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Boom now... bust later?

It’s only a theory, but I suspect that one of the reasons economies are bouncing back as I write this is coronavirus-related spending. It’s been particularly noticeable for those fortunate enough still to be in work, and able to work at home.

Now they have no commuting costs, lunches to buy, or twice-daily coffee shop visits, these lucky people have suddenly found themselves with more disposable income. This is in stark contrast to their thoughts at start of lockdown, when they became increasingly worried about about the disease and money.

The result of the buoyant bank balances? They’ve been buying themselves treats, with a shiny new TV or surround-sound system often top of the list.

Have upgraded the viewing experience, the seating experience is next. The old sofa may well have been fine for a couple of hours’ relaxation in the evening, after an uncomfortable trip to and from work, with a day spent on ergonomic seating between the two. But it’s just not up to the job after six hours of videoconferencing from the kitchen table. Time for a new sofa.

While we’re at it, how about a nice new foam mattress for those of us forced to work in our bedrooms? And as we’ve stopped cooking and are eating frozen convenience food, let’s get a bigger refrigerator.

These are relatively small purchases, however. It’s noticeable that sales of some of the bigger ticket items are definitely suffering. In many parts of the world, people are not buying cars, perhaps because they are worried about their jobs. One possible indicator of this comes from here in the normally spendthrift UK. The proportion of income people are saving has averaged 8.6% since 1963. Yet in the second quarter of this year, it rose to 29.1%.

As you will see in the news (page 10) and in our feature (page 26), these trends are reflected in the latest data from the polyurethane industry. EuroPUR reports that the furniture sector is booming, but the automotive sector is very slow.

However, our interviews with machinery makers show that there is demand for plants to make domestic refrigerators and insulated building panels.

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Dow launches AI for PU formulations

Midland, Michigan – Dow has launched an automated polyurethane formulation system. Initially it is aimed at flexible and rigid applications, but eventually it will extend into other types of formulation. The system relies on artificial intelligence to devise formulas based on Dow raw materials and customer specifications.

At first, the tool will be for prediction, and not for formulation control on the fly on a production machine. It will include additives and components from other suppliers because, the company said, Dow products and proprietary systems often include these.

Customers will be able to use a web interface to specify parameters such as hardness, density and cost. The software will simulate formulation reactions under manufacturer’s individual conditions, and once the simulation meets the specifications, it will recommend the formulation. This should be a good starting point if further modification is needed, Dow said.

Addressing a question on data privacy, Dow said that the tool is designed to let users explore the properties of its formulations, and to match those with the customer’s requirements. ‘There is not an expectation that customers provide this information directly through the tool,’ the company added.

Dow is using Microsoft’s Azure platform. This combines machine learning and artificial intelligence with Dow’s material science, reaction kinetics data and rheology from historical data, predictive modelling and automated work processes and scale up apps.

The process is designed to integrate with Dow’s order processing system. ‘We are integrating new digital tools across all business operations to change the way we work and how customers do business with us,’ said Alan Robinson, Dow Polyurethanes’ commercial VP for North America. ‘We are making our processes smarter and more cost-efficient, building novel capabilities.’

Cannon unveils smart mix head

Milan, Italy – Cannon has launched an intelligent mix head. The company said it was designed to offer total process control, including monitoring its own working conditions and mechanical performances.

The design, based on the company’s SB models, can be supplied with up to 30 different microsensors. These measure pressure, vibration, stresses, strains and temperature within the mix head while mixing and recirculation is in progress.

The information it generates is saved to a database in real time. If the information shows any parameter in the mix head drifting out of tolerance, a warning can be given, or the system can self-compensate.

Maurizio Corti, who filed the patent, said that a cloud of signals can be detected in advance. This will allow predictive maintenance to be pre-planned for the mix head and related control and command systems.

‘The problem with traditional, dumb mix heads is that, apart from vibration measurements, there is very little to tell the user how it is performing and what its actual working and maintenance status is,’ he said. ‘This talking mix head is another tool in the polyurethane sector’s move into industry 4.0 operation.’

Cost controls help business bounce back at Recticel

Brussels – Recticel generated first-half 2020 sales of €374.3m, down 18% on H1 2019, but business came back as the half progressed. Adjusted EBITDA across the business fell by 45% to €19m in the half. In the same period in the previous year, the figure was €34.6m.

CEO Olivier Chapelle said that coronavirus had hit the company in the first half of the year, but things are getting better. ‘After reaching a low point of 51.5% in April 2020 versus April 2019, the sales shortfall versus last year has improved to 35.4% in May and 9.3% in June. This recovery trend continues with July 2020 being 4.1% lower than July 2019.’

To cope with the fall in demand, Recticel cut production. It also laid off workers temporarily, and introduced strict controls over spending and capital expenditure.

‘As a consequence, the cash consumption of our continued operations and the negative impact on adjusted EBITDA have been reduced to the maximum extent possible,’ he said.

Recent M&A activity left Chapelle more positive. ‘The Group ended the second quarter with a net positive cash position of €114m and ample financial headroom to focus and engage in the execution of its growth strategy in its higher value-added business segments,’ he said.

Fall in Japan’s PU production slows down

Tokyo – Polyurethane production in Japan fell by 12.4% in July 2020 compared with the same month in 2019. This is the 11th straight month of production falls in Japan. However, July represents the second consecutive month of a rebound, from a drop of 44.4% year-on-year in April.

The figures come from Japan’s Ministry of International Trade and Industry. In total, Japan produced 16.3 kT of polyurethane in July 2020. This compares with 18.65 kT in July 2019, a fall in production of 2320 tonne.

The country produced 10.3 kT of flexible foam in July 2020, down 1908 tonne in July 2019. The figures for rigid foam are 6.1 kT in July 2020, and 6.5 kT in the same month in last year.

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EU diisocyanate restriction scheduled to start in 2023

Brussels, Belgium – Using diisocyanates will be formally restricted in the EU from 24 August 2023, but the qualifications required to use them could be straightforward, according to ISOPA, its director general, Jorg Palmersheim, said the association is examining ways of offering the industry three routes that would enable people to handle the chemicals safely.

ISOPA is considering full e-learning, a web-based option with a virtual trainer, or a face-to-face class option. ‘We think that it is important we launch this as soon as possible,’ he said.

A launch is planned by the end of 2020 in selected European countries. He did not specify which, but the initial training languages will be English and German. It will eventually be available across the EU, he added.

‘General management as well as people on the shopfloor should take part in the training as part of their commitment to health and safety at work,’ he said.

There will be a fee to carry out training, but Palmersheim stressed this should not be a burden on the industry. He suggested that the e-learning programme could take 40 minutes once every five years. ISOPA has a publication designed to help companies navigate the regulations.

He added that the association is talking to member states and stake holders to make sure they understand the industry is working on this. The regulation will apply to companies handling unreacted diisocyanates. ECHA, the European chemicals agency, said it was introducing the restriction to prevent more than 3000 new cases of occupational asthma a year in the EU.

Vita joins in circular mattress economy

Middleton, UK – Vita Group, which makes flexible polyurethane foam, has joined Dow’s Renuva mattress recycling programme.

It will be using polyols produced by the process to make flexible PU foams.

‘Sustainability and innovation are integral to Vita’s culture, purpose and values,’ said Ian Robb, Vita Group’s CEO. ‘We are committed to being pioneers in the development of a circular economy within our industry, where post-consumer flexible PU foams will be recycled into new raw materials for use in our manufacturing process to produce new, quality foams.’

Vita expects to start using polyols at its ICOA plant in Crancey, France and across Europe to promote the use of foam made with recycled polyols in the new mattress market. It also plans to look for other applications.

Dow is promoting the polyols under its Renuva brand. They are made from post-consumer mattress waste collected under France’s Eco-Mobilier scheme, and generated at Orrion Chemicals’ Orgafoam site in France using technology that was developed by Germany’s H&S.

clarification:
Dow has asked us to clarify that the reaction mixture produced during its chemical recycling process for mattress foam contains 50% recycled material, and not as stated in Urethanes Technology International Aug-Sept 2020, page 6.

PCC and Petronas to make polyols in Malaysian JV

Duisberg, Germany – PCC and Petronas are setting up a 50:50 partnership for the joint production of oxyalkylates in Malaysia. PCC is to sell 50% of the shares in its subsidiary PCC Oxyalkylates Malaysia to the Petronas Chemical Group (PCG), thus gaining greater access to the south-east Asian and Asia-Pacific markets.

The plan is to construct a new production plant at PCG’s Kerteh Integrated Petrochemical Complex in Terengganu, Malaysia. The products it will manufacture will include polyether polyols for the polyurethane market.

Construction is set to start in 2021, with production slated to commence 2023. A joint R&D centre will also be established.

PCC set up the Malaysian project company in 2017, aiming to expand its business in the Asian market.

‘Through this joint venture, we are boosting the expansion of PCC’s core businesses with the polyols and surfactants segments in the growth markets of Asia,’ said Waldemar Preussner, PCC’s chairman. ‘The Kerteh site is ideal due to the availability of important raw materials and an excellent infrastructure.’

Songwon expands CASE FR portfolio

Ulsan, South Korea – Songwon has added a new product to its Songflame family of flame retardants. A new manufacturing line for the range has also been completed.

Songflame WB 201 is a solvent-free, aqueous flame retardant dispersion for the CASE market.

It is also suitable for flame-retardant textiles.

The company claims the new product has low viscosity, a high active content, and is easy to handle in waterborne systems. It said it combines the efficiency of conventional products with the benefits of water miscibility.
Coronavirus hits earnings at FoamPartner

Zurich, Switzerland – Conzzeta, the Swiss conglomerate that owns FoamPartner, generated sales of CHF576.2m ($620.5m) in the first half of 2020, down 25% on the first half of 2019. EBIT fell by 45% to CHF50m. In the same period in the previous year, the figure was CHF230m. The company will not be paying an interim dividend.

CEO Gene Murtagh said his company had delivered a resilient first half result in what he described as a period of unparalleled challenges. ‘Performance has varied substantially from region to region, depending on the severity and length of government restrictions,’ he said.

‘With over €1bn cash and undrawn [borrowing] facilities, we are well placed to come through the crisis in a strong position. We have completed our agreed terms on three major business acquisitions with revenue totalling over €400m. We also continue our organic expansion with new facilities being developed in locations including Russia, Brazil and also Sweden.’

In the company’s insulated panels business, sales started well in the half, with the order backlog up 8% on the previous year. Coronavirus lockdowns hit that business outside the Americas. ‘The US and Brazilian businesses continued to trade almost uninterrupted by the pandemic. In Canada, however, severe lockdown measures were imposed, and sales were significantly below the 2019 level. Overall in the division, sales dropped by 7.8% between the first half of 2019 and 2020, to €1.3bn. Trading profit in the division fell by 15.8% to €123m.

Geographic performance in the insulation boards sector matched that for the panels business, and sales fell by 18.2% between the 2019 and 2020 periods. Trading profit fell slightly faster, and was down by 20% at €48m, compared with €60m last year.

Kingspan weathers first half storms

Kingscourt, Ireland – PU and PIR insulation manufacturer Kingspan recorded sales of €2.1bn in the first half of 2020, a fall of 7.6% compared with the same period in 2019. Trading profit across the business fell by 13.0% to €200m. In the same period in the previous year, it was 55%.

‘The most significant drop in sales was recorded in April, the company said. ‘May saw an improvement, June brought a significant improvement, and this month the sales of foams returned to pre-pandemic levels.’

As a whole, Ciech said total sales were PLN15bn in the first half of 2020, down 14.7% on the same period last year. However, the company managed a 56.1% increase in adjusted EBITDA to PLN28.1m in the half. Pianki is accounted for in Ciech’s organic business. Here, sales fell by 15.0% between the first half of 2019 and the first half of 2020, to PLN36m. Adjusted EBITDA in the division fell by 14.5% to PLN4.7m in the first half of this year.

A rollercoaster ride for Ciech Pianki

Warsaw – Sales at Ciech Pianki fell by 18.8% between the first half of 2019 and the first half 2020, as demand for the company’s products went on a rollercoaster ride in the period. Overall sales for the business were PLN112m ($29.4m) in the first half of 2020, compared with PLN138m in the equivalent period last year.

Parent company Ciech, the chemicals-based conglomerate, noted a temporary reduction in demand for furniture and mattresses. This fed through to lower demand for the foam. The company opened a service centre in Lithuania has been now completed,’ said Sami Takaluoma, the company’s president for consumables. ‘First products have been sent to our customers.’

This is the company’s 11th plant, and Lithuania was chosen because of its closeness to Eastern Europe and Russia. It also has good logistics connections to the Middle East and Africa, the company said.

When fully operational, the plant will employ a total of 80 people. This is Metso Outotec’s second recent investment in Lithuania. In 2019, the company opened a service centre in Vilnius, which employs 100 people.

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Europe’s flex foamers back at full strength

Brussels – EuroPUR announced in late September that its members serving the furniture and bedding markets are experiencing high demand. However, the automotive sector is struggling.

The association of flexible foam producers said plants supplying furniture makers have been operating close to maximum capacity since mid-June across the continent. Plants Europe-wide have been operating additional shifts, with summer shutdowns cancelled. Order books were looking strong until November or December, with volumes set to be within 10% of 2019 levels.

However, companies supplying the automotive industry reported that car plants were at just 50–60% of capacity in mid-June, and have remained stuck at that level since.

There were, however, big differences between OEMs. Demand in the sector could be down by 18–20% on 2019, the association said.

EuroPUR gained nine members in the first half of 2020. These include two flexible foam makers, Greiner’s South African subsidiary and Ghana’s Ashfoam, which has plants in Benin and Niger. Foam adhesive company SABA Dinxperlo has also joined the group, as has silicone surfactant company Siltech. Five companies and organisations involved in polyurethane recycling have also signed up.

Ballytherm expands into UK

Ross-on-Wye, UK – Ballytherm plans to install a 38m double belt conveyor and associated equipment to make 1.2M m³ flexible-faced polyisocyanurate panels at a facility in Herefordshire.

The new plant, which will have about three times more capacity than the company’s original site at Ballyconnell, Ireland, will be housed in a 257,000 sq ft (2.4ha) facility on a 15-acre (6ha) site. Installation was scheduled to start in October this year, with commissioning planned for Q2 2022.

The complete line will be supplied by Hennecke-OMS, and is designed to operate at 45m/min, with potential for up to 70m/min, Ballytherm said. It includes a continuous foaming line, conveyor, foaming/mixing/distribution units, cross cutting unit, a panel cooling section, and the stacking and packing equipment for the final products.

‘The new plant offers significant opportunity for future growth,’ said Brendan Cosgrove, Ballytherm’s managing director.

Products made at the new plant, which is well positioned for the UK motorway network, will be aimed at the market in the southern British Isles.

Output from the Ballyconnell plant will supply the north of the country or could be exported within the EU, the company said.

‘Brexit was a part of the thought process about locating the plant,’ said Cosgrove. He added that it would dilute any potential problems supplying the UK, although it is still too soon to say what the exit agreement between the UK and EU will mean for cross-border trade.

New Adiprene prepolymer from starchy sources

Cologne, Germany – Lanxess has launched a new range of Adiprene Green prepolymer for polyurethane elastomers.

The new polyols comprise 30–90% renewables, Lanxess said. This means their production generates 20–30% less CO₂ than conventional oil-based products.

The polyols are derived from a renewable feedstock that does not compete with the human or animal food chain, according to Lanxess. They can be hand- or machine-mixed to produce elastomers with a range of hardnesses between 40 Shore A and 60 Shore D.

‘[They are] well suited for applications such as roll covers, wheel, press sleeves or non-pneumatic tyres,’ the company said.

Markus Eckert, head of Lanxess’ Urethanes Systems business, said the new products are part of his company’s goal to become climate neutral by 2040. ‘By using Adiprene Green, our customers can benefit from our journey to climate neutrality,’ he said.

The team from the Biointerfaces lab led by Katharina Miura made fine membranes from cellulose via electrospinning technology, with polyurethane added into the mix to confer flexibility and stability.

These fibres, less than 1µm in diameter, were woven into a delicate, multi-layered, fabric.

The membranes were treated with a solution of antimicrobial peptides, which saturated the fibre scaffold. Lab studies showed they were well tolerated by human skin cells, and killed more than 99.99% of bacteria in test cultures.

The team speculate that the structures could also have further therapeutic potential perhaps in the controlled release of drugs.

Storopack expands renewable content of its PU packaging

Metzingen, Germany – Protective packaging specialist Storopack has added a new version of its Foamplus packaging foam with a higher renewable content. It claims this is the first PU foam in the packaging sector that has renewable content. Its density is below 5kg/m³.

Foamplus 5504RC uses a sugar cane-based polyol, and the company said the foam has similar material properties to oil-based alternatives. It is also CFC-, HCFC- and HFC-free. This makes packaging with a low shipping weight.

When it is applied the two-component foam expands to take on the shape of the packaged goods. The shock-absorbent cushioning has high compression strength.
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Coronavirus helps Purple to 54% first half sales growth

Lehi, Utah – Coronavirus lockdowns in the US helped Purple, the bed-in-a-box maker and online retailer, increase sales 54% in the first half of 2020. It recorded sales of $287.5m in the half. Adjusted EBITDA across the business rose 48.7% to $35.2m. In the same period in the previous year, that figure was $6.0m.

‘It was a record-breaking [second] quarter from both a revenue and operating income standpoint as our organisation successfully capitalised on the strengths of our business model and the changes in consumer buying behaviour brought on by coronavirus,’ said CEO Joe Megibow.

He said Purple had scaled back production at the start of the pandemic, but increased output and improved fulfilment to meet demand from online direct-to-consumer sales as the half progressed.

‘Our direct to consumer mattress business grew triple digits, as did several of our other categories led by seat cushions, pillows and sheets,’ he said. He added that this more than offset sales through physical stores as these were shunned by the public during lockdowns across the US.

● The company has selected Henry County in Georgia as the location for its third manufacturing plant in the US. The $20,000 sq ft (2.3ha) facility will create 360 new jobs.

The Henry County location will be the company’s first manufacturing site outside its home state of Utah.

Purple added that it will be designed to meet consumer demand for its products.

Lower earnings at Nike offset by online growth

Beaverton, Oregon – Sales at Nike, the global footwear giant, were $10.6bn in the first quarter of 2021, down slightly on the same period last year. EBIT across the business rose by 12.9% to $1780m in the first quarter of 2021.

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Automotive woes hung heavy on Adient in Q3

Plymouth, Michigan – Adient, the full-service automotive interiors giant, had sales of $1.6bn in the third quarter of 2020. This is a fall of 61% compared with the same period in 2019. Adjusted EBITDA was a loss of $122m. In the same period in the previous year, the adjusted EBITDA was $205m.

Shutdowns at car makers around the world hit Adient’s business in the quarter. For example, in its Americas reporting segment, sales plunged by 70% between the third quarter of 2019 and 2020, declining to $593m.

This meant that adjusted EBITDA in the division changed from a profit of $69m to a loss of $83m in the third quarter of 2020.

Lear profits down 30% in H1

Southfield, Michigan – Lear, the automotive interiors and seating company, generated $6.9bn sales in the first half of 2020, 32% lower than the same period in 2019. It made a core operating loss of $43m in the first half of 2020.

Looking across the company as a whole, CEO Ray Scott said: ‘The second quarter of 2020 was one of the most challenging in our history. Our business was negatively impacted by unprecedented production shutdowns in our major markets in April and May.’

Sales in the company’s seating business dropped by 34% between the first half of 2019 and 2020, to $5.1bn. Adjusted earnings in the division declined by 85% to $99m.

It was not all bad news for the business in the quarter, however. As Scott explained: ‘We saw weekly improvements in capacity utilisation and in our business performance throughout the month of June. We also had another quarter of strong business wins, including additional conquest [new] business.’

Johns Manville breaks ground for new plant

Hillsboro, Texas – Johns Manville has broken ground for a new polyisocyanate insulation board products site in Texas. The Hillsboro site is about 60 miles south of Dallas. The plant is scheduled to be complete by mid-2021.

The company chose Hillsboro because of its proximity to a number of key customers in the south-west of the US. The site will produce board and also act as a distribution hub. It will employ 50 people.

‘There are growth opportunities in the south-west for polyiso products,’ said Joe Smith, president of the company’s roofing systems business. ‘Three of the 10 largest cities in the country are a short drive from Hillsboro.’
PU facilities included in Dow cutback plans

Midland, Michigan – Dow is to close some of its polyurethanes manufacturing sites as part of a company-wide cutback. In a news release issued on 30 September, Dow described the PU units being closed as small-scale downstream manufacturing facilities. No further information was available.

A company spokesman said more details may be provided in Dow’s third-quarter earnings release in October.

The company is also closing a selection of specialty chemicals facilities, including plants making amines and solvents in the US and Europe. Some performance materials and coatings assets will also close.

Dow says it plans to rationalise its upstream asset footprint in Europe, the US and Canada by adjusting supplies of siloxane and silicon metal.

Dow expects to save more than $300m by the end of 2021 as a result. The cuts will enable the company to reach cost-cutting targets and improve overall competitiveness as the global economy recovers from the coronavirus pandemic, it said.

In July, Dow announced it was cutting 6% of its global workforce as a result of the financial impact of the pandemic. It is selling its rail infrastructure assets at six North American sites to Watco Cos of Pittsburg, Kansas in a deal worth more than $300m.

It is also selling some marine and terminal operations and assets to Vopak for more than $600m.

CEO Jim Fitterling said, ‘We remain well positioned to capture significant growth as market conditions improve.’

ACC and OSHA renew safety pact

Washington, DC – The American Chemistry Council (ACC) and OSHA, the US Occupational Safety and Health Administration, have renewed the ACC OSHA Alliance for a further five years. Its aim is to make working with diisocyanates safer.

Three ACC groups are involved: the Center for the Polyurethanes Industry, the diisocyanates panel, and the aliphatic diisocyanates panel. The primary goals are to raise awareness of the issues, and educating employers, workers and OSHA officials on the safe use and handling of diisocyanates in the PU value chain.

Guidance documents and presentations have been highlights so far.
American Excelsior spends on polyurethane processing

Arlington, Texas – US-based packaging company American Excelsior is investing in new equipment for foam processing at three separate locations. Plants in Norwalk, Ohio, West Chicago, Illinois, and Sheboygan, Wisconsin will all have upgrades.

This part of a $5m plan to expand production in the company’s wood fibre and flexible foam divisions.

Terry Sadowski, the company’s president, said coronavirus had helped the company to accelerate investments it planned at the start of 2020. ‘The terrible pandemic has caused some markets to grow while other falter,’ he said.

‘We have had the good fortune of seeing stronger market demands for many of our products.’

Increased demand means more work, Sadowski added. ‘The plant expansions will create from 25 to 30 new jobs and opportunities for our current associates,’ he said.

Ken Starrett, VP of sales and marketing, said that the company’s flexible foam division would get a 320 ton die press for PU in West Chicago.

A PE laminator and a cutter-sheeter are being installed at Norwalk, and Sheboygan is scheduled to gain a new PE laminator.

There have also been expansions at the Spanish location. These improvements should assist its programme to develop next-generation innovations, the company said.

Lubrizol has also expanded and improved its consumer and market insights programme. ‘This should help us stay ahead of the evolving needs in PPF and other surface protection end uses,’ the company said.

‘We’re at our best collaborating with customers across the value chain,’ said Gabe Rhoads, the company’s general manager for engineered polymers. ‘We aim to create smarter, and this investment in TPU capacity, testing and process technology enables us to do more.’

He added the investments will help Lubrizol react faster to customer demands.

As well as shortening reaction times and making customer needs more clear, Lubrizol said the investments will help make supplies of its products more secure.

Lubrizol invests for extra flexibility and growth

Wickliffe, Ohio – Materials specialist Lubrizol has invested in its thermoplastic polyurethanes (TPU) business to support its growth in the surface protection and paint protection film (PPF) markets. PPFs are designed to help maintain vehicle surfaces.

The company, which declined to quantify the investments, said it has increased capacity at its site in Montme- lo, Spain. It has also expanded its testing capabilities at Brecksville, Ohio and Songjiang, China.

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China’s PU feedstock market reflects double-digit decline

Beijing – China’s consumption of polyurethane feedstocks, including TDI, polymeric MDI, monomeric MDI and polypropylene glycol, shrank by 24% in the first half of 2020, to 2.2m tons, a 27% decline, according to data from Chem366.com, the official data disclosure media outlet of CPUIA, China’s Polyurethane Industry Association.

It is the first time that China’s PU sector has registered a decline in either consumption or production since records started.

A number of diisocyanate makers halted production or lowered utilisation rates amid the coronavirus pandemic. Tosoh’s MDI plant in Ruian, Zhejiang province, for example, suspended production in early February, and did not resume operations until August.

Refrigerators, freezers and the cold chain are among the application segments that showed moderate growth despite the lockdown. Building and pipe insulation, automotive, mattress and couch segments have been stagnant, according to CPUIA data.

CPUIA expects the market to rebound over the second half of 2020. It attributes the change in fortune to a turn-around in demand and low inventory from H1.

Hongbaoli raises capital for rigid polyol expansion

Taizhou, Jiangsu – Chinese system house Hongbaoli plans to raise up to CNY509m ($74m) through a private share placement. All of the funds will be pumped into a new project with 120kt/year capacity for polyether polyol at the company’s site in Taixing, which is located in the county of Taizhou, Jiangsu province, it said.

Currently, Hongbaoli has 150kt/year polyether polyol capacity, and last year sold 120kt. Growing downstream markets, especially along the cold chain, will further boost the demand, it said.

China’s cold chain sector still has great potential. Refrigerated vehicles in the country account for only 0.3% of total freight lorries, while the share stands at up to 1% in the US and 3% in Germany.

The polyether polyol facility will take two years to complete and is expected to generate CNY1.3bn annual sales when in full operation.

The Taixing site is already home to 120kt/year of propylene oxide, the capacity of which may also be raised in the future when the new project is on stream.

Covestro’s record turbine

Beijing – Covestro has jointly developed the world’s largest PU wind turbine blades, working with Chinese wind turbine maker Goldwind and blade manufacturer LZ Blades. The 64.2m long blade has its spar cap, shear web and shell all made through polyurethane process.

This is a first in the global wind turbine industry, Covestro claimed.

The blade has passed static loading and dynamic fatigue tests for long-term reliability, and will begin small batch manufacturing by the end of the year. Compared with epoxy, polyurethane resin has lower viscosity, a shorter perfusion time, and there is no need for post curing. It will markedly raise production efficiency and make the manufacturers more competitive.

Covestro and Goldwind now plan to develop bigger polyurethane-based blades, as used in offshore wind farms.

Slow start to Q1 2021 for Sheela

Noida, India – Sheela, India’s only listed polyurethane foam maker, generated sales of INR2.7bn ($36m) in the first quarter of 2021, 46% down on the 2020 period. EBITDA across the business fell by 55% to INR280m, from INR620m.

The company said that coronavirus restrictions in India meant that for the first two months, there were hardly any sales in its largest market. However, the business controlled expenses and managed to remain profitable, despite what it describes as ‘very low’ sales.

In its Australian business, sales rose by 4% between the first quarter of 2020 and 2021, to INR820m. EBITDA in the division increased by 63% to INR130m. This resulted from a change in the Australian accounting standard.

In the second quarter of 2020, Sheela bought Interplas of Yecla, which became its division in Spain. In the first quarter of 2021, sales in this division were INR600m, and EBITDA was INR110m.

Wanhua and 3Trees partner in a joint lab

Yantai, Shandong – Wanhua and 3Trees, also known as SKSHU Paint, claims to be the ninth largest coatings maker in Asia.

Yantai, Shandong – Wanhua and Chinese coatings maker 3Trees have set up a joint innovation laboratory. The for a strategic partnership contract was signed at Wanhua’s headquarters in Yantai in August.

‘Wanhua and 3Trees share the same beliefs in creating a better life,’ said Wanhua president Kou Guangwu at the signing event. ‘We will deepen our cooperation in concerted, innovative efforts to contribute to environmental safety, the industry’s benign development and consumer health.’

‘[The partnership] is an optimal choice and a must for both of our companies,’ 3Trees’ chairman and president Hong Jie added.

Under the agreement, the companies will conduct material research and application development.

They will also join forces to promote the products in areas such as building interior and exterior waterproof coatings, Wanhua said.

A PUD for waterproof coatings was launched in May. 3Trees, also known as SKSHU Paint, claims to be the ninth largest coatings maker in Asia.
Sinomax slumps to operating loss

Hong Kong – Coronavirus lockdowns and slower economic activity in the first half of 2020 drove Hong Kong’s only listed foamier, Sinomax, into an operating loss of HK$3m ($380,000). In the same period in 2019, it made an operating profit of HK$52.7m.

It was not all bad news in the half, however, as sales in Europe and overseas rose by two-thirds in August 2020, it made an operating profit of HK$485m. It cut costs in selling and distribution as the volume of sales fell, and also laid off staff where it could.

The company added that it has changed its management team in the US. The factory there started operating in 2017 and, Sinomax said, significant losses were incurred over the years. ‘In May 2020, our US factory started reporting an operating profit, mainly resulting from various savings including materials and labour efficiency,’ it said. ‘In June and July 2020, the reported operating profit is consistently improving, and we hope that this trend will continue.’

Following the outbreak of coronavirus and the US-China trade war, US importers have started to revisit their supply chains,’ the company said. [With production in China, Vietnam and the US, we can] arrange our production and logistics schedules with flexibility to minimise the overall costs including production, tariff and transportation.’

It added that, based on the recent monthly results and increasing demand, it is optimistic.

Mlily to expand in Spain and Arizona

Nantong, Jiangsu – Chinese mattress and pillow maker Mlily is to expand production in Valencia, Spain. It is also building a new plant in Phoenix, Arizona.

The company has completed China’s regulatory process for outbound investment and registered overseas companies for both projects.

The Valencia project will be separate from any of the existing facilities of Maxcolchon, the Spanish mattress brand it bought in 2017.

Mlily declined to disclose additional details about the new plant. The new capacity in Spain will use Maxcolchon’s distribution channels. Its output will go to the US and Europe markets.

Mlily is also leasing a second property in the US to expand its North American production capabilities. It plans to employ 300 at the facility once it is in full production.

The company will also create synergy with the sales network of Mor Furniture For Less, which it bought last year.

Commercial real estate agent Yan Chen of Colliers, San Francisco said: ‘By manufacturing in Arizona, Mlily can continue to provide high-quality products at lower cost to US consumers while expanding its global footprint.’

Mlily has been expanding outside China for some time. In addition to the new plants in Spain and the US.

It also has a number of plans for further developments in Serbia and Thailand.

China’s refrigerator exports up by two-thirds in August

Beijing – China exported 7.3m refrigerators and freezers in August 2020, an increase of 68.9% on August 2019. The value of these exports leapt by 55.5% year-on-year to $854m, according to China’s General Administration of Customs.

Exports over the first eight months of 2020 amounted to 42.4m units, up by 20.3% from the same period in 2019. The total value of exports climbed 12.6% year-on-year, to $4.9bn. It is the first time this year that China’s refrigerator export has shown double-digit growth across the board.

In August, China’s production of refrigerators, excluding freezers, improved by 29.7% from August 2019 to 9.1m units, according to the National Bureau of Statistics. Production over the first eight months reached 55.4m units, down by 1.9% year on year.

The country’s freezer production has not slowed down. In August, it shot up by 75.1% from a year ago, to 3m units. Eight-month production rose by 29% to 17.5m units.

You can read more about the rigid polyurethane market in the feature that starts on page 19.

Profits down in first half at Wanhua

Yantai, Shandong – Wanhua posted CNY2.8bn ($410m) net profit in H1 2020, down by 49.6% from H1 2019. Sales during the period dipped 2% year-on-year to CNY30.9bn. Net assets fell 2.5% to CNY41.3bn, according to the company’s half-year report in August.

The fall in net profit was mainly caused by falling MDI prices as well as lower production and sales due to the pandemic,’ the report said.

Wanhua’s monomeric MDI and polymeric MDI prices in H1 2020 were both down from a year ago. Monomeric MDI in June, for example, showed a 30% decline.

During the half year, Wanhua produced 1.23m tonne of polyurethane-related products, down 9% on the previous year. It sold 1.24m tonne – a 6% drop. PU-related goods generated 43% of the company’s total revenue.

News in Brief

OSIC starts plant

Zhangjiagang, Jiangsu – OSIC Performance Materials has started up its second polyurethane additive plant. It has 18kT/year capacity for silicone surfactant and 2kT/year for waterborne adhesives.
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Prices rise in tight markets

Report by Regina Sousa, Consultant, Tecnon Orbichem

Isocyanates markets continue to improve in all regions on the back of higher demand levels and persistent supply disruptions. Supply in North America has been long for pure and crude MDI since 2019, but changed from September because of production issues. In late August, market participants were carefully watching the progress of two storms in the Gulf of Mexico. The first, Marco, briefly intensified to hurricane status before making landfall in Louisiana as a tropical storm. No major damage was reported. The second, larger storm, Laura, made landfall as a major hurricane on 27 August along the Louisiana Gulf Coast. It caused serious damage in southern Louisiana, but was not as destructive as forecasters had feared. Several energy and petrochemical plants were shut ahead of the storm’s arrival. Supply was still disrupted in October because of the hurricanes due to logistic constraints.

Supply in the European MDI market tightened in August after several planned and unplanned turnarounds. Covestro’s new 200 kT/year MDI plant at Brunsbuttel, Germany, was expected to come online in Q2, but rumours suggest the plant is still offline. Covestro declared force majeure at another MDI plant in Verdingen, Germany on 23 July. Borsodchem’s annual turnaround went ahead at the end of July and lasted until the end of August. At the end of May there was a turnaround at Huntsman’s 120 kT/year MDI plant in Roizenburg, Netherlands. The plant was expected to be back online in July, but had technical problems when the operator tried to restart. The plant remained offline until the end of July.

In China, supply also tightened. Wanhua started its annual maintenance turnaround in July, and BASF ChongQing had an unplanned turnaround in the same month. Sellers were cautious about offering product in the market because most of the supply available was for existing contracts. In September, prices continued to firm because of lower supply levels, and producers were accepting only existing orders for contract material. Exports were also coming in as domestic supply tightened. In addition to the supply situation, downstream markets showed good signs of recovery.

TDI supply in North America has been long for months, especially as demand was muted by the coronavirus pandemic, but it was disrupted in July by BASF announcing a force majeure at its 160 kT/year TDI plant at Geismar, Louisiana. The reason has not been disclosed. Covestro also declared force majeure at its 220 kT/year TDI unit in Baytown, Texas in September. Initially, the company had suspended operations in preparation for the approaching storms, but afterwards a lack of raw materials led the company to declare force majeure. This is reported to be continuing in mid October. TDI is now reported to have been placed under sales control due to lower supply. This means prices are seeing hefty increases, especially as demand is healthy.

Turnarounds tighten supply

Prices in the European TDI market continued to firm after good demand levels were seen in July and August. Automotive markets are finally pulling good demand and this will add upward pressure on European prices. Supply began to tighten in August with turnarounds. Borsodchem had its annual turnaround at the beginning of August. The plant is situated in Kazincbarcika, Hungary, and has a total TDI capacity of 250 ktpa. Covestro planned to have a maintenance turnaround at its Dormagen, Germany 250 ktpa TDI plant in September, which was expected to last one month. BASF announced force majeure on 1 September for a grade of TDI at its Ludwigshafen, Germany plant. The operator said unforeseen circumstances led to the shut down of the T80 TDI grade.

In China, supply tightened in September because of a turnaround, and some sellers were holding stock to sell at higher prices. List prices firmed. In mid-July, prices went up again as sellers stood their ground. Most downstream players had finished stocking up, and demand was low. Buyers also refused to pay increases. Traders under pressure to sell dropped their prices. Internationally, TDI was short, and high levels of export deals were heard to have taken place. This led to lower domestic supply, and further price firming.

Polyether polyols demand experienced steady growth again in August, following months of muted demand. The call for rigid polyether polyols into construction and appliances was stable, and is expected to remain unchanged. Demand into auto applications is said to be improving, while it was also getting better for flexible polyether polyols into furniture and bedding. Polyols prices firmed because of better demand, and TDI supply was shorter after several producers announced price hike initiatives for September as demand was healthy and supply low.

The European polyether polyols market started to improve in June, and is now showing high levels of demand. Tight supply is also pushing prices up as two European plants are having production issues. One buyer said the polyols supply chain is currently empty because demand has increased well beyond expected levels. A foam seller said it is receiving enquiries from all over the world and from new customers because there has been a significant increase in demand for flexible foam in all regions.

The Chinese flexible foam polyol market firmed in September owing to high feedstock costs and lower supply levels. The market also had good demand levels, further pushing prices up.

For more pricing information contact: Regina Sousa: regina.sousa@orbichem.com or visit the Orbichem website at www.orbichem.com
Reducing the energy consumption of domestic and commercial buildings is the key to meeting future climate goals. The Urethanes Technology International editorial team looks at how different parts of the world are approaching the issue.

The benefits of insulating a house are obvious. In the higher latitudes, they stay warmer for longer in the winter, while in lower latitudes, they stay cooler longer in the summer. An insulated house will leak expensive heat or cooling into the world around it more slowly. And polyurethane/PIR are some of the most cost-efficient insulating materials available to the construction industry.

But it can be hard for owner-occupiers of houses that were built some time ago to see the value in insulating their houses. This is despite systems such as the EU’s Energy Performance Certificates that allow homeowners to compare their house’s energy performance with their neighbours and similar houses in other parts of the EU.

For example, an 85m² detached house in the UK with an energy performance certificate rating of F (between 21-38) could be brought up to the UK government’s target of a C rating (between 69-80) for somewhere between £7500 and £19,000. The householder might take a look at the long list of suggested improvements, and decide not to bother installing a hot water cylinder thermostat, or room and TRV heating controls. They might leave the serviceable but inefficient old boiler in place, and decide against installing solar panels. Their capital outlay would be lower, but they’d also miss out on the potential improvements in energy efficiency.

But there are strong environmental reasons for making the investment. If the loft and walls in our F-rated house were insulated to the recommended standards, the energy demand for heating the house would fall from 22.3 GWh/year to 9.6 GWh/year. If we pretend that the house were completely heated using electricity from an average UK supplier, then the carbon footprint falls from 5.7 tonne CO₂/year to 2.4 tonne CO₂/year.

According to the EU, buildings are responsible for 40% of EU energy consumption, and 36% of its greenhouse gas emissions. The potential to upgrade energy performance of the bloc’s housing is considerable. About 35% of EU housing is more than 50 years old, while almost 75% is energy efficient. It’s clear that domestic housing represents a good opportunity to reduce the volume of carbon dioxide generated. But, according to the EU, only about 1% of the housing stock is renovated each year.

The EU has agreed that it will spend an extra €50m over the next seven years to help the countries suffering most from coronavirus to recover. Arnaud Duvieguerbigny, general secretary of PU Europe, the trade association for rigid polyurethane and PIR foam makers, told Urethanes Technology International that they want this money to be used to renovate building stock.

‘Of course, there is no way it will be labelled for PU but, at EU level, we are pressing for this money to be used for better insulated buildings,’ he said.

Member states will be able to access the pot of money if they have projects that meet the EU’s objectives. They will have until April next year to put their bids in. But, he added, while countries have considerable discretion on how to spend regeneration money, the EU has a very clear long-term objective for climate neutrality by 2050 for all of its members. PU Europe, alongside partners in Brussels such as the Renovate Europe Campaign, is pushing for national actions and funding to be activated now for decarbonising the EU’s building stock.

As the EU covers climate-diverse territory, from Finland in the Arctic Circle and Malta in the Mediterranean, EU members have agreed that it is up to individual countries to determine how they will meet the standard. ‘A country could decide that it wants all of its buildings to be passive houses solely due to a high energy performance building fabric/envelope for instance,’ Duvieguerbigny
Continued from page 19

said. ‘In another country, they could say we will implement this standard by relying on zero-carbon electricity like nuclear, photovoltaic or wind. Therefore, buildings will also achieve the zero-carbon target.’

But, he added, there will always be benefits in insulating a house; alongside winter and summer comfort will come additional health and productivity benefits.

While the EU has not set targets for the future energy consumption of houses, the Energy Performance of Buildings Directive means member states have agreed to implement demanding building regulations. He explained that the directive is designed to decarbonise the use of buildings, and this means creating a very efficient building envelope. It does not consider the energy used to make the building materials, and only refers to the operational carbon used over the service life of the building.

The long-term goal is to have near-zero energy buildings across the EU. ‘This is leading to some quite technically sophisticated buildings with a high-performance envelope,’ Duvielguerbigny said.

New-build pressure

A lot of stress is placed on new builds in the EU’s carbon reduction plans because the marginal cost of 5 cm vs 10 cm (2 in vs 4 in) insulation is small compared to the total construction cost. But the environmental benefit of thicker insulation is huge.

These regulations are partly responsible for driving growth in rigid polyurethane building insulation by about 2% above GDP in a normal year, Duvielguerbigny said. In some markets such as the UK and Belgium, the market share of PU and PIR insulation boards in the building market is greater than 50%, he added.

While that low marginal cost is perfectly acceptable for new builds, retrofitting insulation to existing buildings is far more costly. The problem that governments now face is how to persuade a person living in an F-rated home to spend all that money to insulate their properties.

Duvielguerbigny is clear about the problem. ‘The issue we face with renovation is the cost of the works and the hassle,’ he said. ‘If you only look at the cash cost and the hassle cost, it seems very expensive. That’s why we’re in a campaign to put the emphasis on the side benefits of insulation. It is like having a BMW on the drive. Occupiers are glad to show a new insulated facade to the neighbours. Our campaign is more about a building’s appearance, and allowing occupiers to say to their neighbours that they care about the environment.’

The UK is taking a different approach to building insulation and, at time of writing, was planning to introduce mandatory building regulations. The money is to be spent between October 2020 and 31 March 2021.

This is part of Chancellor of the Exchequer (finance minister) Rishi Sunak’s boost to the economy with the aim of easing unemployment after the planned end to furlough schemes. Speaking in the UK parliament on 7 July, he said: ‘I’m announcing today a new £2bn Green Homes Grant. From September, homeowners and landlords will be able to apply for vouchers to make their homes more energy efficient and create local jobs… I’m releasing £1bn funding to improve the energy efficiency of public sector buildings. We expect these measures to make over 650,000 homes energy efficient, save households £300/year, cut carbon by 500kT/year and support 140,000 green jobs.’

However, there were still plenty of questions ahead of the scheme going live. There were also a number of big challenges that were likely to reduce its success, according to Simon Storer, chairman of IMA, the UK’s rigid polyurethane insulation association. Storer had particular concerns about the timescale. ‘Six months is a very short period of time in which to improve the 600,000 homes that the government intends will benefit from this scheme, and to ensure appropriate work is carried out to an acceptable standard.’

He pointed out that the work will have to be done during the winter. ‘With a likely coronavirus spike already under way, inviting builders into the home may not be a particularly attractive proposition for many householders,’ he said.

Additionally, Storer said that the UK government is currently pursuing several energy efficiency goals for buildings: these include an objective for as many homes as possible to achieve EPC C by 2035 and the Net Zero Carbon target for 2050. ‘Work carried out under the GHG scheme must dovetail with these longer-term objectives,’ he said. ‘What mustn’t happen is for work carried out under the GHG scheme not to be sufficient for the 2035 target, requiring it to be done again.’

Before undertaking any work, it is important to carry out an independent assessment of the building’s requirements and identify what work will be required, including any preparatory and ancillary work. Leaky roofs and gutters will need to be fixed and damp problems solved before airtightness and ventilation tests are carried out in conjunction with installing insulation and other measures.

IMA is concerned that if work is not done correctly or done in the wrong order, problems could develop over time. Storer believes there is a risk that householders will assume these problems are a result of poor installation or poor products, when in reality the blame may actually lie in a lack of preparation or absence of necessary ancillary work.

Stepping stones

(The GHG could be a stepping-stone to more investment and a longer-term initiative, but I am fearful the Treasury will only judge this on how close we get to the 600,000 homes target, which in my opinion is not achievable in this timescale,’ he said. ‘It would be better to invest in training to improve skills, so there are long-term jobs that improve the employment prospects for installers. This [programme] must be for longer than just six months.’

He knows what needs to be done. ‘We have the materials and systems to make big improvements,’ he said. ‘It would be a great shame for a worthy initiative not to succeed because the industry was sent out to do the work with its hands tied behind its back.’

A spokesman for the Department for Business, Energy and Industrial Strategy said the scheme covers reasonable work to support the retrofit, such as structural improvements like repairs to brickwork or floor joists, treating damp, and repairing and improving controlled ventilation.

‘Households should be assured that im-
Improvements to their homes will be of the highest quality, which is why all suppliers that carry out current and future government schemes will be subject to robust installation standards," the spokesman said.

The government hopes that by limiting work to contractors approved by Trust-Mark and paying them via a voucher it will be able to ensure the quality of the work. However, it declined to say how many of the 600,000 houses would be retrofitted by the end of the period.

A third approach is being taken in China. The country’s building stock has a floor area of 6000 km², and a further 400 km² is being added each year, according to a report from Guosen Securities. Between 80% and 90% of this is highly energy consuming, it said. Consequently, building insulation is a key area for the Chinese as they strive towards becoming net-zero in CO₂ emissions by 2060. This surprise target was announced to the United Nations by Xi Jinping in late September, and means that China will quickly have to get a grip on emissions and the demand for carbon-based fuels.

Estimates in 2018 suggested the country’s market for exterior building insulation would exceed CNY200bn in 2020, and was growing at 15% CAGR. The ambitious new target is set to expand further.

The Ministry of Housing and Urban-Rural Development’s 13th five-year plan on Energy Saving and Green Building set a target that more than 50% of new buildings by floor area should be green, and at least 40% of the materials used should also be green. At least 60% of existing buildings in urban areas, and 10% in rural areas, should be energy efficient. By the end of 2020, more than 50 km² of buildings will have been retrofitted with energy saving products, if the target is met.

**Five year plan**

Last November, the National Development and Reform Commission issued its annual Catalogue for Guiding Industry Restructuring. This listed rigid foam using newer blowing agents as ‘encouraged’ for the thermal insulation industry. While the National Development and Reform Commission is encouraging the use of rigid PU and PIR, the China Development Bank and Construction Bank have loaned CNY463bn to Jilin, Zhejiang, Shangdong, Hubei and Shaanxi, and a further nine cities, including Fuzhou, Changsha, Guangzhou and Suzhou. This is to cover better insulation and energy saving renovations in older housing.

Polyurethane and PIR currently have a much smaller share of the building insulation market than other countries because of flame retardancy regulations. Both the think-tank VZKoo and Chem366, which handles statistics for the China Polyurethane Industry Association (CPUIA), estimate that polyurethanes and polyisocyanurates account for about 10% of the total building insulation market in the country.

Chinese insulation specifiers are price-sensitive, and the greater insulation efficiency of PU and PIR foams is often less important than its relatively higher price than less efficient polystyrene insulation. According to VZKoo, the price of PU insulation that is flame retardant to the national B1 standard is about 2.7x the price of XPS, and 3.3x the price of EPS insulation that meets the same standard. All PIR and PU are doing well in the cold chain sector, where good performance is very important.

Flame retardancy regulations are applied across the country, but tier 1 cities such as Beijing, Shanghai and Guangzhou have more stringent regulations.

Despite the small market share and tough competition, companies are investing in the sector. For example, in August Yubang Technology announced plans
to build a CNY280m ($40m) plant in Jinzhong, Shanxi province. This will have 800,000 m²/year capacity for a combination of PU panel insulation, rockwool panels with PU edge binders, and other PU insulation materials. The project is on a 51,000 m² site, and should generate CNY225m in annual sales when production starts.

North America continues to be a very strong market for spray polyurethane foam insulation, in particular. ‘There continues to be growth, there have been some anomalies this year, but overall we are seeing good, strong growth of the industry on a sustained basis,’ said Doug Kramer, president of Huntsman Building Solutions, one of the world’s largest manufacturers of SPF products. ‘Over the past several decades, there has been anywhere from single to low-double-digit consistent growth.’

And there is a good deal of consumer awareness of the product in the North American market, too. SPF is commonly featured on the many home renovation shows on cable TV, which regularly explains its potential. ‘That mainstreaming has been very important to us, and is going to continue to help grow this segment within insulation,’ Kramer said.

Pay back time
In terms of payback time for a spray foam project, clearly each circumstance is different, but there are areas where it is clear the returns will be achieved more quickly. ‘In retrofit residential installations, and even in new projects, the single biggest benefit is in the attic, and then all the perimeter walls,’ he said. ‘In terms of costs, it is certainly not less expensive than traditional insulations but it does provide a payback. Depending on the structure, it could be anywhere from three to five years, depending on the installation.’

Grants to homeowners to insulate their homes remain unusual in the US, although there can be some support at a more local level. ‘I do think in the future we will continue to see cycles of support that provide assistance in funding greater efficiency in construction, especially those that bring both economic and ecological value,’ he said. ‘With the elections coming up on November, the Democratic party has already proposed a $2 trillion Green Deal for the environment and sustainability, if there is a change in party.’

The result of the forthcoming election will have a wider impact on the situation. ‘During the Obama administration, I was fortunate enough to be invited to participate in the president’s plan of action committee along with the energy department at the White House,’ he said. ‘That was a significant focus during the previous administration. After the transition in 2016, under the new administration that focus and momentum was completely eliminated, and the group was disassembled.’

A lot of its work revolved around the Montreal Protocol and other global agreements to reduce carbon footprints and greenhouse gases, and that whole plan in the US has largely been on hold,’ Kramer said. ‘The November election will determine whether that is reactivated.’
Building a global leader in SPF

Huntsman’s recent acquisition of Icynene-Lapolla, and before that Demilec, has given the company a big foothold in the spray polyurethane foam market. Huntsman Building Solutions’ Doug Kramer tells Sarah Houlton how the integration is going, and his optimism for the future of SPF insulation products.

In the months since Huntsman completed the acquisition of spray polyurethane foam specialist Icynene-Lapolla in February 2020, the coronavirus has made the world a very different place. Yet despite the challenging landscape, the integration of the two businesses has progressed rapidly.

‘We were, essentially, bringing together two companies, and three of the largest spray foam brands in the world,’ said Doug Kramer, who was CEO and president of Icynene-Lapolla before its acquisition by Huntsman. Kramer had founded Lapolla Industries in Houston, Texas back in 2005, and it was acquired by Mississauga, Ontario-based Icynene in 2018. This was the same year that Huntsman made its first big move into downstream SPF insulation, with the acquisition of Demilec.

The newly combined business was rebranded as Huntsman Building Solutions, or HBS, in May. Unusually, it has two presidents: Kramer, who is leading the US business, and Simon Baker, formerly of Demilec, who is looking after Canada and international business.

‘We really felt we needed to move quickly,’ Kramer said. ‘It all started just before coronavirus began to kick in, and we had to adjust very quickly. It certainly has had an impact on the way we went about the integration, but it didn’t really slow us down, and I think overall the merger and the integration has gone extremely well. We had good people at the table, and moved very quickly to make decisions about the structure of the company.’

Working culture

He cites culture as being particularly important when integrating multiple companies. ‘It becomes more difficult when you can’t sit in rooms together!’ he said. Online meeting platforms were their saviour, and the team is finally now able to have some face-to-face meetings. ‘We have been working in our offices at Huntsman’s corporate headquarters in The Woodlands, Texas, for a couple of months now, with social distancing, wearing masks, and taking all necessary precautions.’

With so much legacy capacity, Kramer said, continuing to service SPF customers throughout the pandemic has been no problem. ‘We saw a brief downturn in the second quarter, but a swift recovery after that,’ he said. Although there was an overall downturn in April and May, he said, there was a very swift recovery in the residential construction market after that. ‘Residential construction in north America has remained strong, and is driving the business,’ he said. The commercial side...
Continued from page 23

has been more choppy, but it’s there, if a little less reliable.’

He does, however, believe that a streamlining of its manufacturing will eventually occur. ‘In the meantime, not only did we have the tank capacity to ensure we could take care of our customers, we took steps in our manufacturing processes to ensure we had reliable and sustainable practices to ensure consistency and availability of product.’ As an example, he said, splitting shifts was an effective way to hedge against coronavirus among the operators; if someone came down with the disease and there were only one shift, manufacturing would have to shut down.

Residential is really driving business at the moment, and now is even reaching pre-coronavirus expectations, Kramer said. While some of the demand is for retrofitting insulation projects, it is largely being driven by new construction. ‘Consumers have changed their perspective a bit, they now want more space,’ he said. ‘They don’t want to be in confined spaces, or with such a large concentration of people. It is going to drive better technology. And, frankly, people have made a very swift adjustment to working at home, and realising you can be as efficient there. I think this will change things for business going forward.’

On the commercial side, he said, a lot of government work remains strong because the funding remains, but privately funded work remains spotty. ‘If a project was out of the ground, many of them continue to progress, but if they were at a point where there had not been so much investment, many have been put on hold or cancelled,’ he said. ‘People are re-evaluating their commercial space and its intended use. Is this something that is going to go back to normal as we come through the pandemic, or is it going to be a permanent change from coronavirus?’

There are particular concerns around office space. ‘One of the pre-coronavirus trends was common spaces, with people going into a flex-office and using centralised services, rather than having their own space,’ Kramer said. ‘That had a lot of value to small, independent businesses. But the question now is, are people going to want to go into a concentrated area with strangers now? I think coronavirus will have an impact on the perception of these types of services in the future. I
think there will be a shift to a “new normal”, and we will return to previous levels of growth in construction and sustainability. But I do think there will be a relatively swift recovery.’

The SPF industry has faced sustainability concerns for many years, he said, but believes this is changing. ‘In the 30 years I’ve been in the business, we have seen significant transitions in blowing agent requirements and greenhouse gases,’ he said. ‘We have led that charge. Among our legacy brands, we were the first to roll out an HFO spray foam system five or six years ago, and we are expanding the technology globally.’

New parent company Huntsman also has recycling technology, with a proprietary process to turn post-consumer PET water bottles into polyols that are used in spray foam.

‘We are using plastic that has been taken out of landfill and the oceans,’ he said. ‘This is significant. I believe that they have now recycled more than a billion bottles.’

But this is just the start of the SPF value chain. ‘We sell spray foam to contractors, who install it into structures to reduce their carbon footprint, create better air quality, provide greater comfort to consumers, and reduce greenhouse gases,’ he said. ‘This value chain is something I am proud to be part of. We are giving value to the environment, to consumers, and to the future of the industry.’

At the end of a building’s life, there has also been development around the foam. For example, it can be ground up and used to soak up oil spills. ‘But the thing about spray foam is that its life cycle is essentially that of the structure itself, provided it has been installed properly,’ he said.

‘Over time, I think there will be continued development around the elimination of waste as buildings are demolished.’

Kramer is excited about the potential for the business as part of the larger Huntsman group. ‘It is one of the large global players in polyurethane, and we intend to use those resources to advance our opportunities with technology,’ he said.

‘It has been part of the culture of the legacy companies to focus on innovation, and I currently participate in global laboratory meetings to talk about technology, and share the experience that we have globally to drive opportunities with spray foam. Over time, I believe we will continue to lead in innovation and technology,’ he added.

And he remains optimistic for the future. ‘The design of the organisation is largely in play, and we were quick to act upon the integration,’ he said.

There is a tremendous amount of resource available to us at HBS. It is now a matter of continuing to build a culture that is customer-centric, maintain the strengths and values that have got us to where we are today, and ensure our culture and our efficiencies reflect that going forward.’
New tougher regulations for domestic refrigeration, a greater market for chilled and frozen food during lockdowns and increasingly stringent building insulation requirements provided three powerful boosts to demand for some forms of polyurethane machinery in 2020.

Although coronavirus lockdowns may have halted production, they did not empty the pipelines of new orders for the machinery makers.

‘The domestic refrigeration market is being driven by new labelling regulations for appliance efficiency,’ said Francesco Abba, sales and marketing manager at Cannon Afros. He explained that the new regulations will come into effect in 2022, and will put much greater demands on the efficiency of domestic refrigerators.

‘The current Class A+++ refrigerator will become class E or D,’ he said. ‘OEMs are looking for new technology and plants to improve the lambda – insulation efficiency – of the insulating foam in the refrigerators. The new labelling will bring fewer and tougher bands.’

Cannon believes its VAI Pascal technology will help it to continue to win business, and Abba added that the process has been improved over the past five years. The company’s machines are currently used to make Haier and Mitsubishi...
produced refrigerators.

‘We count more than 150 lines installed, and other OEMs are interested,’ he said. ‘This technology has helped us to dominate in China. Now we supply Haier in Europe at its new plant in Romania, the company’s most westerly site. The first phase has capacity for 500,000 units/year, and eventually it will rise to 1m units/year.’

Haier has dominated in the Far East, and bought GE’s refrigerator business North America a few years ago. Now its strategy includes Europe.

The company has installed its first VAI Pascal plant in Russia.

The industry is transitioning between blowing agent systems, with many using pentane or HFO or a combination of the two, according to Cannon. This has led the company to work with Electrolux to develop a new moulding process for complex refrigerators using HFO and pentane, Abbas said. ‘We have a four component mix head; it is the only one on the market,’ he claimed. ‘It is a development of the SR mix head that has been on the market for 10 years, but now with four streams.’

Injection points

As the insulating requirements for domestic refrigerators are being made more stringent, manufacturers are increasingly inserting vacuum panels within the insulating foam. This can lead to narrow flow paths for the rigid foam, and has led Cannon to carry out further development work, Abbas said.

The four-point injection machine injects the foam into the refrigerator, which is positioned face-down as the foaming has to be done from the back of the unit, and uses a combination of HFO and pentane. The mix head, which is based on Cannon’s SR design, features two polyol lines, and is designed for complex dosing.

‘Four point injection gives us very good foam distribution and this helps to give very good lambda values,’ Abba explained. ‘Modern, complex, internal designs include vacuum panels to improve insulation. This makes the mould cavity more complex and producing the foam to fill the cavity is also more complex. Four-point injection gives better distribution with less over-packaging.’

As one can see on page 31, which takes China as an example, the cold chain and commercial refrigeration represent significant areas of growth. Luca Ceresa, commercial director of SAIP, is upbeat about business, and this sector in particular.

‘We are doing pretty well in the cold chain, and in the commercial refrigeration sector, including display cases for supermarkets and food storage,’ he said. ‘That’s not to say we don’t get involved in domestic refrigeration but over the past couple of years we have specialised in commercial refrigeration.’

He added that this a niche market, where there is plenty of room to grow. ‘We are, in some cases, replacing technology that is really old,’ he said. ‘Customers are looking for tailor-made products, and this is where we are quite strong. Sometimes we like to make products that other people don’t want to make.’

There are specific challenges to machinery companies aiming their products at the commercial sector. ‘Because there are so many different shapes and models, the flexibility a manufacturer needs from their equipment can be huge,’ Ceresa said. This level of complexity lead to the evaluation and design process for the machinery taking some time.

‘We have a good engineering team with experience, and we decided to attack this market segment a couple of years ago,’ he said. ‘We have done a lot of projects. Even this year, pre-coronavirus and during coronavirus, we had a lot of orders for the installation of cold chain, commercial refrigeration.’

Commercial refrigeration makers may need to stock quite a range of products, he said, and therefore his company has produced a fixture that is able to manufacture up to 150 different products. ‘The goal is to make the plant as flexible as possible, because using 150 different moulds would cost a fortune,’ he said.

In addition to production flexibility, the machine had to be able to produce parts on shorter cycle times than its predecessors. ‘We have a dedicated engineering team, and we start talking with the customer. We look at possible solutions with them and then we start to design and build the line. Because we are part of Pozzi Industries Group, we can also carry out foam tests in house. This helps us follow the project from A to Z.’

Hennecke OMS has won a number of refrigeration orders since the start of the year, according to Eraldo Greco, the company’s sales director for insulation board lines. ‘Orders for refrigeration have not disappeared,’ he claimed. For example, he said, during the lockdown period the company picked up a job for the Russian manufacturer USK, which was looking for a complete foaming plant for cabinets and doors. It includes an in-line six-mould fixture for cabinet foaming, and a sixstation rotary carousel for the door foaming operations. The system uses pentane as blowing agent.

Away from niche markets in commercial cold chain and refrigeration, Hennecke machinery will be helping campervan enthusiasts keep their beer cold. ‘We won a contract for Thetford, based in Etten-Leur, Netherlands, to make machines building very small cooler and refrigerators for bars and campervans,’ he said.

Thetford is a sister company of Norcold Refrigeration of the US, which makes mobile sanitation products for the RV, marine, camping and truck markets. Greco explained that the system that his company supplied has two special foaming stations for different sizes of cabinets, and a rotary carousel for door foaming operations.

Meanwhile, in North Africa, Tunisian-based company Grand Ateliers du Nord (GAN) ordered a pentane conversion for its existing refrigeration line. In China, it has won an order for refrigeration foaming fixtures from Haier. The company has also supplied machinery to Daikin in Germany for making polyurethane-insulated water heaters.

Keep it cool

Returning to the cold chain, Cannon’s Abba said his company has been working with Manni to develop a foaming station for rigid truck panels. The Manni 2+0.5 is designed for container trucks with 13.5m-long sidewalls. The press is 16m x 3m wide and, Abba said, it is very important to get the foam evenly distributed in the panel.

‘[The machine] gives users good flexibility and enables insulated side panels to be made in a single pass,’ he said. ‘It lets beginners in the market have an efficient plant to build rigid truck panels.’

A developing trend in the market is towards more flame-retardant insulation materials, and therefore some customers want PIR. This is difficult to apply because
Continued from page 27

the mixtures have limited flow, but this technology gives much more even distribution in the panel,” he said.

Refrigeration is, for most people the most tangible, if invisible, way that polyurethane touches the lives of consumers, but increasingly in different parts of the world regulations are driving the use of higher-performance building insulation.

**Holding up well**

Orders for machinery in the rigid polyurethane and PIR markets are holding up well, according to Hennecke’s Greco. ‘We started the year strongly after a busy 12 months in 2019,’ he said.

‘We had installations in North America, Europe and Far East as well. At the moment we have three turn-key lines which we are due to start building soon. And we are about to install a complete insulated panel line in Lithuania starting from the unwinders through to the packaging panel line.’

He added that the company’s sales activities continued throughout the lockdown period. ‘We focused on orders for our regular customers, and we have won orders for four PU/PIR lines in North America,’ he said. ‘Our teams will be installing these lines in the next few weeks. The market is still placing orders, despite coronavirus. It was very quiet through February, March and April, because no one was sure what to do or how to do it. People were at home for two months, but orders started to pick up from May onwards.’

Ceresa said the situation was similar at Saip. ‘I thought that during coronavirus everything would stop,’ he said. ‘But we got new orders for sandwich panel production lines. We got a very big order to supply new lines in the US, and one in China. The two in the US are for rigid facing with PIR and mineral wool. The Chinese one is for flexible facing in a very special application that we developed at Cedepa.’

Cedepa is a joint venture between Saip and Dow, it operates a full-sized rigid foam panel production line in Spain, where both companies can test out new concepts under realistic production conditions. It is also available to third parties.

Ceresa says this order confirms the usefulness of the setup. ‘Without Cedepa, we could not have proved the new product concept,’ he said. ‘We are in discussions for some other orders, I’m favourably surprised, but it seems that the projects are still going on. Some entrepreneurs are making investments.’

Ceresa believes this is a sign that they are helping to keep the industry moving, not least in response to the EU’s plans to encourage better energy efficiency (see page 19). ‘I still see possibilities of improvements of investments in sandwich panels,’ he said.

‘During coronavirus, the demand for building insulation and local subsidies for energy efficiency has been on the rise. I think that there will be demand for new lines in the next few years. Northern Europe is always more active than southern Europe, but in the end, this is a trend. There are incentives for public and private sectors to invest in building insulation. I am optimistic.’

**Improved insulation**

Cannon’s Abba said that his company is already working on a system for insulated panels. The new Vertipas system dispenses foam into a retarding device, and flattens it before it starts to rise. This helps to improve the insulation properties of the board, he said, and the process is undergoing customer trials.

Looking ahead, Saip’s Ceresa said that the company is trying to adapt to the current situation. ‘With remote control of the lines and other special working parameters, things will be different in the future,’ he said.

‘We must be ready for new challenges. We are making a lot of internal studies and discussions to manage what the future will tell us in terms of machinery, technical support and software. These could be key points for the future.’

**We have a four component mix head; it is the only one on the market**

Francesco Abba, Cannon

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Floors are the ‘missing link’ in domestic insulation, as retrofitting it under existing floorboards is not an easy task. A semi-autonomous robot designed by Q-Bot provides an answer, by applying SPF beneath the boards. Sarah Houlton finds out more

Widespread effective domestic insulation will play an essential part in meeting ambitious energy saving goals for residential properties. While the importance of insulating lofts and cavity walls has long been recognised, there is still a large part of the typical house that remains uninsulated – the floor, in particular suspended timber floors. Heat is lost through the floorboards. At the same time and gaps between the boards allow draughts in, bringing both moisture and cold air into the property.

However, on a purely practical level, retrofitting insulation in a floorspace is far more invasive than insulating either lofts or walls.

London-based startup Q-Bot, a spin-out from Imperial College’s Dyson School of Design Engineering, has a solution: a semi-autonomous robot that fits into the floorspace and sprays polyurethane foam insulation on the underside of the floorboards.

Q-Bot’s CCO Martin Jervis estimates there are between eight and 12 million suspended timber floors in UK domestic properties. ‘About 20% of overall heat is lost through uninsulated floors,’ he said. ‘Using our technique on suspended timber floors resolves the problems with heat loss and draughts.’

The disruption caused by more traditional methods of insulating floors is substantial, and the knock-on costs add up. ‘The actual cost is taking the family and the furniture out for a week, taking up the
The flexibility of polycaprolactone chemistry allows access to a huge range of polyol products with targeted performance characteristics. In this webinar, Ingevity launches its new range of premium polycaprolactone products for soft polyurethane (PU) applications. The Capa® S series enables the cost-effective production of plasticiser-free soft polyurethanes that remain soft throughout the lifetime of finished articles used in various applications, such as wearable devices and luxury car interiors.

The robot can be operated completely manually using a very recognisable gaming controller. However, it is also semi-autonomous, as it learns joist patterns over time, using machine learning – a technology more commonly seen in AI-driven, image recognition systems. Bearing in mind all of the services found under the floorboards, it does not spray electrical wires or gas pipes, and adds just the flash coat to hot and cold water pipes.

Closed-cell solution
Q-Bot has partnered with foam supplier Econ Polyurethanes, UK and Ireland distributor for BASF’s construction PU products. Econ director Peter Woodcock explained that the robot applies closed-cell SPF. ‘It’s an HFC foam that takes 5–7 seconds to cure fully,’ he said. They are in the process of transitioning from HFC to HFO, which will be completed on a phased basis in the near future.

Closed-cell foam is preferred to open-cell by Q-Bot, partly because of its better thermal properties, but also because of the space constraints within the floorspace. ‘Closed-cell allows a lower volume of foam to be used,’ Jervis said. ‘To meet building regulations, we need the insulation to deliver the thermal properties we need in the smallest amount of space. With open-cell foam, it would be much thicker.’

The foams used with the robot have a thermal conductivity ranging from 0.025–0.027, depending on the thickness. Importantly, the foam is Class 1 fire rated, meeting BS 476. But there are cultural differences – in Ireland, he said, 90% of Econ’s overall SPF sales are open-cell, whereas in the UK, 90% is closed-cell. In the US, about two-thirds of SPF is open-cell. ‘Most of our UK contractors have been using closed-cell foam for years, and they are more comfortable with its fire rating,’ he said.

The robot has made a huge difference to the ability to apply foam insulation to the underside of floorboards, Woodcock believes. ‘A lot of those underfl oors are inaccessible, and while we get a huge amount of enquiries for fl oors, the question is whether it can be achieved,’ he said. ‘The Q-Bot robot makes it possible. Whenever we do something on social media that includes Q-Bot, it is clickbait gold – everyone wants to talk about it, and fi nd out where they can buy one.’
Keeping cool, Chinese style

The pace of growth in China’s cold chain logistics market showed little sign of slowing in 2019, being valued at CNY339bn ($49bn) in 2019, up 17% from 2018. The demand for refrigerated warehouses in 2019 also led to a small boom for companies refitting existing warehouses, and for companies making the panels used in the refits, according to Qin Yuming, secretary general of cold chain subcommittee at the China Federation of Logistics & Purchasing (CFLP).

As fast as the market is growing, it is also consolidating. The country’s 100 largest companies by revenue now account for 16% of the market, up from 14% in 2018, Qin said. But it still has some way to go to match the US, where 80% of the market is held by the top-three cold chain companies. Qin told a conference in Shanghai in August that a simpler dietary structure for American citizens contributes to this difference.

Rising concentration
Increasing concentration in the Chinese sector is exemplified by the number of mergers and acquisitions that have occurred in the past few years. These include two transactions by New Havi, a joint venture between global supply chain heavyweight Havi and Chinese delivery giant SF Express.

SF Express was the largest cold chain firm in 2019, followed by JD Logistics and CJ Rokin, according to a list published by CFLP. New Havi ranked fourth. The last company on the list had CNY90m revenue last year.

The top 50 firms on the list remains remarkably static each year, but there are a great number of new names among the bottom 30. In fact, Qin said, 23 of these in the 2019 list were there for the first time. Most of those at the bottom have a narrow business scope, and lack a strong competitive edge.

CFLP divides cold chain logistics into eight business types, with the three largest being refrigerated storage, trunk transport and urban delivery.

A majority of the companies on the list operate between three and six types of service, Qin added. This reflects a growing trend for businesses to expand their scope, as customers now prefer one-stop services.

In 2019, the the top 100 companies operated 120,000 refrigerated vehicles units. Overall, 100,000 of these are leased from specialist providers. Cold chain companies owned or leased 17m tonne, or 40m m³, of refrigerated warehouse volume in 2019, up nearly 20% from 2018. Almost all of the top 100 companies own or lease cold warehouses, and Qin believes this growth rate will increase still further next year.

The importance of cold chains that cross regional borders within the country is also growing. This is becoming particularly important for fresh milk, as consumers are starting to demand more milk pasteurised at lower temperatures, because it is more nutritious than the sterilised products that have been the norm in China.

The greatest number of cold chain companies is in East China, which is home to 41 companies, Qin said. This is followed by North China, which includes the Beijing-Tianjin-Hebei Capital Economic Zone, with 19 companies.

Go east!
East China has the highest consuming power and, he said, is the most well-regulated region. In the past, the majority of the cold chain firms in the area were based in Shanghai, with business often extending as far as the Yangtze Delta.

However, more recently the city has become overly expensive, and half of Shanghai’s existing cold warehouses do not have the proper zoning permission. As a result, they are being either demolished or repurposed, and nearby cities such as Hangzhou, Nanjing, and even Jiaxing, Taicang, Kunshan and other smaller ones, are becoming increasingly attractive to cold chain companies.

Beijing has also been tearing down non-compliant warehouses. This has driven up the prices for compliant cold stores in the city, and has led to new clusters in Tianjin and nearby Langfang. The outflow will continue, but at a slower pace, Qin said. The coronavirus pandemic has made Beijing’s decision makers realise that a mega-city needs its own food supply system, and upcoming policies moving in that direction can be expected.

The pandemic has led to a shift in

Continued on page 33
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Continued from page 31

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About the graph

THE CHANGING SHAPE OF EMEA PU PRODUCTION 2019-24

London, UK – The EMEA polyurethane market is set on a downward trend accelerated by coronavirus, according to IAL Consultants. Production is unlikely to return to 2019 levels until 2024.

The coronavirus pandemic has caused a 15.8% fall in production in 2020 from 6.52 MT/year in 2019. It accelerated a trend that was already under way in 2019.

Western Europe accounted for 3.65 MT/year production in 2019, of which 965.3kT was produced in Germany. Western Europe is a mature market, and faster growth was found in Central Europe, at 2.1%, and the Middle East, at 1.5%.

Production in Western Europe grew by just 0.7%, and in Africa, the increase was 0.9%. Poor performance by Russian and Turkish producers led to a 0.4% decline in Eastern European production.

Flexible foam accounted for 34% of the European market in 2019. At 2.21 MT, this was down by 0.9%. The decline could be as high as 20% in 2020 because of the effects on coronavirus lockdowns on furniture and mattress production in the spring.

IAL said that the amount of shrinkage is not clear from market surveys, and companies put the level anywhere between 10% and 30%.

This is from IAL’s updated report, Polyurethane Chemicals and Products in Europe, Middle East & Africa (EMEA), 2020.
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