROPLEX®, and PLEXIGLAS® semi-finished products.
- Key materials and application examples on display to address major challenges in the building and construction market.
- New introductions include a LEXAN THERMOCLEAR multiwall sheet with an extended 20-year warranty and PLEXIGLAS® proTerra containing 90 percent recycled material.

POLYVANTIS, a leading multi-material sheet and film solutions supplier, will present its comprehensive product portfolio of building materials at Germany's leading architecture, materials, and systems trade fair. POLYVANTIS offers a wide range of films, sheets, and semi-finished products made from polymethyl methacrylate (PMMA) and polycarbonate (PC) that meet the high demands placed on materials for the building and construction industry. The Company serves its global customer base with the world-renowned brands EUROPLEX®, LEXAN™ PC film and sheet, and PLEXIGLAS® PMMA semi-finished products under one roof. POLYVANTIS is known for its robust product warranties including its new extended 20-year warranty for LEXAN THERMOCLEAR multiwall sheet.

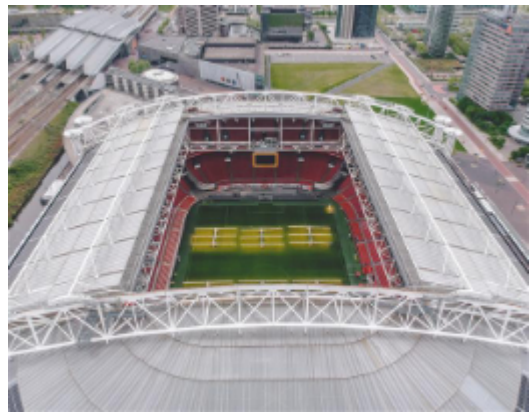
"We are proud of our long history serving the building and construction industry with innovative products. As POLYVANTIS, we now serve customers with a truly global footprint and one of the most comprehensive offerings in the industry," said Peter van den Bleek, POLYVANTIS Senior Product Manager Sheet for the EMEA region. "At the BAU Show, we are pleased to present solutions for the building and construction industry that help further the industry's sustainability progress."

Durable materials support customers' sustainability goals

New from POLYVANTIS is its extended 20-year warranty on breakage and weathering with LEXAN THERMOCLEAR multiwall sheet and a 30-year no-yellowing guarantee for PLEXIGLAS® PMMA colorless sheets. These multiwall sheets have stood the test of time and provide benefits such as:

- Extremely lightweight
- Wind and UV-resistant
- Excellent energy efficiency and light transmission properties
- 100% recyclable

The latest PLEXIGLAS® proTerra range is based on the material's recyclability while retaining the same quality. The innovative sheet material consists of



approximately 90 percent recycled PLEXIGLAS® acrylic glass. POLYVANTIS is a leader in using its proprietary process to recycle production waste and offcuts from retailers and processors into a material that is as good as new.

Other notable products on display at the show:

HPL facade panels consists of UV- and weathering-resistant PLEXIGLAS® or EUROPLEX® films. These films give the panels a long life in outdoor applications, simplify maintenance, and ultimately help to ensure that customers preserve the value of their investment in the building and construction.

LEXAN™ CLINIWALL™ Sheet is a hygienic interior wall cladding solution that is halogen/VOC-duty free and recyclable. LEXAN CLINIWALL sheet provides reliable and safe interior wall-cladding solutions for hospitals, industrial, and public facilities requiring a high level of sanitation and impact resistance. In addition to good flammability and smoke performance, it offers excellent mechanical properties

like ease of processing and impact, stain, blood, and urine resistance.

LEXAN™ THERMOCLICK™ Sheet system products comprise of 40 mm, UV-protected, multiwall sheet panels with a profiled tongue and groove connection. Primarily used in profile-free facade applications, this interlocking sheet system eliminates the need for vertical profiles, saving money and enhancing aesthetics. This solution provides an excellent choice for building facades, claddings, and interior separation walls.

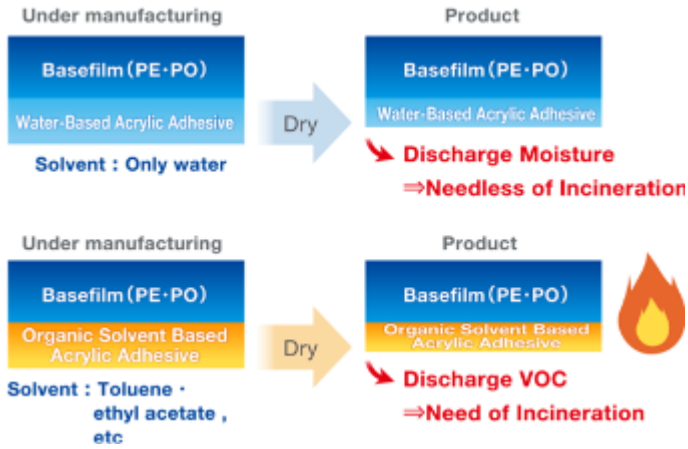
Source : Polyvantis

Mitsui Chemicals ICT Materia Uses Water-Based Acrylic Adhesive in New Surface Protective Tape for Fiber Laser Cutting of Metal

Mitsui Chemicals ICT Materia, Inc. (Head Office: Chuo-ku, Tokyo; President & CEO: SAIMOTO Yoshihisa) today announced that it has employed a water-based acrylic adhesive to successfully develop a new surface protective tape in September 2024 for use in fiber laser cutting. Mass production of the new material will begin in April 2025 as part of the Mitsui Masking Tape™ lineup.

The field of metal processing has recently seen remarkable advances in laser cutting technology capable of not only improved precision and speed but also unmanned, automatic operation, and further progress is expected going forward. Recent years have also seen rising demand for environmental, economic and social sustainability, and Mitsui Chemicals ICT Materia is working to provide solutions on this front.

With its newly developed product, Mitsui Chemicals ICT Materia has succeeded in using a water-based acrylic adhesive to achieve surface protective tape adhesion during laser cutting – something that had previously only been possible with organic solvent-based adhesives. The new product maintains Mitsui Masking Tape™'s benefits of being quick to peel from products and causing minimal noise during unwinding, while also enabling reduced VOC and CO2 emissions in Mitsui Masking Tape™ production process.



The new surface protective tape can also help improve the quality of processed products by, among other benefits, minimizing burn marks along cut edges. The product promises to be kind to both people and the environment.

Source : Mitsui Chemicals

BPCLs Ambitious Refinery Project Paving the Way for Sustainable Growth in India and Energy Resilience

Vinodhini Harish

Introduction:

The evolving dynamics of the petroleum and petrochemical industries reflect the intricate interplay of global trends, regional consumption patterns and emerging economic transitions. The energy demands are soaring due to industrialization, urbanization and growing infrastructure, thus countries like India are spearheading strategic investments to ensure energy security, support industrial growth and align with the sustainability goals. This article explores varied aspects that influence the petroleum demand, the shift toward petrochemical feedstocks, and the innovative projects redefining the

industry such as BPCL's ambitious refinery and petrochemical complex in Andhra Pradesh.

Breaking down some of the key aspects:

The demand for petroleum products such as petrol, diesel and feedstocks for petrochemicals are largely influenced by global trends, regional consumption patterns and economic transitions. Therefore, some aspects affect or influence the demand for these products. Analyzing them helps in understanding the key markets, and how the shift happens from transportation fuels to petrochemicals and sustains profitability.

- The refinery with a 9 million tonnes per year(MTPA) capacity is designed to meet the regional energy demands, support energy security and supply petrochemical feedstocks. Countries like India with rising industrial activities, urbanization and transportation needs justify these investments. Moreover, integration of the refinery outputs with the petrochemical production helps provide economic efficiency and thereby aligns with the demand growth in polymers and other derivatives.

- On the other hand, mature markets are not contributing to the demand for fuels like gasoline and diesel due to factors such as electric vehicle adoption, energy efficiency measures, and biofuel integrations. Especially in Asia-Pacific regions, the demand for emerging economies grows due to industrialization and infrastructure expansion. Gasoline demand is also expected to decline due to the increased penetration of electric vehicles.

- Petrochemical feedstocks: The petrochemical feedstocks such as naphtha ethane, and propane are experiencing increasing demand. Likewise, the building blocks of plastics, textiles, and chemicals such as Ethylene, propylene, and benzene are expected to grow at annual rates of 4-5%. The refineries that are integrated with the petrochemical units are positioned in a way that caters to the demand, especially in the Asian region where about 75% of the feedstocks for new projects are tied to the integrated facilities.

- Modern refineries are often integrated with the petrochemical units, supporting industries such as plastics, textiles and chemicals. The strategic placements of these refineries in the regions of Andra Pradesh (Kakinada), and Rajasthan (Barmer) help in balancing the economic development across the country. The addition of the capacity, and adopting advanced technologies and refineries help in maintaining the competitiveness in the global markets.

Big news: Bharat Petroleum Corporation Limited(BPCL) is undertaking the development of India's most expensive oil refinery and petrochemical complex in Andra Pradesh.

This is a greenfield project that is valued at approximately INR 95,000 crore and the project can also be considered as a part of BPCL's broader strategy in meeting the domestic fuel demand that is expected to grow 4-5% annually. The refinery will have a capacity of 9 million tonnes per annum and the primary focus of the facility will be on producing fuels and petrochemicals that are essential for the country's energy needs.

The project aims to be operational within 48 months of the final investment decision, which is also part of BPCL's ambitious INR 1.7 lakh crore investment plant that includes enhancing refining capacities and entering new energy sectors. This initiative aligns with India's energy transition goals and its growing petrochemical sector.

BPCL has not yet disclosed their plan related to exact capacity but will likely align with the country's growing demand for refined fuels and petrochemicals. The investment is estimated at INR 6100 crore for the pre-project activities and early development. Refinery-cum petrochemical complex, integrating fuel production with advanced petrochemical capabilities to support diverse industries such as plastics, textiles and chemicals.

The strategic investment is by observing the growing energy demand which is about 4-5% due to rising population and urbanization, industrial growth and infrastructure development, increasing vehicle ownership and others. The current refining capacity is approximately 260 million tonnes per year and the target is to surpass 300 million tonnes per year to meet the future demand. Furthermore, the proximity to international trade routes for imports and exports and accessibility to the markets in southern and eastern India are contributing strong reasons for this strategic investment.

BPCL's broader vision is to achieve net-zero carbon emissions by 2040 and INR 1 lakh crore investment in renewable power, green hydrogen, compressed biogas, and carbon capture. Furthermore the development of 2GW renewable energy capacity by 2025 and scaling up it to 10 GW by 2035.

BPCL's Mumbai refinery is one of the oldest and most critical facilities in India. The expansion focuses on upgrading the refinery's capacity and modernizing the equipment for energy efficiency with the environmental regulations. There are advanced technologies such as residue upgradation and hydrocracking units that help maximize fuel output and

Booking price as on 11/06/2024

Current Exchange rate-$1= 83.50 INR

Chemicals	Current Prices	Location
Acetic Acid	410	CFR India
Acrylonitrile	1300	CFR India
Benzene	1055	CFR India
Phenol	1150	CFR India
Acetone	1210	CFR India
Butyl Acrylate Monomer	2300	CFR India
C9	990	CFR India
LAB	1650	CFR India
IPA	1210	CFR India
Methanol	290	CFR India
VAM	860	CFR South Asia
Toluene	1055	CFR India
Styrene Monomer	1210	CFR India
N-Butanol	1200	CFR India
Octanol	1490	CFR India
Isobutanol	1200	CFR India
MEG	615	CFR India
Mix Xylene-Solvent Grade	1030	CFR India
Gycerine	850	CIF India
DMF	850	CFR India
Acrylic Acid	1300	CIF India
Formic Acid	650	CFR India
Adipic Acid	1450	CIF India
Ethylene	940	CFR India
PTA	880	CFR India
Propylene	815	CFR India
THF	1600	CIF India

Mumbai Market Price as on 11/02/2025

Name of Chemical	Current Price	Location
Acetic Acid-Imported Repack	41	Mumbai
Acetic Acid-Domestic Intact	54	Mumbai
Styrene Monomer-Imported Repack	42	Mumbai
Acetone-Imported Repack	80	Mumbai
Acetone-Domestic Intact	88	Mumbai
Acetone-Domestic Intact	80	Mumbai
Acetonitrile-Imported Intact	135	Mumbai
Acetonitrile-Domestic Intact	150	Mumbai

Acetonitrile-Domestic Repack	130	Mumbai
Acrylonitrile-Imported Intact	175	Mumbai
Acrylonitrile-Imported Repack	170	Mumbai
Aniline-Imported Intact	152	Mumbai
Aniline-Domestic Intact	154	Mumbai
Benzene-Domestic Repack	88	Mumbai
Cyclohexane-Imported Intact	125	Mumbai
Cyclohexane-Domestic Intact	110	Mumbai
Cyclohexane-Domestic Repack	105	Mumbai
Cyclohexanone-Imported Intact	144	Mumbai
Cyclohexanone-Imported Repack	126	Mumbai
Cyclohexanone-Domestic Intact	150	Mumbai
Cyclohexanone-Domestic Repack	137	Mumbai
C9 Solvent (99.99% purity)-Imported Repack	95	Mumbai
C9 Solvent (Arham Petrochem)-Imported Repack	94.75	Mumbai
Dibutyl Phthalate-Domestic Intact	120	Mumbai
Dioctyl Phthalate-Domestic Intact	123	Mumbai
Ethyl Acetate-Domestic Intact	75	Mumbai
Ethyl Acetate-Domestic Repack	73	Mumbai
Formaldehyde(37%)-Domestic Repack	21	Mumbai
Methanol-Imported Repack	38	Mumbai
Methyl Ethyl Ketone-Imported Intact	120	Mumbai
Methyl Ethyl Ketone-Imported Repack	110	Mumbai
Methyl Isobutyl Ketone-Imported Intact	152	Mumbai
Methyl Isobutyl Ketone-Imported Repack	141	Mumbai
Methyl Methacrylate-Imported Intact	151	Mumbai
Mixed Xylene-Imported Repack	77	Mumbai
Mixed Xylene-Domestic Repack	77	Mumbai
Monoethylene Glycol-Imported Repack	61.5	Mumbai
Monoethylene Glycol-Domestic Intact	66	Mumbai
Monoethylene Glycol-Domestic Repack	62	Mumbai
Iso propyl Alcohol-Imported Repack	104	Mumbai
Iso propyl Alcohol-Domestic Intact	114	Mumbai
Iso propyl Alcohol-Domestic Repack	104	Mumbai
nButanol-Imported Repack	96	Mumbai

nButanol-Domestic Intact	108	Mumbai
nButanol-Domestic Repack	96	Mumbai
Ortho Xylene-Imported Repack	105	Mumbai
Phenol-Imported Repack	95	Mumbai
Phenol-Domestic Intact	103	Mumbai
Phenol-Domestic Repack	98	Mumbai
Phthalic Anhydride-Imported Intact	107	Mumbai
Phthalic Anhydride-Domestic Intact	107	Mumbai
Styrene Monomer-Imported Repack	107	Mumbai
Toluene-Imported Repack	85	Mumbai
Toluene-Domestic Repack	86	Mumbai
Vinyl Acetate Monomer-Imported Repack	80	Mumbai

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

International market prices as on 11/02/2025

Product	Regions	Current prices
Feedstock Prices $/unit		
Crude Oil ($/barrel)	WTI CRUDE	72.55
	BRENT CRUDE	76.15
	MARS US	73.56
	OPEC BASKET	76.45
Natural Gas	New York	3.48
Gasoline	RBOB	2.1
Heating Oil	US	2.45
Ethanol	US	1.77
Naphtha	FOB Singapore	660
	European	655
	CFR Far East Asia	674
Propane	New York	0.93
Aromatics prices $/MT		
Benzene	FOB Korea	910
	CFR Japan	930
Styrene	CFR Japan	1045
	CFR South East Asia	1080

	CFR China	1045
	FOB Korea	1035
Toluene	CFR China	795
	CFR South East Asia	835
	FOB Korea	780
	CFR Japan	795
Iso-Mix Xylene	CFR South East Asia	820
	CFR Taiwan	820
	FOB Korea	800
MEG	CFR China	545
	CFR South East Asia	555
Methanol	CFR China	304
	CFR Korea	358
	CFR South East Asia	362
	CFR Taiwan	348
Solvent-MX	CFR South East Asia	780
	FOB Korea	715
	CFR China	765
Ortho Xylene	CFR South East Asia	915
	FOB Korea	950
	CFR China	915
Para Xylene	CFR South East Asia	880
	FOB Korea	870
	CFR Taiwan	890
Propylene	FOB Japan	825
	FOB Korea	830
	CFR China	855
	CFR South East Asia	845
Propylene Glycol	FOB Korea	820
	CFR China	850
Ethylene	CFR North East Asia	875
	CFR South East Asia	915
	FOB Japan	835
	FOB Korea	840
EDC	CFR Far East Asia	275

	CFR South East Asia	275
Butadiene	CFR China	1485
	CFR South East Asia	1345
	FOB Korea	1455
Benzene	FOB Rotterdam	915
Methanol	FOB Rotterdam	345
Ortho Xylene	FOB Rotterdam	1145
Para Xylene	FOB Rotterdam	865
Solvent-MX	FOB Rotterdam	840
Styrene	FOB Rotterdam	1215
Toluene	FOB Rotterdam	895
Benzene C/G	FOB US Gulf	318
Toluene C/G	FOB US Gulf	297
Styrene C/LB	FOB US Gulf	54.4
Para Xylene $/MT	FOB US Gulf	950
Mix Xylene C/G	FOB US Gulf	281
Methanol C/G	FOB US Gulf	115
Intermediates prices $/MT		
Acrylonitrile	CFR Far East Asia	1305
	CFR South East Asia	1305
	CFR South Asia	1235
VCM	CFR Far East Asia	505
	CFR South East Asia	565
MTBE	FOB Singapore	731
	FOB US Gulf	715
Phenol	CFR China	885
	CFR South East Asia	1030
	FOB US Gulf	1135
	FOB Rotterdam	987
Acetone	CFR China	780
	CFR South East Asia	760
	CFR Far East Asia	680
	FOB US Gulf	992
	FOB Rotterdam	782
Caprolactum	CFR Far East Asia	1490

	CFR South East Asia	1510
Caustic Soda	FOB North East Asia	450
	CFR South East Asia	520
Ethyl Acetate	FOB US Gulf	1543
	FOB Rotterdam	1022
	FD North West Europe(Euro/mt)	1080
Butyl Acetate	FOB US Gulf	1738
	FOB Rotterdam	1230
	FD North West Europe(Euro/mt)	1280
MEK	FOB Rotterdam	1335
	FD North West Europe(Euro/mt)	1380
IPA	FOB US Gulf	1268
	FOB Rotterdam	1095
	FD North West Europe(Euro/mt)	1150
NBA	CFR China	975
	CFR South East Asia	975
	CFR Far East Asia	970
Octanol	CFR China	1010
	CFR South East Asia	1045
	CFR Far East Asia	1005
DOP	CFR China	1160
	CFR South East Asia	1165
	CFR Far East Asia	1155
Phthalic Anhydride	CFR China	1010
	CFR South East Asia	1035
	CFR Far East Asia	1005
PTA	CFR Far East Asia	670
	CFR South East Asia	690
Acetic Acid	CFR Far East Asia	445
	CFR South East Asia	440
	CFR South Asia	404
	FOB China	345
VAM	CFR China	845
	CFR South East Asia	760
	CFR South Asia	835

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

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

Opening Ports Price (Rs/kg) of Chemicals as on 11/02/2025

USD Exchange Rate: 83.98 INR

Products	Current Prices (INR/kg)	Prices in USD/mt Equivalent to INR/kg	Location
Acetic Acid	36.5	419.16	Ex-Kandla
Acetic Acid	36.75	422.85	Ex-Mumbai
Acetonitrile-imported intact	134	1541.82	Ex-Bhiwandi
Acetone	74	851.46	Ex-Mumbai
Acrylic Acid	87.5	1006.79	Ex-Mumbai
Acrylonitrile	138	1587.85	Ex-Kandla
Adipic Acid	110	1265.68	Ex-Bhiwandi
Aniline Oil	130	1495.80	Ex-Kandla
Benzene	86	989.53	Ex-Vizaz
Butyl Acetate	85	978.02	Ex-Kandla
Butyl Acrylate Monomer	119	1369.23	Ex-Kandla
Butyl Glycol	103	1185.13	Ex-Kandla
C10	90	1035.55	Ex-Kandla
C9	73	839.95	Ex-Kandla
Carbon Black-regular grade	60	690.37	Ex-Mumbai
Caustic Soda Lye	43	494.76	Ex-Dahej
Chloroform	14.5	166.84	Ex-Dahej
Citric Acid-ANHYD	74	851.46	Ex-Bhiwandi
Citric Acid-Mono	66	759.41	Ex-Bhiwandi
Cyclohexane	94	1081.58	Ex-Hazira
Cyclohexanone	116	1334.71	Ex-Kandla
DMF Drum	79	908.99	Ex-Bhiwandi
DEG	56	644.34	Ex-Hazira
EDC	28	322.17	Ex-Kandla
Epoxy Resin	190	2186.17	Ex-Nhava Sheva
Ethyl Acrylate	122	1403.75	Ex-Kandla
Formic Acid	65	747.90	Ex-Bhiwandi
Glycerine	81	932.00	CIF Nhava Sheva
N-Heptane	205	2358.76	Ex-Bhiwandi
Hexane	82	943.50	Ex-Kandla
Hydrogen Peroxide-50%	25	287.65	Ex-Bhiwandi
Isobutanol	85	978.02	Ex-Kandla

IPA	94	1081.58	Ex-Kandla
IPA	94	1081.58	Ex-Mumbai
LAB	132	1518.81	Imported
Maleic Anhydride-Drum	91	1047.06	Ex-Mumbai
MDC	27	310.67	Ex-Dahej
MEG	55	632.84	Ex-Mumbai
MEK	96	1104.59	Ex-Kandla
Melamine	80	920.49	Imported
Methanol	31.75	365.32	Ex-Kandla
Methanol	31.5	362.44	Ex-Mumbai
MIBK	128	1472.79	Ex-Hazira
Mix Xylene-Solvent Grade	71.5	822.69	Ex-Kandla
Mix Xylene-Solvent Grade	72.5	834.20	Ex-Mumbai
MMA	145	1668.39	Ex-Hazira
N-Butanol	87.5	1006.79	Ex-Kandla
N-Propanol	95	1093.08	Ex-Kandla
NPAC	95	1093.08	Ex-Kandla
Octanol	104.5	1202.39	Ex-Kandla
Ortho Xylene	92	1058.57	Ex-Kandla
Phenol	83	955.01	Ex-Kandla
Phenolic Resin	150	1725.92	Ex-Indore
Phthalic Anhydride	104	1196.64	Ex-Mumbai
Propylene Glycol	83	955.01	Ex-Kandla
Sodium Nitrate (50Kg Bag)	61	701.88	Ex-Make-Lasons
Soda Ash Light	35	402.72	Ex-Bhiwandi
Styrene Monomer	98.5	1133.36	Ex-Kandla
Styrene Monomer	99	1139.11	Ex-Mumbai
Sulphuric Acid	10	115.06	Ex-Vapi
Tio2 (Anatase Grade)	192	2209.18	Ex-Bhiwandi
Tio2 (Rutile Grade)	210	2416.29	Ex-Bhiwandi
Toluene	77.5	891.73	Ex-Kandla
Toluene	79	908.99	Ex-Mumbai
VAM	72	828.44	Ex-Kandla
VAM	73.5	845.70	Ex-Hazira

Producer Prices (Rs/kg) of Chemicals as on 11/02/2025

Producers	Current Price (Rs/kg)	Import parity Price in USD/MT	Location
Accord-Ethyl Acetate	64	736.39	Ex-Maharashtra
Arham Petrochem-C9	72.75	837.07	Ex-Kandla
Arham Petrochem-C9	73.75	848.58	Ex-Ahmedabad
Arham Petrochem-C10	89.5	1029.80	Ex-Kandla
Arham Petrochem-C10	89	1024.05	Ex-Ahmedabad
Arham Petrochem-C10 (Imported Repack)	95.75	1101.71	Ex-Bhiwandi
Arham Petrochem-MTO/White Spirit (KL)	59.65	686.34	Ex-Kandla
Arham Petrochem-MTO/White Spirit (KL)	60.65	697.85	Ex-Ahmedabad
Arham Petrochem-De-Aromatised D40	130	1495.80	Ex-Kandla
Arham Petrochem-De-Aromatised D40	131	1507.31	Ex-Ahmedabad
Arham Petrochem-De-Aromatised D60	139	1599.36	Ex-Kandla
Arham Petrochem-De-Aromatised D60	140	1610.86	Ex-Ahmedabad
Andhra Petrochemicals-Iso-Butanol	101.5	1167.87	Ex-Vishakhapatnam
Andhra Petrochemicals-N-Butanol	84	966.52	Ex-Vishakhapatnam
Andhra Petrochemicals-Octanol	99	1139.11	Ex-Vishakhapatnam
BASF-Adipic Acid	128	1472.79	Imported
BPCL-2-Ethyl Hexanol (B)	97.05	1116.67	Ex-Kochi
BPCL-2-Ethyl Hexanol (P)	107.55	1237.49	Ex-Kochi
BPCL-2-Ethyl Hexyl Acrylate (B)	133.35	1534.35	Ex-Kochi
BPCL-2-Ethyl Hexyl Acrylate (P)	143.35	1649.41	Ex-Kochi
BPCL-Acrylic Acid (B)	86.29	992.87	Ex-Kochi
BPCL-Acrylic Acid (P)	95.29	1096.42	Ex-Kochi
BPCL-Benzene	79.4	913.59	Ex-Mumbai
BPCL-Butyl Acrylate (B)	115.18	1325.28	Ex-Kochi
BPCL-Butyl Acrylate (B)	119.95	1380.16	Ex-Kandla
BPCL-Butyl Acrylate (P)	125.18	1440.34	Ex-Kochi
BPCL-Hexane (KL)	100.65	1158.09	Ex-Mumbai
BPCL-Hexane (MT)	151.58	1744.10	Ex-Mumbai
BPCL-Iso-Butanol (B)	87.19	1003.22	Ex-Kochi
BPCL-Iso-Butanol (P)	100.02	1150.85	Ex-Kochi
BPCL-MTO (KL)	75.05	863.54	Ex-Mumbai
BPCL-N-Butanol (B)	86.6	996.43	Ex-Kochi
BPCL-N-Butanol (B)	87.79	1010.13	Ex-Kandla

BPCL-N-Butanol (P)	97.61	1123.12	Ex-Kochi
BPCL-Paraffin Wax	110	1265.68	Ex-Delhi
BPCL-Sulphur (Molten)	20.77	238.98	Ex-Mumbai
BPCL-Toluene	76.5	880.22	Ex-Mumbai
Deepak Phenolics-Acetone	70.5	811.18	Ex-Dahej Gujarat
Deepak Phenolics-IPA	92	1058.57	Ex-Dahej Gujarat
Deepak Phenolics-Phenol	81	932.00	Ex-Dahej Gujarat
GACL-Caustic Soda Lye	40	460.25	Ex-Dahej Gujarat
GACL-MDC	26.25	302.04	Ex-Bharuch Gujarat
GNFC-Acetic Acid	37.5	431.48	Ex-Bharuch Gujarat
GNFC-Aniline Oil	131	1507.31	Ex-Bharuch Gujarat
GNFC-Ethyl Acetate	66	759.41	Ex-Bharuch Gujarat
GNFC-TDI Drum	205	2358.76	Ex-Bharuch Gujarat
Grasim-MDC	26	299.16	Ex-Gujarat
GSFC-Cyclohexane	93.5	1075.83	Ex-Gujarat
HOCL-Acetone	97.5	1121.85	Ex-Kochi
HOCL-Phenol	105.5	1213.90	Ex-Kochi
IOCL-Banzene	91.5	1052.81	Ex-Vadodara Gujarat
IOCL-DEG	54.75	629.96	Ex-Odisha(Paradip)
IOCL-DEG	54.75	629.96	Ex-Panipat
IOCL-LAB	142	1633.87	Ex-Gujarat
IOCL-MEG	57.4	660.45	Ex-Odisha(Paradip)
IOCL-MEG	58.9	677.71	Ex-Panipat
IOCL-Paraffin Wax	110	1265.68	Ex-Delhi
Jubilant-Ethyl Acetate	68.5	788.17	Ex-Maharashtra
Laxmi-Ethyl Acetate	64.25	739.27	Ex-Maharashtra
Meghmani-Caustic Soda Lye	40	460.25	Ex-Bharuch Gujarat
Meghmani-MDC	26	299.16	Ex-Ankleshwar Gujarat
NIRMA-LAB	134	1541.82	Ex-Vadodra
Reliance-Caustic Soda Lye	40	460.25	Ex-Gujarat
Reliance-DEG	56	644.34	Ex-Jamnagar
Reliance-LAB	135	1553.33	Ex-Vadodra
Reliance-MEG	59.7	686.92	Ex-Jamnagar
Reliance-Mix Xylene	71	816.94	Ex-Jamnagar
Reliance-PTA	75.4	867.56	Ex-Dahej Gujarat
Reliance-Toluene	76	874.47	Ex-Jamnagar
SI GROUP-Phthalic Anhydride	104.5	1202.39	Ex-Navi Mumbai

TATA Chemicals-Soda Ash light	34	391.21	Ex-Bhiwandi
Meghmani-Caustic Soda Lye	44	512.58	Ex-Bharuch Gujarat
Meghmani-MDC	31.5	366.96	Ex-Ankleshwar Gujarat
NIRMA-LAB	134	1561.04	Ex-Vadodra
Reliance-Caustic Soda Lye	44	512.58	Ex-Gujarat
Reliance-DEG	55.6	647.72	Ex-Jamnagar
Reliance-LAB	135	1572.69	Ex-Vadodra
Reliance-MEG	58.9	686.16	Ex-Jamnagar
Reliance-Mix Xylene	67.75	789.26	Ex-Jamnagar
Reliance-PTA	73.2	852.75	Ex-Dahej Gujarat
Reliance-Toluene	77	897.02	Ex-Jamnagar
SI GROUP-Phthalic Anhydride	107	1246.51	Ex-Navi Mumbai
TATA Chemicals-Soda Ash light	34	396.09	Ex-BhiwandI

All of the above prices are provided by chemicalsupdates.com. If you wish to subscribe to the pricing module, please send us an email at info@chemicalmarket.net or call us on +91-877-9830-330

reduce emissions.

Do you know that India has a refining capacity of 256.8 million tonnes? Yes, with the addition of HPCL's Barmer refinery and BPCL's proposed unit, the capacity is expected to reach 300 million tonnes by 2030. This capacity is sufficient to meet the fuel demand until at least 2040. The country's oil demand grows at 4-5% annually.

Meanwhile, in 2023-2024, the country's refineries produced about 276.1 million tonnes of fuel exceeding the domestic consumption of 234.3 million tonnes, and the surplus was exported. Alongside its refinery expansion, the country is advancing clean energy projects, which include green hydrogen, which could shift transportation energy demand towards electricity, CNG/LNG and hydrogen. Therefore the country aims to achieve net-zero carbon emissions by 2070.

Expansion of core refining business:

Here are some of the existing refineries: Mumbai refinery is one of the oldest and most critical refineries. The Bina refinery located in Madhya Pradesh is operated by Bharat Oman Refineries Limited (BORL), a subsidiary of BPCL. The expansion aims to increase the capacity from the current 7.8 million tonnes per annum to approximately 15 MTPA.

The enhancements include setting up additional crude distillation units, hydrocrackers and catalytic reformers to meet the growing demand in central India.

The Kochi refinery with the integrated petrochemical facilities is known for the production of propylene derivative and PDPP – Propylene Derivative Petrochemical Project, the project that produces specialty chemicals such as acrylic acid and acrylates. The increasing refining capacity from 9.5 MTPA to over 15 MTPA.

Focus on catering to southern India's demand and exporting surplus products.

Rajasthan's Barmer refinery holds a capacity of about 9 million tonnes per year and is worth about 71,814 crores. The refinery is a joint venture between Hindustan Petroleum Corporation Limited (HPCL) and the Rajasthan government. The facility features petrochemical integration and focuses on feedstocks such as polypropylene and benzene derivatives.

The Ratnagiri refinery and petrochemical complex has a proposed capacity of about 60 million tonnes per year and that makes it one of the largest refineries in the world. The cost of the refinery is INR 3 lakh crore and it has Saudi Aramco and ADNOC as key international partners. It balances the challenges of balancing industrial growth with landowner and community interests.

Although there are several opportunities for the refineries, consider some of these thought-provoking questions related to the context:

- With the rising usage of electric vehicles and energy efficiency work procedures in the industries, how can refineries future-proof their operations while maintaining profitability?
- As the world is shifting towards sustainable energy, how will the petrochemical feedstocks evolve to support both industry and environmental goals?
- Are India's ambitious refinery expansions aligned with global net-zero targets and what lessons can other nations draw from these initiatives?

Final thoughts:

The Indian petroleum and petrochemical industries are a testament to the nation's ability to adapt to changing global trends, and domestic demands. By integrating advanced technologies, expanding refining capacities, and embracing sustainability goals, the country is not only addressing energy needs but also contributing to the global energy transitions. BPCL's initiatives along with strategic partnerships and investments. Thereby illustrating a forward-looking approach that balances the economic growth with the environmental stewardship.

Kyungpook National University Researchers Discover a Novel Approach to Mapping and Engineering Enzymes for Enhanced Plastic Recycling

DAEGU, South Korea, Jan. 29, 2025 /PRNewswire/ -- Polyethylene terephthalate is one of the few plastics that can be effectively broken down into its base materials by microbial enzymes. Recently, a team of researchers from Kyungpook National University discovered an efficient biocatalyst called Kubu-PM12 for this purpose by employing an innovative landscape profiling method. The developed enzyme exhibits excellent performance under industrial conditions, shows high activity at low temperature, and outperforms relevant benchmarks.

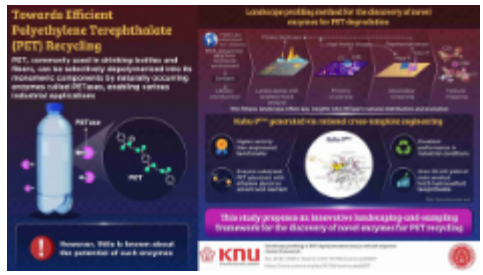
Polyethylene terephthalate (PET) is one of the most widely used plastics, commonly found in bottles, fibers, and many other products. It is a unique member of the plastic family as it can be broken down into its constituent units (or monomers) by PETases, which are enzymes that degrade PET. Until now, scientists have discovered a variety of PETases in nature, including from bacteria, Ideonella sakaiensis, and leaf-compost cutinase. These biocatalysts have been modified for industrial applications.

Decomposing contaminated PET under mild conditions and producing high-purity monomers is currently a critical focus in plastic recycling technology, highlighting its need for more such efficient biocatalysts.

Taking a major step in this direction, a team of researchers from Kyungpook National University (KNU), led by Kyung-Jin Kim, Professor of Life Science and Biotechnology and Head of KNU Institute for Microorganisms, has come up with an innovative landscape profiling method to determine the potential of naturally occurring microbial enzymes to degrade PET plastics. Their novel findings, expected to help solve the existing problems in the recycling industry, were published online in Volume 387, Issue 6729 of the renowned journal Science on January 03, 2025.

This study explores various aspects of this little-explored field, from landscaping of genetic sequences to screening for high-fitness enzymes, engineering them, and evaluating their performance under industrial conditions. Specifically, the researchers employed a novel clustering approach to screen around 2000 candidate enzymes across several families. This produced a view of landscape proficiency and stability in terms of the fitness of promiscuous enzymes. As a result, the team could identify peaks corresponding to potentially highly efficient enzymes for further testing and optimization. Subsequently, they successfully engineered enzymes Mipa-P and Kubu-P through sequential mutagenesis, which exhibited excellent performance compared to benchmarks under extreme conditions typically present in recycling applications.

"We were particularly excited to observe that Kubu-PM12 thrives under industrial conditions. Its ability to handle high PET loads and withstand elevated temperatures, coupled with its impressive activity at lower temperatures, is highly advantageous.



This makes it a promising candidate for real-world applications." Prof. Kim exclaims.

According to Prof. Kim, the future of plastic recycling technology is bright with the present innovation. "The novel enzymes discovered through this method will enable the continuous recycling process of PET at lower temperatures and higher productivity. Furthermore, this landscaping method of protein sequences proposed in this study may allow for the classification categories of the chaotic enzyme family to be established in detail, which will allow scientists to more easily predict and understand enzyme function. As biocatalytic recycling becomes industrially viable, it will be possible to offset the growing demand for virgin PET from crude oil through fully closed PET recycling." shares Prof. Kim.

Source : Kyungpook National University

Industry Shake-Up How the Akzo Nobel India Acquisition Could Reshape the Paints Market

Vinodhini Harish

Introduction:

Indian paints industry is on the brink of its transformation and the reports about the potential acquisition of Akzo Nobel India Acquisition by Berger Paints or JSW Paints. The high-stakes deal valued at Rs.17,531 crore has created a storm across the industry. This also signals a possible consolidation which could potentially reshape the market dynamics. The Berger Paints views this as a strategic leap to challenge Asian paints' dominance and JSW Paints sees this as an opportunity to accelerate their market entry. Meanwhile, Akzo Nobel's global restructuring is an addition to the complexity of this corporate saga. The news is big hence we have collected interesting data metrics, and other perspectives related to the news. Let's dive into the article.

What is the big news?

The potential acquisition of Akzo Nobel India has sparked intense speculation and analysis across major financial markets and industry circles. If Berger Paints succeeds in the takeover, it will catapult the company into a stronger market position, narrowing the gap with Asian paints. Akzo Nobel India, known for its potential in premium decorative and industrial coatings, is expected to enhance Berger's portfolio, offering synergies in technology, distribution, and brand strength.

This sum, Rs. 17,531 crore valuation reflects the strategic importance of this move and also stimulates questions about financing. Berger paints may require substantial debt or equity dilution to fund the deal, which could impact shareholder value in the short term. On the other hand, JSW paints' interest in acquisition underscores their aggressive expansion plans, and if it outbids Berger, it could shake up the competitive hierarchy of the Indian paints industry.

To understand the strategy better, we have analyzed the news from different perspectives:

1. Berger paints' growth strategy:

For Berger Paints, acquiring Akzo Nobel India would be a game change, especially being the second largest paints company in India, Berger sees this as an opportunity to bridge the gap with the market leader Asian Paints. With Akzo Nobel's strong brand presence, technology and supply chain capabilities, Berger can expand their portfolio and regional footprint. This strategy aligns with Berger's aggressive growth strategy thereby allowing it to penetrate deeper into the premium paints segment where companies like Dulux have built a strong foothold.

Additionally, Berger could leverage Akzo Nobel's existing industrial and protective coatings expertise to strengthen its offerings. With the rising demand for decorative and industrial coatings in India, this acquisition is capable of giving an edge in both segments.

2. JSW paints' competitive ambitions:

JSW paints backed by the JSW group is another contender in the acquisition race. A relatively new entrant, JSW has been making aggressive moves to capture the market share in India's INRO 70,000 crore paints industry. If JSW wins the bid, it will accelerate its expansion plans and compete more effectively with the established giants.

For JSW, acquiring Akzo Nobel India would offer instant scale, technical know-how and a distribution network that could otherwise take years to build. Given its financial muscle and diversification strategy, JSW may use this acquisition as a ladder for long-term dominance in the sector.

3. Akzo Nobel's strategic realignment:

Akzo Nobel's decision to review its South Asian business suggests a shift in its global priorities. The company has been focusing on the European and Chinese markets, where it sees higher growth potential. By potentially divesting its Indian operations, Akzo Nobel may be aiming to streamline its global portfolio and allocate resources more efficiently.

However, exiting a rapidly growing market like India raises questions. The Indian paints industry is expected to grow with a CAGR of 10-12% over the next decade, which is expected to be driven by growing urbanization, rising disposable incomes, and infrastructure development. Some analysts argue that Akzo Nobel might be undervaluing its Indian operations given the long-term growth potential.

What are the market reactions and implications:

The news has created interest among investors and industry experts. Berger Paints' stock has seen a lot of fluctuations as analysts evaluate the potential impact of such a large acquisition on its balance sheet. For

instance, Akzo Nobel India's stock surged over 8% indicating significant market interest and speculation. If Berger Paints proceeds with this acquisition, it might need to raise significant funds through debt or equity, which could temporarily affect its balance sheet and financial stability. Additionally, Berger Paints' stock has already been experiencing fluctuations, for instance, FY25 earnings showed a 7.5% year-on-year decline in the net profit, despite strategic pricing adjustments.

Analysts from firms like Morgon Stanley and Nomura have expressed caution, setting lower target prices for the stock, which suggests concerns over the future financial strain. Therefore if this acquisition moves forward, the investors and analysts will closely watch how Berger Paints manages its financials, as taking on large debt or issuing new equity could impact short-term profitability.

For Asian paints, the industry leader, the acquisition could mean intensified competition. With Berger potentially gaining market share and JSW expanding aggressively, Asian paints may have to innovate and invest more in brand differentiation and technology to maintain its leadership.

Smaller regional players may also feel the heat. A Berger Akzo Nobel merger could consolidate the market further, making it harder for smaller brands to compete against well-capitalized giants.

Top paint companies in India are implementing strategies revolving around innovation, market expansion, digital transformation, and sustainability. Customers are attracted to the companies when they focus on exploring their categories segment, such as home décor, waterproofing solutions and eco-friendly solutions. Since Berger Paints and JSW Paints are both competing to acquire Akzo Nobel's India business the Dutch multinational is considering a strategic review of its South Asian operations. Akzo Nobel has been in the Indian industry for over 70 years now, owns the Dulux brand and currently holds about 7% market share in the Indian paints industry. The company is strong in both decorative and performance coatings, it is reportedly focused on its European and Chinese markets, potentially spinning off its decorative paints segments in India.

This acquisition of Berger paints is a boost to the market presence and a challenge to industry leader Asian Paints. JSW paints, on the other hand, is a relatively new entrant but has aggressive expansion plans.

How are customers viewing this?

From a customer standpoint, the acquisition could lead to better product innovation and pricing strategies. If Berger successfully integrates Akzo Nobel's premium products into their lineup, then customers could benefit from enhanced quality and variety. However, the consolidation could also reduce competitive pricing in the long run, potentially leading to higher costs for the end users.

For instance, AkzoNobel's premium Dulux brand could be integrated into the Berger's portfolio bringing advanced formulations, superior finishes and global expertise. Consumers might see new product lines that combine the best of both companies.

Similarly, Berger could leverage AkzoNobel's R&D strengths to introduce eco-friendly paints, improved durability, and specialized coatings for Indian climate conditions. Likewise, if this expansion happens to its widespread retail network, more consumers, even in semi-urban and rural areas, might access high-end decorative paints.

There are some drawbacks too, if Berger consolidates its market share, it might reduce aggressive pricing strategies, potentially leading to higher prices for consumers in the long run. Dulux's standalone premium identity could dilute if integrated into Berger's broader lineup potentially affecting the consumer perception.

Some data-driven market insights:

Data-Driven Market Insights

The Indian paints industry is expected to reach a market size of over ₹1.2 lakh crore by 2030, growing at an estimated CAGR of 10-12%. That's great news! As we examine further currently, Asian Paints dominates with a 53% market share, followed by Berger Paints at around 19%, and Akzo Nobel India at approximately 7%. This acquisition could potentially elevate Berger Paints' market share closer to 25%, posing a

significant challenge to Asian Paints' longstanding supremacy. Therefore the acquisition is going to create a major stir in the market, no doubt!

Furthermore, India's per capita paint consumption remains around 4.1 kg, significantly lower than the global average of 15-25 kg in developed markets, highlighting vast growth potential. Now is the time to explore opportunities and work on them.

The decorative paints segment accounts for nearly 75% of the market, while industrial coatings make up the remaining 25%. With urbanization and infrastructure development accelerating, demand for both categories is expected to rise. The construction sector and investments are further boosting the decorative paints segment.

Investors are closely watching how financing this Rs. 17,531 crore acquisition would impact Berger's financials. Debt-to-equity ratios, integration costs, and post-merger operational efficiency will be key metrics determining the success of the deal.

Conclusion

The potential acquisition of Akzo Nobel India by Berger Paints (or JSW Paints) represents a pivotal moment in the Indian paints industry. This deal is not just about numbers—it's about market power, strategic positioning, and long-term growth. If Berger succeeds, it will create a formidable challenger to Asian Paints, intensifying competition and driving innovation in the industry. For JSW, a win would mean fast-tracked market entry and a strong foundation for future expansion. Meanwhile, Akzo Nobel's exit from India would signal a broader shift in its global strategy, raising questions about the long-term potential of emerging markets.

As stakeholders navigate regulatory hurdles, financial structuring, and operational integration, the industry is set for a major shake-up. Whether this acquisition leads to a new market leader or a realigned competitive landscape, one thing is clear—the Indian paints industry will never be the same again.

GHCL Announces Q3FY25 Results Standalone

Highlights:

- **PAT Increased By 69% to Rs. 168 Crores in Q3FY25 YoY**
- **EBIDTA Increased By 57% to Rs. 259 Crores in Q3FY25 YoY**
- **Net Revenue at Rs.807 Crores in Q3FY25**

New Delhi, 31 st January 2025: GHCL Limited, India's leading Chemical Company, announced its financial results for Q3FY25.

Commenting on the financial performance, Mr. R S Jalan, Managing Director, GHCL said, "We have reported a robust financial performance for the quarter ended December 31, 2024 on the back of continued focus upon our core area of operations. The performance assumes a greater significance in the backdrop of moderating industry conditions. We continue to strengthen our stature amongst clients as a preferred partner.

Soda Ash realizations remained stable with few instances of depressed prices due to excessive dumping by major global manufacturers into the Indian market. We are confident that the recent imposition of a Minimum Import Price (MIP) by the Indian Government would curtail such imports at cheap prices going forward in the ensuing quarters.

We are excited to report that our expansion initiatives are gaining significant momentum. The commissioning of our Vacuum Salt and Bromine projects in FY26 puts us on a substantial growth trajectory and product basket expansion.

We remain committed to drive stakeholder value through strategic action and robust execution of our plans."

Q3FY25 VS Q3FY24 (Standalone Performance)

Net Revenue in the quarter under consideration was reported at Rs. 807 crores as compared to Rs.813 crores in the corresponding quarter ended Dec 31, 2023

EBIDTA grew by 57% to Rs. 259 crores as compared to Rs. 165 crores in the corresponding quarter of last fiscal year

Net Profit (PAT) grew by 69% to Rs.168 crores as against Rs.100 crores in the corresponding quarter of last fiscal year

Source : Press Release

Thermax Group Registers Revenue Growth of 8 Percentage in Q3 of FY 25

Thermax is a trusted partner in energy transition and a leading provider of energy and environment solutions. The company recorded a consolidated operating revenue of Rs. 2,508 crore in the third quarter of FY 2024-25, an 8% increase as compared to Rs. 2,324 crore in the corresponding quarter of the previous fiscal year. The Company's consolidated profit after tax (PAT) is Rs. 114 crore (Rs. 237 crore), a decrease of 52% over Q3 of FY '24. The profit after tax of Q3 of FY '24 included an exceptional gain of Rs. 126 crore from the sale of a vacant plot of land. The profit before tax and exceptional item is Rs. 156 crore (Rs. 183 crore), down 15%. The current quarter's results are affected by lower margins in certain orders within the Industrial Infra segment and the impact of product mix changes in the Chemicals segment.

As of December 31, 2024, the order balance for the quarter was Rs. 11,383 crore (Rs. 10,717 crore), up 6% from the corresponding quarter of the previous year. The order booking for the quarter was Rs. 2,296 crore, an 8% decrease compared to Rs. 2,506 crore in the same quarter of the previous fiscal year.

On a standalone basis, Thermax Limited posted an operating revenue of Rs. 1,453 crore during the quarter, down by 2% as compared to Rs. 1,480 crore in the corresponding quarter last year. The profit after tax for the quarter stood at Rs. 103 crore (Rs. 201 crore), down 49%, attributed to the exceptional gain on the sale of assets in the corresponding quarter of the previous year, as explained above.

The order booking for the quarter was higher by 43% at Rs.1,647 crore in comparison to Rs. 1,154 crore in the corresponding quarter of the previous year. Order balance on December 31, 2024, stood at Rs. 6,493 crore (Rs. 6,258 crore), up 4%.

During the quarter, Thermax completed the acquisition of 100% of the equity share capital of Buildtech Products India Pvt. Ltd., a company manufacturing admixtures, accelerators and capsules used in tunnels, infrastructure and railway projects. This acquisition adds to Thermax's presence in the construction chemicals sector.

Source : Chemical Market

BASF India Limited announces Q3 2024-2025 results

Mumbai, India – February 4, 2024 – BASF India Limited (BSE code: 500042), registered sales of Rs. 37,586.7 million for the third quarter, which ended on December 31, 2024, as compared to Rs. 33,262.6 million in the corresponding quarter of the previous year, representing an increase of 13%.

The Company reported Profit before tax (before exceptional items) of Rs. 1,377.4 million for the quarter ended December 31, 2024 as compared to Profit before tax (before exceptional items) of Rs. 1,874.0 million in the corresponding quarter of the previous year.

For the nine months ended on December 31, 2024, the Company registered sales of Rs. 1,19,732.9 million, as compared to Rs. 1,04,075.1 million for the corresponding period of the previous year, an increase of 15%. Profit before tax (before exceptional items) stood at Rs. 5,918.1 million for the nine months ended December 31, 2024, compared to Profit Before Tax (before exceptional items) of Rs. 5,395.4 million for the nine months ended December 31, 2023 for the corresponding period of the previous year. Profit after tax (after exceptional items) stood at Rs. 4,521.0 million for the nine months ended December 31, 2024 as compared to Profit after tax (after exceptional items) of Rs. 4,018.4 million reported in the corresponding period of the previous year.

"Despite the challenging market condition in Q3, the Company reported revenue growth in Agricultural Solutions, Industrial Solutions, Materials, Surface Technologies and Chemicals segments, largely driven by higher volumes. However, this growth was impacted by higher input costs," said Alexander Gerding, Managing Director, BASF India Limited.

Source : Press Release