



August, 2020

The Chemical Reaction





Introduction

Welcome to The Chemical Reaction, where our team of experts keeps you up to date with all things Chemicals. Find highlights on current events, key trends and much more in the content below. Interested in learning more on a certain subject? Navigate to a report through the links included or reach out to one of our qualified analysts for more information.

Recent Insights and Informs:

- [Paper vs plastic: breaking down the debate in flexible packaging sustainability](#)
- [Welcome to the materials transition](#)
- [Coronavirus and polymers - an updated Q3 outlook](#)
- [Why is China's enthusiasm for PDH investment unabating?](#)
- [PTA market faces oversupply, WM launches asset tool to help assess competitiveness](#)
- [PKN all-in: Poland's quest to create a national champion](#)

Upcoming Events:

- [\[WEBINAR\] Chemicals integration: the winners and losers | 2 September 2020](#)
- [European Thermoplastic Conference 2020 | 8 September 2020](#)
- [Asian Thermoplastic Conference 2020 | 15 September 2020](#)
- [Online Industry Training: Intro to Petrochemicals | 24 September 2020](#)

Q3 2020



The European Union (EU) agrees on 2021 plastic levy implementation

Chloe Kinner, 19 August 2020

Issue

- EU member states have agreed to implement a plastic packaging waste tax ("plastic levy") of €0.80/kg (€800/t) for non-recycled plastic packaging waste, which will come into effect on 1 January 2021.
- EU member states with lower GDP will pay <€0.80/kg levy, with a rebate being provided based on the population size.
- The plastic levy is a part of the €1 trillion 2021-2027 EU budget, with the levy revenues to be used to repay EU loans for funding the €750 billion Covid-19 recovery plan.



Implications

- The plastic levy has received mixed responses. European Plastics Converters, an EU trade organization, has criticised this levy, stating that fiscal measures are not the most efficient tool to drive a full circular economy. In contrast, Germany supported the levy as it strongly incentivizes member states to expand their recycling systems.
- There are some uncertainties around the levy regulations, with questions around member states' obligation to introduce the levy and the potential to opt out or to contribute via other measures.
- The UK, Italy and Spain have been introducing independent plastic taxes. The UK, which will have left the EU before the levy is commissioned, introduced a £200/t tax for plastic packaging with <30% recycled plastic that will start in April 2022. Italy has postponed the implementation of its €450/t tax for virgin plastics to 2021 due to Covid-19. Spain has approved a draft legislation to introduce a €450/t tax for plastic packaging waste and a ban on single-use plastics, which will be applied during the first half of 2021.
- Packaging-grade plastic enquiries are rising this month as packaging companies assess current market conditions, prices and materials availability before the levy is implemented.

Outlook

- The magnitude of the EU plastic packaging waste levy - around four times that of the UK's plastic tax and nearly double the Spanish and Italian taxes - will have major impacts on both virgin and recycled plastic production. With the current levels of recycling infrastructure, it will be extremely difficult for plastic producers to meet margins and reduce costs associated with the plastic levy.
- As the levy contributes to the Covid-19 recovery plan, there is no guarantee that the levy revenues will be used to support recycling infrastructure development that is critical to progress towards a circular economy.
- Industry groups have expressed concerns on how the taxes will be applied to packaging. Increasing recycled content on packaging is less feasible given the material availability, such as food-contact applications. There is also an increasing concern whether there will be a shift to other packaging materials with potentially higher environmental impact.

Welcome to the Materials Transition

Guy Bailey, Ashish Chitalia, 18 August 2020

By 2050, materials use is set to double and waste generation to increase by 70%. More ambitious regulation, sustained investment in technology and smarter consumer choices are all needed to put us on a more sustainable path. These are big challenges but the transformation underway in the energy sector shows that systemic change is possible.

What could this mean for the packaging industry and plastic demand? Greater circularity would see demand displaced in the energy and petrochemical value chains, leaving many existing or planned assets uncompetitive. In one scenario, this could lead to the loss of 1.5 million b/d of demand for oil in 2040, with requirements for chemical feedstocks flattened by increased circularity.

To move onto a more sustainable track, the industries that produce and consume our material resources will need to find new ways of working. Just as we are undertaking an energy transition to change the way we power the world, so we must engage in a materials transition.

In this [complimentary report](#), [Guy Bailey](#), Head of Intermediates, and Applications and [Ashish Chitalia](#), Head of Polyolefins, ask what it would take to make the plastics value chain truly sustainable.



Paper vs plastic: breaking down the debate in flexible packaging sustainability

Robert Gilfillan, Mariana Moreira, 18 August 2020

Like many other major plastics applications, the use of plastics in flexible packaging has come under deep scrutiny in recent years as sustainability concerns rise and spread globally. One of the substitution products often pointed to as a solution to the plastic waste issue is paper. But is paper always the most sustainable alternative?

In this [insight](#), we review the potential substitution of plastic-based flexible packaging with paper-based alternatives, while discussing the environmental impacts of either choice. This study includes:

- Paper demand as a flexible packaging substrate
- Why paper-based flexible packaging is trending on public opinion
- Why brands are still widely using plastic-based flex packaging
- The potential for plastic-to-paper replacement and recent solutions
- Comparative costs of paper-, PP-, and PE-based flex packaging
- Innovation in more sustainable plastic-based flexible packaging

Coronavirus and polymers – an updated Q3 outlook

Andrew Brown, Guy Bailey 13 August 2020

In our updated coronavirus and polymers scenario, we highlight how our view has evolved through the past quarter and what it means for polymer demand. Using a newly released quarterly economic outlook, we've identified which end-use markets are more and less exposed to the macro downturn and answer questions like: will packaging demand continue to outperform other sectors?

Key points from [this update](#) include:

- A downgraded 2020 GDP outlook and its impact on demand
- Where packaging demand has held up
- The difference in demand between durable and non-durable applications

US merchant Ethylene Oxide (EO) buyers – a life disadvantaged?

Steve Wilkerson and Andrew Day, 7 August 2020

Issue

- The price of Purified Ethylene Oxide (PEO) sold to merchant buyers is usually based on raw material costs driven by utilization factor, plus a series of add-ons (adders) to cover other costs and margin.
- EO adders reached current market levels at the beginning of 2017, at which Wood Mackenzie had published market price for EO adders to range between 31 and 39 cents/lb (cpp).



- Due to the extremely hazardous nature of EO, US railroad companies have raised freight rates over time. The current rates to transport EO from US Gulf Coast to East Coast are reported to be 15 – 20 cpp
- The EO alternative value from glycol is determined based on the netback from glycol production cost; however, current glycol price levels have pushed this value to an extremely low range.
- With large EO volume contracts due by 2021, merchant buyers will be negotiating for lower adders. However, current economic conditions and low value of glycol will force EO producers to rely heavily on PEO margins to support their overall business.

Implications

- Integrated ethoxylators like BASF, Dow, Huntsman, Shell and Sasol have a huge advantage from low-cost ethylene/EO compared to EO merchant (non-integrated) buyers.
- Integrated producers will do whatever they can to move away from mono-ethylene glycol (MEG). For example, Indorama's acquisition of Huntsman's integrated EO business in Port Neches (now IVOX), has shown a significant growth in 2020. Yet, MEG price collapse has dropped Indorama's margins by 30%.
- For buyers relying on the US rail system, EO freight rates are unlikely to be improved. Railroad companies have experienced too many disasters when transporting highly explosive materials like EO, and fundamentally do not like EO on their systems.
- Despite the issue on EO adders and its associated freight costs, non-integrated ethoxylators remain competitive in the global markets solely due to low-cost ethylene supply.

Outlook

- As a number of EO supply contracts are due for renewal, there may be a fight for some EO market shares, which could be a catalyst for adders price reduction. Indorama, currently the largest supplier of merchant PEO in the US, will aim to defend its title. BASF's current merchant EO position is sold out, while their internal demand will continue to increase, reducing overall market availability. Shell and LyondellBasell could bid for lower adders with their spare capacity in order to win some market shares and make up for their poor margins in 2020.
- All announced PEO expansions have been shelved until the pandemic is over. INEOS has made headlines with the recent purchase of BP's petrochemicals business for US\$5 Billion. This leaves us wondering if there is still going to be any future expansions in INEOS' Chocolate Bayou facility.
- Taking all things into consideration, including current market conditions, it does feel like there could be some relief on adders suppliers going forward. Will they lower adders price by a few cpp across the price range? – we will all have to watch this space as the contract negotiations conclude.

Why is China's enthusiasm for PDH investment unabating?

Kelly Cui, 7 August 2020

Two new propane dehydrogenation (PDH) units came online in China in July, taking the total number of operational PDH units in the country to 18. With a wave of new projects starting up in the next few years, we expect PDH will account for a quarter of China's total propylene production capacity by 2025. With investor enthusiasm for PDH showing no signs of slowing, this [insight](#) examines the popularity of this on-purpose technology, seeking to answer these questions:

- What is driving China's unrelenting PDH investment?
- How competitive is China's PDH compared to other propylene production routes?



- Where does the propane feedstock come from ?
- How will the PDH investment surge impact the international propylene market?



Wood Mackenzie Chemicals

Trusted, in-depth, unique. Full chemical chain analysis.

The petrochemicals industry landscape is shifting at an alarming pace. Only one thing seems certain: the coming decade will be shaped by the coronavirus crisis. Consumer behaviour, investment decisions, the corporate landscape and even the path of globalisation will be influenced by its effects.

It's never been more important to have a wide view of the path ahead – while keeping a sharp focus on your key markets.

We can help you build a clearer picture of the chemicals, polymers and fibres industries. And we can enhance your strategic planning with robust and integrated solutions.

- Assess market trends and plan for the future with detailed forecasts and analysis
- Gain insight into topical industry issues, from feedstocks through derivatives to end-use segments
- Pinpoint investment opportunities and threats
- Understand sustainability and recycling, and how they affect conventional business strategies

Visit: [woodmac.com/chemicals](https://www.woodmac.com/chemicals) to find out more or contact us on chemicals@woodmac.com.

Disclaimer

Strictly Private & Confidential

These materials, including any updates to them, are published by and remain subject to the copyright of the Wood Mackenzie group ("Wood Mackenzie"), and are made available to clients of Wood Mackenzie under terms agreed between Wood Mackenzie and those clients. The use of these materials is governed by the terms and conditions of the agreement under which they were provided. The content and conclusions contained are confidential and may not be disclosed to any other person without Wood Mackenzie's prior written permission. Wood Mackenzie makes no warranty or representation about the accuracy or completeness of the information and data contained in these materials, which are provided 'as is'. The opinions expressed in these materials are those of Wood Mackenzie, and nothing contained in them constitutes an offer to buy or to sell securities, or investment advice. Wood Mackenzie's products do not provide a comprehensive analysis of the financial position or prospects of any company or entity and nothing in any such product should be taken as comment regarding the value of the securities of any entity. If, notwithstanding the foregoing, you or any other person relies upon these materials in any way, Wood Mackenzie does not accept, and hereby disclaims to the extent permitted by law, all liability for any loss and damage suffered arising in connection with such reliance.

Copyright © 2020, Wood Mackenzie Limited. All rights reserved. Wood Mackenzie is a Verisk business.



Wood Mackenzie™, a Verisk business, is a trusted intelligence provider, empowering decision-makers with unique insight on the world's natural resources. We are a leading research and consultancy business for the global energy, power and renewables, subsurface, chemicals, and metals and mining industries. For more information visit: woodmac.com

WOOD MACKENZIE is a trademark of Wood Mackenzie Limited and is the subject of trademark registrations and/or applications in the European Community, the USA and other countries around the world.

Europe	+44 131 243 4400
Americas	+1 713 470 1600
Asia Pacific	+65 6518 0800
Email	contactus@woodmac.com
Website	www.woodmac.com