



The Chemical Industry at a crossroads

S&P Global
Commodity Insights



Section 1:

Where we've been – Celebrating Chemical Industry “solutions”

Imagine a world where 40% of humanity risks starvation. That's the reality we'd face without ammonia, the unsung hero behind 20-50% increases in crop yields, quietly feeding billions since the 20th century. By 2050, as we race to nourish 9.7 billion people, ammonia's dual role as fertilizer and hydrogen carrier will pit “food vs fuel” debates against climate urgency.

Meanwhile, carbon fiber and epoxy resins—stronger than steel, lighter than aluminum—are the invisible force behind wind turbines slicing through hurricanes and EVs gliding silently down highways. They're in space stations orbiting Earth and smartphones in your pocket, enabled by electronic-grade silicon (EGS), the \$500 billion backbone of AI, solar panels, and IoT.



Then there are polymers: the quiet disruptors. Replacing metals in cars, they slash weight by 30%, boost fuel efficiency, and shield EV batteries. In hospitals, biocompatible plastics save lives as implants, PPE, and drug packaging. These materials aren't just convenient; they're essential, supporting 25% of U.S. GDP and 120 million global jobs.



Section 2:

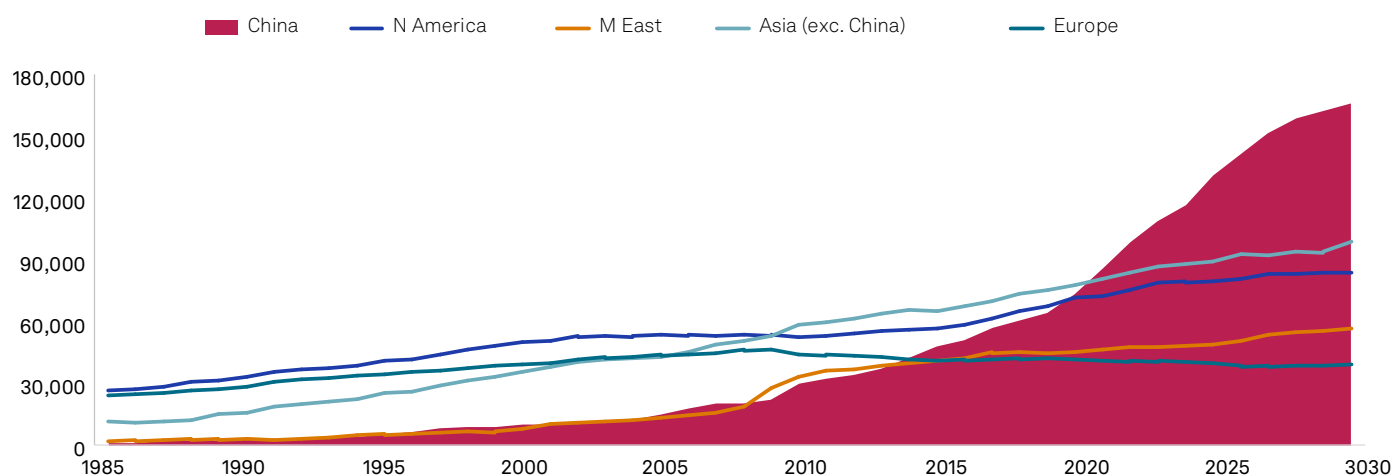
Where we are today – Challenges lead to continuing innovation

Today, the industry faces a perfect storm. Supply chains are tangled by geopolitics, profits are squeezed, and plastics waste looms as a reputational grenade. China's dominance in key segments is shifting markets, while climate demands collide with energy security. Yet here's the twist: constraints breed innovation.

The same sector that gave us synthetic fertilizers and space-age materials is now pivoting. Companies are investing in recycling tech to turn plastic waste into feedstock, redesigning products for circularity, and balancing energy transition investments between renewables and clean hydrogen or biofuels.

China's chemical industry has achieved significant scale, placing it at the epicenter of many commodity markets

Ethylene and propylene total capacity for select regions (thousand metric tons)



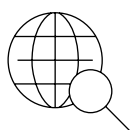
Source: S&P Global Commodity Insights



Section 3:

Looking forward: Forces shaping our future

The future hinges on four forces:

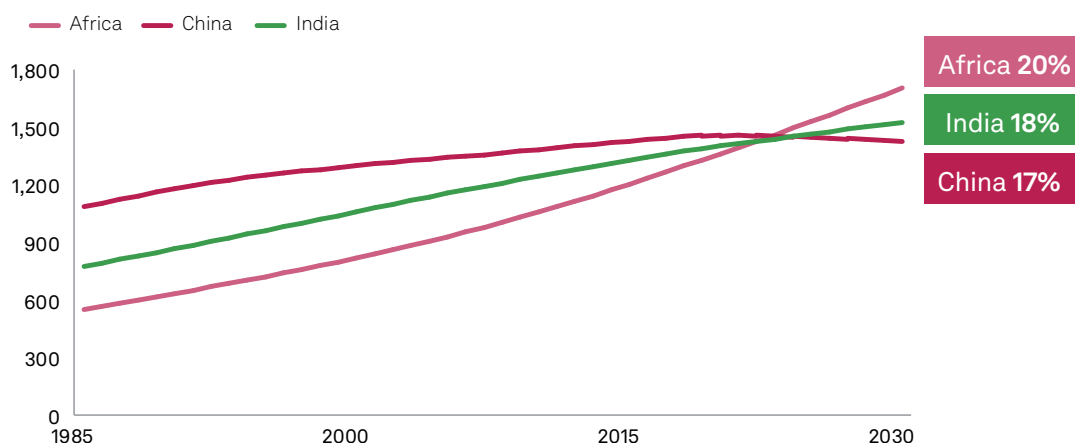


1. **Regional demand:** By 2030, India and Africa will hold 40% of the world's population. As China's growth slows, these regions will drive demand for fertilizers, materials, and infrastructure, creating a \$1 trillion+ opportunity for localized, sustainable solutions.

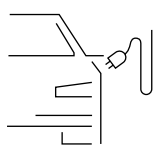
Africa and India will hold nearly 40% of total world population by 2030

(Percent of total world population by 2030)

Population for select regions (millions people)



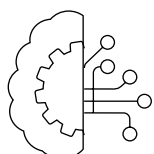
Demand growth for basic chemicals is driven by consumption of durable and non-durable consumer goods



2. **Energy Transition:** The industry is moving from net-zero aspirations to practical action — like carbon capture for cement, green ammonia for shipping, and lightweight polymers for hydrogen storage. Success will hinge on scalable, affordable solutions. The chemical sector is key to advancing sustainable technologies while balancing security, cost, and impact. As the energy transition evolves, investments will reflect a pragmatic approach, recognizing the different needs of electrons versus molecules.



3. **Sustainability:** Building a circular economy will need both new technologies and new ways of doing business. Plastics innovation will keep focusing on better recycling methods and smarter product designs. Managing carbon intensity will mean making better use of materials again and again. Research into advanced materials will look for ways to lock carbon into useful products.



4. **AI:** The AI revolution is growing fast, but its pace is limited by the power needed to support it. AI has long been used to boost operational efficiency, but now it's entering a new phase, reshaping how people interact. To stay competitive, businesses must understand how to use AI in their daily operations.

Section 4:

A path forward

From averting famine to enabling Mars missions, chemicals have always been the silent partner in human progress. Today's challenges aren't a crisis; they're a catalyst. With S&P Global's Chemicals offerings, you can:

- Gain a comprehensive understanding of market dynamics through our market insights.
- Make confident decisions backed by reliable price assessments.
- Anticipate trends and prepare for future demands with our forward-looking analytics.
- Navigate supply and demand effectively with our trade intelligence.
- Align your operations with real market demand.
- Manage tariffs and trade challenges proficiently.
- Equip yourself with insights spanning the entire chemical value chain from upstream raw materials to downstream applications.
- Stay ahead with key market trends and insights into competitive dynamics.

At S&P Global, we are dedicated to leading this transformation, equipping our clients with insights and strategies that empower them to excel in an evolving market. To learn more about our chemical offerings, [click here](#).

Sources:

S&P Global Commodity Insights

WPC | World Petrochemical Conference 2025