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The global polyester industry has exhibited strong demand growth over the last decade driven by increasing incomes and urbanisation, specifically in emerging markets. But this year, as a result of the coronavirus pandemic, demand for polyester fibre and polyethylene terephthalate (PET) resin is on the decline. Fibre has been the sector most severely impacted by the pandemic.

Supply has continued to grow faster than demand, leading to significant oversupply in the market. Even this year against the backdrop of a global pandemic, capacities have continued to come online. The majority of the capacity expansions have been in Asia. Yisheng Petrochemical started up two PET resin lines in Yangpu, China, totalling 800,000 tonnes/year, and Hengli started up a 600,000 tonne/year fibres plant in Nantong, China. The only expansion outside Asia was in Turkey where Sasa Sanayi brought a 365,000 tonne/year PET resin plant online in September.

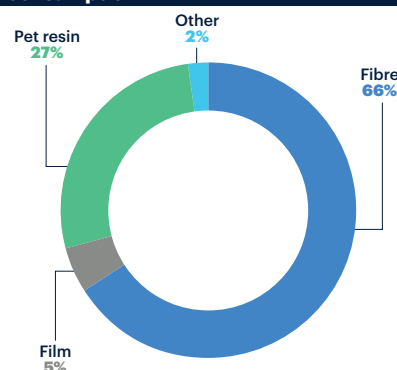
In China, the world's largest fibres consumer, fibre consumption is expected to decrease by 5% in 2020 due to the downturn in buying of clothing a result of the coronavirus pandemic

The global polyester market has been troubled with oversupply for the last decade. Polyester polymer capacity grew by over 50m tonnes between 2010 and 2020, while demand has only grown by around 32m tonnes. Global operating rates declined, bottoming out at 70% in 2014. Rates have steadily improved, although oversupply still exists, and in 2019 the global operating rate for polyester polymer was estimated to be 77%.

Oversupply of polyester to persist

Even this year against the backdrop of a global pandemic, capacities have continued to come online. The majority of the capacity expansions have been in Asia

Global polyester polymer by downstream consumption



Source: ICIS Supply and Demand Database

Polyester polymer demand had a compounded annual growth rate (CAGR) of 4.4% between 2015 and 2019, driven by increasing urbanisation and a population with greater disposable income which was spent on clothing, furnishings and textiles. Between 2010 and 2015, the average growth rate was higher, at 6.2%, driven largely by 7.0% growth in Asia.

China apparel suffers

Fibre is the polymer derivative most severely impacted by the coronavirus, as clothing is seen as a non-essential purchase during the pandemic. Outdoor activities and social events were restricted during lockdowns, and new clothes or seasonal purchases were not required.

Economic uncertainty, higher unemployment and lower disposable income are also limiting global clothing consumption, and this is expected to continue into 2021. Online clothing retail revenue has also decreased this year. Although the mask and protective suit production increased in 2020, it only accounts for a small portion of polyester fibre demand.

In China, the world's largest fibres consumer, fibre consumption is expected to decrease by 5% in 2020 due to the downturn in buying of clothing a result of the coronavirus pandemic. Clothes and garment accumulated retail revenue in H1 2020 decreased by about 22% compared with H1 2019. The first quarter was hit the hardest, with clothes and garment sales down by 34%. This is because it is the traditional peak shopping season during the Chinese Lunar New Year.

Lockdowns impact

Due to the lockdowns in Q1, most clothes and garment shopping stopped in China. These lost sales cannot be compensated for during the rest of the year. Clothes consumption has gradually returned to regular

China Jimmy Zhang Singapore

China upstream integration accelerates

With the development of the polyester industry chain, integration from upstream to downstream has become more significant to save costs and enhance competitiveness.

The majority of polyester polymer capacity expansions are large-scale integrated facilities in China. There is an obvious trend where the Chinese leading PET producers, such as Hengli Petrochemical, Hengyi Petrochemical and Rongsheng Petrochemical, have favoured the integration from paraxylene (PX) to purified terephthalic acid (PTA) to PET.

Previously, acquiring PX was the bottleneck for Chinese polyester companies when they planned to own the whole PX-PTA-PET industry chain. This was the result of the crude import limitation for Chinese private companies and safety

It is expected that some of the leading PET companies will then become self-sufficient in PX. These PET producers will have the whole industry chain from PX to PTA and into PET

concerns over PX units.

After the release of crude import rights for private companies, Zhejiang Petrochemical (invested in by Rongsheng Petrochemical and the Tongkun Group), Brunei Hengyi Industries and Hengli Petrochemical all started up refining and chemical integrated units in 2019. Shenghong Refining & Chemical, which has the same parent company as Jiangsu Shenghong Chemical Fibre, will start its integrated refining project next year.

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whole industry chain from PX to PTA and into PET. Thus, the cost should be lower than other standalone PET producers.

In the PX-PTA-PET industry, due to the mismatch of capacity expansions, margins typically flow between PX, PTA and PET.

Standalone producers have to suffer the risk of margin fluctuation. Once a company owns the whole industry chain, it can earn the margin no matter where it flows. In that case, despite the low polyester operating rates in the world, the operating rates at such integrated major PET producers will be stable due to their stronger anti-risk capability and lower costs. ■

levels in China since Q3. In Q4, growth is expected in clothing and garment consumption in China, a result of the return of social activities and some tourism.

Polyester fibre consumption is expected to increase by 2021 after the coronavirus is brought under control. Aggressive sales promotions are expected to drive demand, considering the high inventories of clothing and garments. In addition, the Olympics, to be

held in 2021, will drive demand for sports clothing and replica items. After 2021, polyester fibre demand growth should be back to typical levels of around 5%.

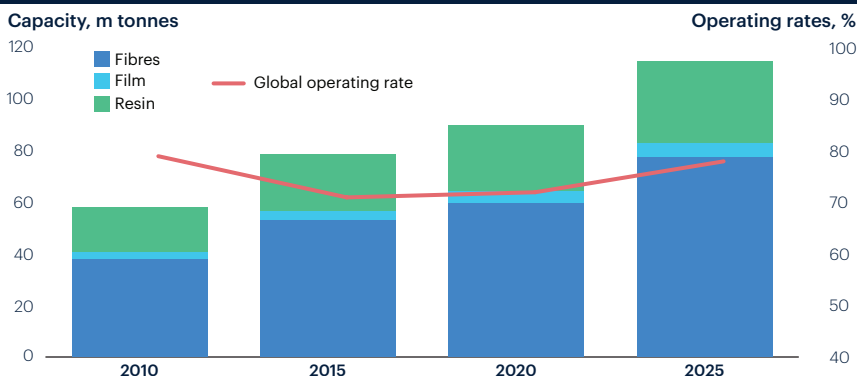
India and Vietnam outlooks

In India, southeast Asia's largest PET fibre consumer, the economy has suffered from the extended strict lockdown placed on the nation to control the spread of coronavirus. The economy is expected to recover slowly. With the death toll still increasing significantly, the economy will remain weak in H2 2020.

The impact of the pandemic on fibre demand in India was originally estimated to be at minus 11% while latest estimations foresee a far more severe impact of potentially up to minus 30%. Recovery in demand to pre-pandemic level is not expected until at least 2022.

In Vietnam the textile and garment industry is developing quickly. Increasing numbers of global clothing export orders have been taken by Vietnam producers due to lower labour costs and a better investment environment. Although we expect Vietnam fibre demand to decrease by 6% in 2020, we forecast it will rebound in 2021 once global clothing demand begins to recover in 2021. ►

Global capacity and operating rates



Source: ICIS Supply and Demand Database

» Thus, we expect polyester fibre consumption growth in Vietnam to reach 8% in 2021. From 2021 to 2025, fibre consumption growth will be around 7%/year.

The PET resin industry has performed relatively well during the pandemic. Areas where PET is used for food packaging and hygiene products have excelled, compared with the out-of-home beverage sector (including food service in workplaces) which has underperformed. The expectation for 2020 is that global PET resin demand will only fall by around 1.0%.

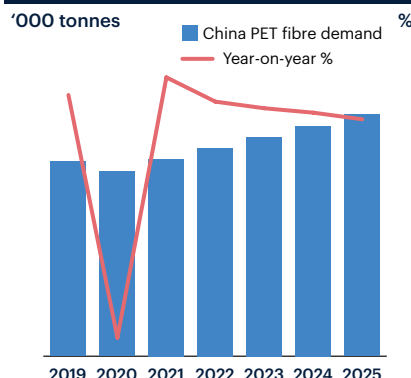
PET resin is the most commonly used resin to package bottled water and soft drinks as well as being used for food products. Usage in other areas is also growing due to its superior recyclability. One example of growing usage is hand sanitizer bottles.

Behavioural changes

The coronavirus pandemic has altered consumer behaviour in terms of buying and consuming goods. In the initial stages of lockdown, demand for PET resin was strong as populations stockpiled bottled water and other beverages, food goods and hygiene products.

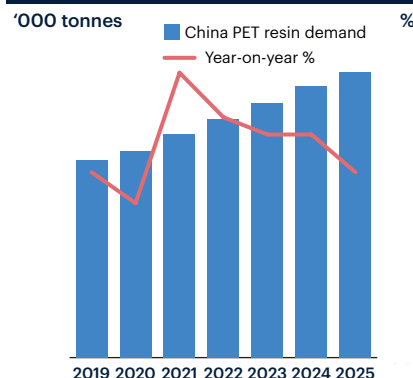
As populations remained restricted, the out-of-home purchases commonly associated with beverages and fresh food items

China PET fibre demand



Source: ICIS Supply and Demand Database

China PET resin demand



Source: ICIS Supply and Demand Database

evaporated. In contrast, products aimed for at home consumption performed well. However, they did not appear to make up for the more substantial losses from the out-of-home sector.

The out-of-home sector captures demand from tourism, and mass events such as sports and music events which attract vast crowds. With most events cancelled globally, and likely to remain so in the medium-term, PET resin demand will feel the effects.

PET resin demand in China is expected to grow by 4.5% in 2020. China is the largest PET resin consumer and exporter, accounting for about 24% of global consumption and almost half of all PET resin exports globally. Similar to other regions, the pandemic has limited tourism in China in 2020. Although beverage demand decreased, there was increased demand for mineral water. This was reflected in China's total soft drinks production data, which remained stable throughout H1 2020.

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Recycling **Helen McGeough** London

Coronavirus threatens R-PET progress

PET is one of the most recyclable polymers, with more established systems and capacity for mechanical recycling than many other polymers.

Recycling plays a pivotal role in the evolution of a circular economy as well as form a constructive route in the waste management of plastics.

However, the crash in virgin polymer prices and demand drop-off have had a significant impact on the world's recycling markets. The after-effects of lower virgin prices, compounded by coronavirus lockdowns, have been substitution back to virgin, weak demand, delayed investments, a lack of underlying growth, and financial strain across the recycling industry. This has added demand for virgin PET but ultimately slowed the progress towards a global circular economy.

However, the weak demand and decline in prices since the second quarter have not prevented higher grades of R-PET suitable for use in packaging remain above virgin values in Europe.

The pressure from low virgin PET resin prices has far reaching consequences, and with the continued oversupply in the global market, the outlook for R-PET is challenging

ICIS recycled polymer pricing assessments show R-PET food-grade pellet (FGP) continues to see the highest differential with virgin, at over 90% above virgin PET bottle grade values and colourless flake R-PET Europe prices were 15-25% above virgin values.

Structural shortages of EFSA approved food-grade material continue to support higher margins for R-PET FGP in Europe but the low virgin PET prices will continue to dominate pricing negotiations throughout the rest of the year, and beyond. Despite this premium pricing, packaging brands appear committed to achieving the 2025 targets set out by the EU.

The consistently high waste costs combined with the sharp fall in virgin values have resulted in some R-PET markets unable to compete with virgin without selling at a loss, especially in the flake market. Consequently, reduced output and extended maintenance or holiday shutdowns have taken effect to avoid losses.

Margins of R-PET flake pro-

ducers are often under pressure and for prolonged periods due to the decline in virgin resin pricing. This impacts the viability of the business overall but does create some opportunity for mergers and acquisitions (M&A), and larger players will grow business because of this. It also restricts the ability to invest, expand and build new or update existing lines and technology to increase both volume and quality of supply.

The pressure from low virgin PET resin prices has far reaching consequences, and with the continued oversupply in the global market, the outlook for R-PET is challenging.

In Asia, investment does not appear to be facing the same impediment, with recycling becoming the preferred end-of-life route for plastics. Investment plans to boost recycling and capacity have been seen in Australia, following a phased export curb. Brands leading projects include Coca-Cola and Indorama in the Philippines, Coca-Cola and Dynapack in Indonesia and R Plus in Japan (chemical recycling).

Regional markets could do well to monitor legislative measures planned or in place around the world. With the EU charge on non-recycled plastic

packaging waste and national taxes on virgin plastics in Spain and Italy and plastics packaging without recycled content in the UK, reactions have been mixed. It is clear plastics are under the scrutiny of legislators and consumers alike.

Some see the need for these taxes to be higher to encourage the use of recycled material while others are concerned it may lead to substitution to other forms of packaging such as glass or paper, or indeed to alternative polymers.

Recycling markets across the globe have been impacted by the tumultuous events of 2020 and these will have a lasting effect for the remainder of the year, and beyond. Short-term reactions with regard to the use of recycled polymers are impacting the longer-term prospects for circularity of plastics. True commitment to sustainability will be critical to the viability, if not enhancement of the recycled supply chain.

Improved infrastructure and supply chains will lead to greater volumes of high-quality recycled polymers available to the end markets open to using them. Solid investment and sustainability commitments throughout the chain will be key to driving those improvements. ■

In addition, demand for PET resin used in food packaging has increased quite significantly in 2020. The reason is that people have started online shopping for food instead of going to food market during lockdowns. PE plastic bags are typically used when going to markets, while food delivered from online shopping is typically packaged in PET resin.

In Europe, although resin demand is expected to decline this year, production is expected to have remained fairly stable as a result of trade flows. In the first half of 2020, imports into Europe from Asia were down 30% versus the same period last year.

Although virgin PET resin prices remain at all-time lows, it does appear that European producers are seeing some positive repercussions as demand is stronger for domestic ma-

PET resin trade

From	To	H1 2020
China	Europe	-42%
S Korea	Europe	-28%
India	Europe	-26%

Note: % change vs year-ago period
Source: ICIS Supply and Demand Database

terial as buyers look to shorten their supply chains. This removes a degree of uncertainty in this volatile market.

A strong recovery in global PET resin demand is expected in 2021, with growth of 6.5%. A level of normality is expected to return, with some mass events likely, workforces returning to workplaces and tourism returning. From 2022, it is expected that growth will then return to pre-coronavirus levels. ■



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