

2022 Chemicals Industry Outlook



Panuswee Dwivedi

Chemicals: Stability and sustainability over growth

January 2022

The global chemical industry saw a steep but tumultuous recovery in 2021 following the pandemic with expectations that it will stabilize in 2022. Key trends to look out for in 2022 are as follows:

Global chemical industry drivers will grow at a stable pace in 2022 after a tumultuous recovery in 2021

Global GDP is expected to grow by 4.4% in 2022 compared to 5.7% during 2021. The economies of U.S., China, and India are stabilizing and will support global GDP growth.

Another driver for the chemical industry, the construction industry is projected to grow by 4.5% through 2025 driven by Asia Pacific.

Additionally, the year 2021 was difficult for the automotive industry with muted demand, record low inventories due to lockdowns from the COVID-19 pandemic, and a global chip shortage. Global light vehicle sales are expected to increase to 83 million units in 2022 from 78 million units in 2021 with chip manufacturers also ramping up capacity to address shortage.

Finally, the Purchasing Managers' Index (PMI) across major economies is expected to remain in the range 50 to 56 in 2022 versus 53 to 60 in 2021 and will slow down over most economies except Brazil that will grow at 0.1% in 2022. Europe, U.S., Canada, India, and China are expected to fall by 10.6%, 7.9%, 6.5%, 3.3%, and 2.4%, respectively.

Global chemical production growth will slow down to 2.7% in 2022 following a 7.0% growth in 2021

The global chemical industry grew at 7.0% during 2021 as demand picked back up post-COVID. Growth will slow down to 2.7% in 2022 as the industry stabilizes driven by the U.S. growing at 4.3% due to easing supply chain constraints and rising demand supported by government stimulus followed by China growing at 4.0%. No other chemical manufacturing industry including Europe or Japan, South Korea, and India in Asia are expected to increase their production growth during 2022.

Global GDP will grow at 4.4% in 2022 driven by U.S., China, and India

Global chemical production will grow at 2.7% in 2022

FlexPO + 2022 Agenda

Thursday, February 17, 2022, Houston, TX

<https://flexpo.adi-cmr.com/>

7:30 am Registration and Breakfast

8:15 am Keynote Presentation



Scott Wright, Huntsman,
Division President

9:00 am Chemicals Outlook in 2022



Dr. Uday Turaga, ADI
Chemical Market Resources,
CEO

Break

10:05 am Feedstocks Review



Dhaval Shah, SABIC, GM
Corporate Technology &
Innovation



Macgill James, Borealis,
Manager, Feedstocks Supply
& Business Development

11:05 am Polyethylene and polypropylene markets



Richard Thomas, TotalEnergies US, Sr. Manager, Strategy and
Business Development

12:05 pm Lunch

01:05 pm Specialty polymers and performance materials



Jose Mendez
SK Geo Centric, Global
Business Director



Juan Gaytan
Kaneka North America, VP,
MS Polymers

02:05 pm Engineered polymer markets



Dr. Vijay Mhetar, Kraton,
SVP and CTO



Dr. Hartmut Siebert, Sulzer,
Head of Polymers Business

Break

03:30 pm Investor panel



Meghan Leggett
White Deer, Principal



Brian Orkin
Arsenal Capital Partners,
Investment Partner

04:15 pm Innovation, recycling and sustainability



Raj Krishnaswamy
CJ Bio, VP, Polymers R&D



Roman Wolff
Origin Materials, VP,
Engineering

Adjourn and Cocktails

FlexPO+ Partner



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Capital spending across the global chemical industry will grow at a rate similar to production growth with U.S. capital spending reaching \$31.6 billion in 2022

U.S. chemical industry capex will grow by \$1.0B to \$31.3B in 2022

The global chemical industry capital spending will see slower growth in 2022 compared to 2021. The U.S. chemical industry will likely grow by \$1.0 billion to reach \$31.6 billion in 2022 compared to a jump of \$3.3 billion in 2021 when capital spending grew from \$27.2 to \$30.6 billion.

Several new petrochemical plants are expected to come online in the near term mainly in Asia

Most of the capital spending growth is expected to come from Asia and U.S where several petrochemicals have been planned with start-up expected in 2022 to 2030. China is expected to start-up several petrochemical plants including the 4.8 million tons per year (tpy) Zhejiang Petrochemical Daishan Xylene Plant 2 by 2023 and the 5.2 million tpy Shandong Yulong Petrochemical Longkou Ethylene Plant 2 by 2030. A significant supply-demand imbalance in Malaysia may result in several new petrochemical plants to be built over 2022 to 2025 including Petronas Pengerang PE Plant 2 (0.40 million tpy), Petronas Pengerang PE Plant (0.35 million tpy), and Petronas Pengerang PP Plant 1 and 2 (0.45 million tpy each). In the U.S., Chevron Phillips Chemical is planning to expand its PP business with a 500,000 tpy PP unit at its Cedar Bayou complex with start-up expected in 2023.

U.S. ethane will continue to be cost-advantaged over naphtha in 2022 supporting domestic production and demand

Henry Hub prices are expected to average at \$3.98/MMBtu but U.S. ethane will remain cost-advantaged over naphtha throughout 2022

U.S. Henry Hub price averaged \$3.97/MMBtu during 2021 rising to \$5.35/MMBtu in February and \$5.51/MMBtu in October. U.S. ethane remained fairly cost-advantaged over naphtha during 2021 and production grew from 2.02 million barrels per day (bpd) in 2020 to 2.14 million bpd in 2021 while consumption grew from 1.72 million bpd in 2020 to 1.76 million bpd in 2021. The U.S. EIA expects the natural gas price to average \$3.98/MMBtu during 2022 with low ethane rejection supported by contractual obligations and exports

due to ethane's cost advantage over naphtha. U.S. ethane production and consumption are expected to grow to 2.45 and 2.03 million bpd, respectively, in 2022. U.S. ethylene exports to Europe and Asia also increased during second half of 2021. Ethylene shortages in Europe related to unplanned cracker outages as well as negative cracker margins in Asia are likely to drive U.S. ethylene exports in 2022 supporting domestic ethane demand.

The inflation in polyethylene and polypropylene markets will ease in 2022

Inflation in global polyethylene and polypropylene markets may ease or even turn into deflation over 2022

U.S. polyethylene (PE) and polypropylene (PP) supply were impacted by extreme weather during 2021. Europe, that relies heavily on imports from the U.S. faced higher PE and PP prices. On the other hand, while Asia can provide cost-competitive PE and PP, it was impacted by high coal prices and supply chain disruptions, worsening inflation in PE and PP markets in Europe. Now as U.S. supply comes back on track, China coal-based PE and PP capacity resumes, and supply restrictions ease coupled with mild demand, it is likely that inflation may ease or even turn into a deflation over 2022 especially as demand growth eases.

Mergers and acquisitions will continue to be robust driven by consolidation, supply chains, and ESG

Mergers and acquisitions will continue to be robust in 2022 with consolidation, supply chains, and ESG being major drivers

As the effects of the pandemic eased during the second half of 2021 several merger and acquisition (M&A) deals were announced including Sika's acquisition of MBCC for \$6 billion and DuPont's acquisition of Rogers for \$5.2 billion. In addition to consolidation, major drivers for M&A activity during 2022 will include enhancing resilience, supply chains and ESG goals.

Supply issues faced by the global fertilizer market in 2021 are expected to be resolved by the second half of 2022

Global fertilizer demand grew by 5.2% in 2021 and is expected to grow at 0.9% in 2022 dampened partially due to high fertilizer prices. High fertilizer prices from high natural gas prices, especially in

2022 ADI Forum, Thursday, February 24, 2022, Houston, TX

www.adi-forum.com

7:30 am	Registration and Breakfast		8:15 am	Welcome	
8:30 am	Keynote Presentation		9:15 am	Energy Outlook in 2022	
		Chris Smith Cheniere Energy, SVP Policy, Govt & Public Affairs		Uday Turaga ADI, CEO	
10:00 am	Panel 1: Upstream Oil & Gas				
		Kirsty McCormack BP, VP, Special Projects		Linhua Guan Surge Energy, CEO	
			Aaron Ketter Devon Energy, VP Mid-Cont. & S. TX		Natalya Brooks Moderator
11:00 am	Break				
11:20 am	Panel 2: Midstream and Natural Gas Liquids				
		Paul Bienawski Enstor Gas, CEO		John Staebel LyondellBasell, Dir, NA Feedstocks	
			David Paradis Trillium Flow, CEO		Joseph Gentry GTC Vorro, VP, Licensing
12:15 pm	Lunch				
01:15 pm	Panel 3: Natural Gas & LNG				
		Michael Mott NextDecade, SVP Strategy		Matt Jackson Crowley, VP BD, Ship. New Energy	
				Dena Wiggins Natural Gas Supply Assoc., CEO	
2:15 pm	Panel 4: Refining and Downstream				
		Heath DePriest Phillips 66, VP Emerging Energy		Brandon Schwertner Priority Power Management, CEO	
3:15 pm	Break				
3:35 pm	Panel 5: Hydrogen				
		David Hatrick Huntsman, VP Innovation		Trevor Best Syzygy Plasmonics, CEO	
				Muhammad Islam IHI E&C, SVP BD and Technology	
4:35 pm	Panel 6: Energy Transition				
		Eric Bradley Taurus Invest. Holdings, MD New Energies & Sustainability		Leslie Beyer Energy Workforce & Technology Council, CEO	
				Alex Robart Microsoft, Energy & Sustainability Leader	
5:30 pm	Adjourn and Cocktails				

Europe, caused many fertilizer producers to shut down operations and created a supply shortage during 2021. Many producers, however, continued to produce fertilizers despite high natural gas prices, some even going as far as to delay maintenance. These issues are likely to subside in 2022.

Global fertilizers market will stabilize in 2022

Sustainability and plastic waste reduction will be at the center of regulatory activity for the global chemical industry

Regulatory pressure on the single-use plastic waste is tightening globally. For example, Canada published draft regulations prohibiting single-use plastics including plastic cutlery, stir sticks, straws, and six-pack rings in the country for public comment until March 2022. Also, the U.K. plastic packaging tax of €200 per ton will come into effect in April 2022 impacting plastic packaging containing less than 30% recycled content produced or imported into the U.K.

France also joined the list of countries that have banned plastic packaging by banning plastic packaging for most fruits and vegetables, a move that is expected to eliminate 1 billion items of plastic waste annually. Not to be left behind, the Indian government intends to prohibit the use of single-use plastic items by the end of 2022. Additionally, several new international plastic regulations have been proposed to the United Nations by various environmental agencies to be implemented in 2022 where more than 150 countries have expressed interest in managing global marine pollution.

Regulatory pressure towards sustainability and plastic waste reduction will tighten

Apart from regulators, investors are also pushing large chemical companies on transparency on volumes and phase-out plans on toxic chemicals. While the U.S. and European regulators have published guidelines on toxic chemicals, many countries have not. Applications of 'forever chemicals', PFAS, have already resulted in payouts from companies including 3M and potential costs in the U.S. related to such chemicals could be between \$25 to \$40 billion.

ESG issues are at an inflection point in the global chemical industry with growing focus on material and substantive efforts

Download prospectus of our recently updated [global POE POP report](#) [here](#)

More and more companies are being impacted by ESG issues from regulators, consumer choices, and other stakeholders. Going forward, we expect a greater focus on material and substantive efforts. For instance, BASF acquired a 49.5% share in the offshore windfarm Hollandse Kust Zuid and signed multiple power purchase agreements (PPA) with renewable energy providers as part of their net-zero CO2 emissions goal. Additionally, in partnership with SABIC and Linde, they are developing an electric steam cracker furnace. In another example, Poland-based PKN Orlen and Orlen Poludnie are planning to build 25,000 tpy bioethanol plant. Finally, India-based Gas Authority India Limited (GAIL) and Gujarat Alkalies and Chemicals Limited (GACL) are also planning to set up a 1,428 tpy bioethanol plant. These trends are expected to continue over 2022.

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