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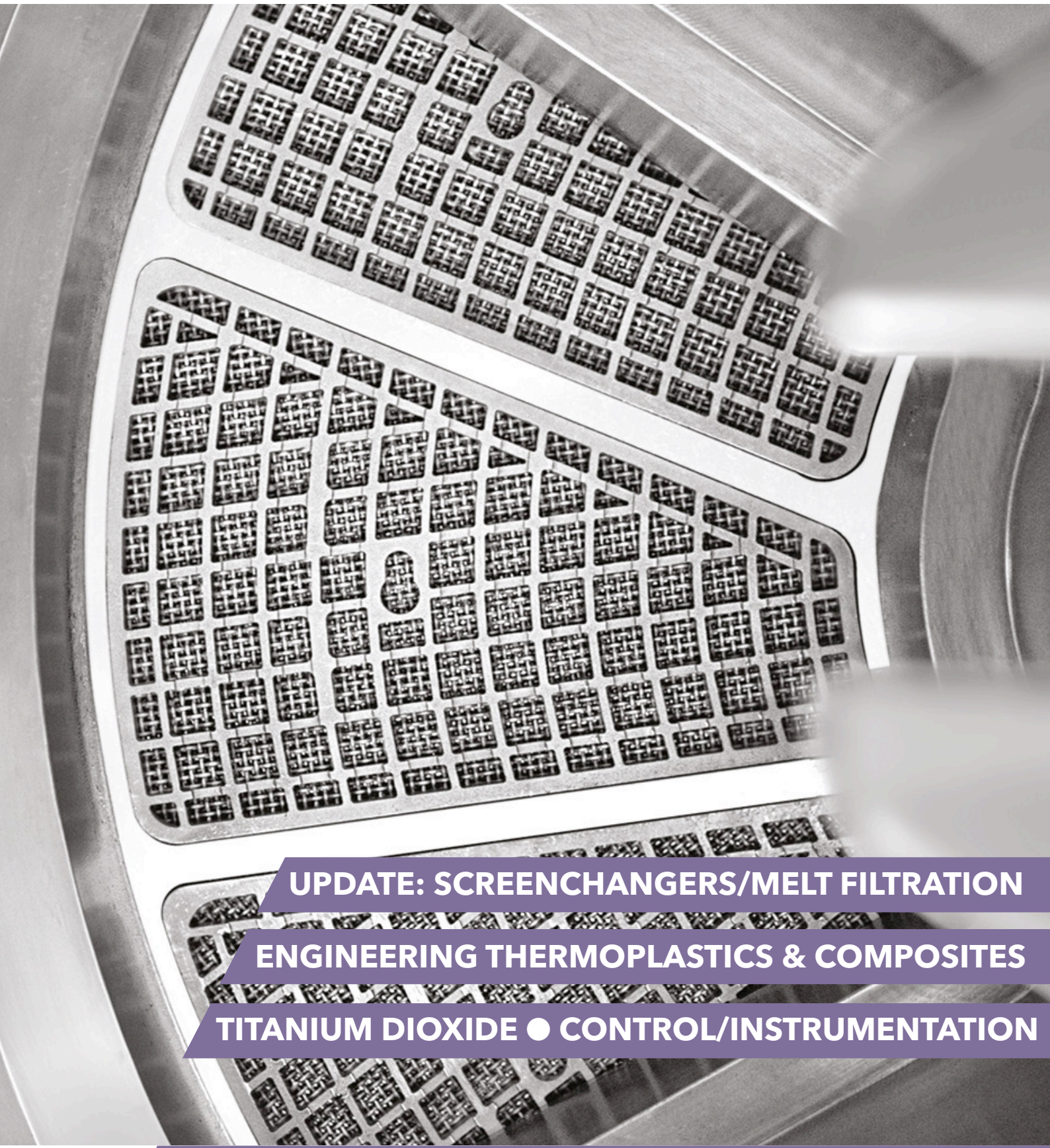

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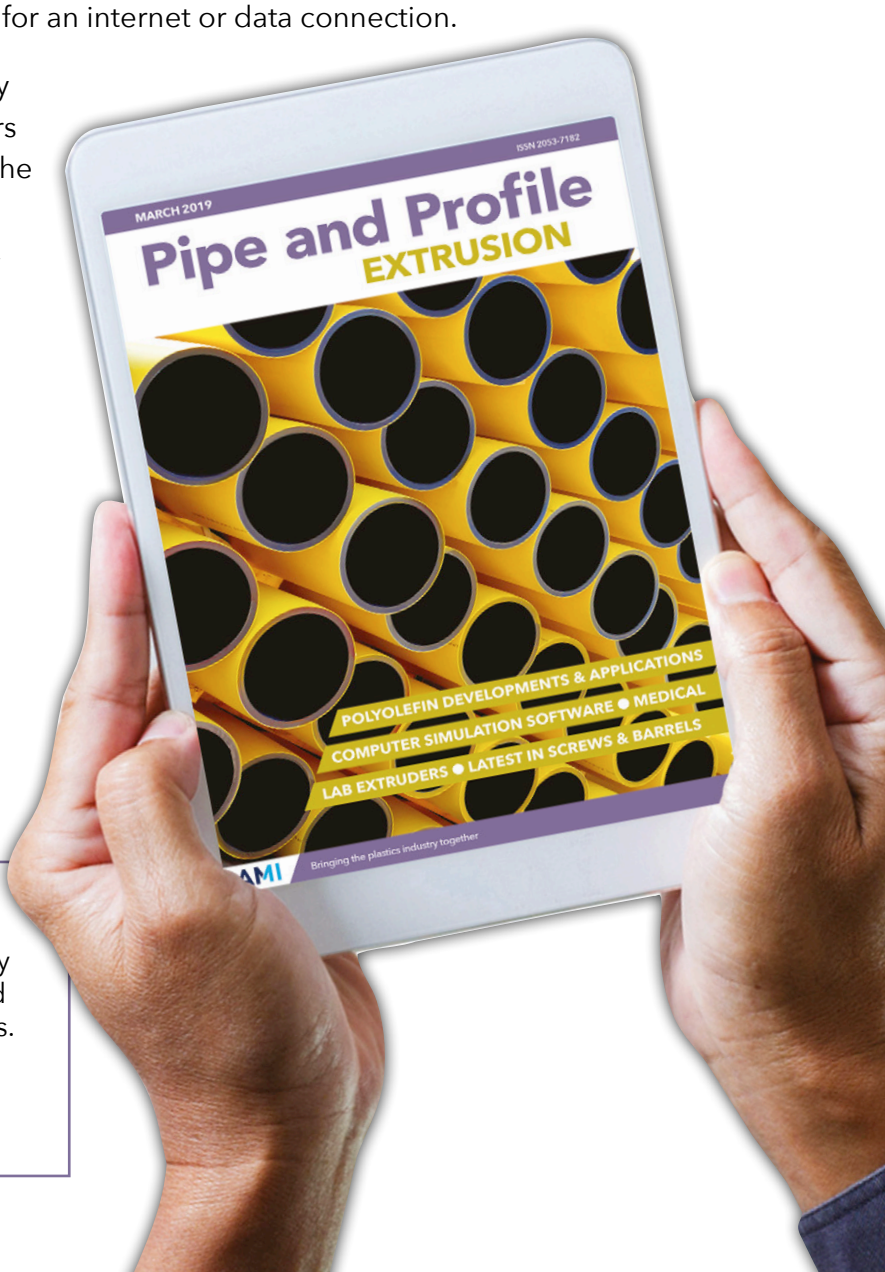

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GF says the takeover of FGS will give it a platform for further growth in Brazil and South America

GF expands in Brazil with pipes acquisition

GF Piping Systems, part of Switzerland-based Georg Fischer, has acquired FGS, a Brazilian manufacturer of polyethylene pipe systems.

Financial details were not revealed. The deal is expected to close in the first quarter of this year.

FGS supplies pipe for the local water and gas distribution market and other industrial segments. GF says the takeover will give it a platform for further growth in Brazil and South America.

The acquisition fits GF's strategy to expand its global presence in – which is currently expanding its infrastructure, especially in water and gas. Both FGS and GF were already part of a project to cut water losses, by replacing the São Paulo region's piping network.

FGS, founded in 1997, has production sites in Cajamar, near São Paulo, and the Greater Recife/ Pernambuco area. It employs around 240 people. Since 2016, it has almost doubled sales to around BRL 160 million (US$30m).

"This acquisition is a milestone in concluding our strategy 2020 and commencing the next strategy cycle," said Andreas Müller, CEO of GF.

"As a specialist in sustainable solutions for the safe transport of fluids and in reducing water losses, we are looking forward to realising the growth opportunities together with FGS," he said.

› **www.georgfischer.com**

Teppfa welcomes new DWD

Teppfa, which represents European plastic pipes and fittings manufacturers, has welcomed the revised Drinking Water Directive (DWD) that was approved by the European Parliament in December.

For the first time, uniform requirements are set for materials in contact with drinking water, including plastic piping systems. Within four years, a first European positive list of starting substances as well as procedures and methods for testing and accepting materials and products will be established, says Teppfa.

"A common European system will improve the functioning of the internal market and provide for consistent quality of products in contact with drinking water that are placed on the European market," said Ilari Aho, chairman of the Teppfa working group on drinking water.

› **www.teppfa.eu**

Italy estimates dip in 2020 machinery sales

Italy is estimating an 18% drop across the board for plastics machinery sales in 2020.

Amaplast, which represents Italian machinery makers, says that production, exports, imports and the domestic market are all expected to shrink by around 18% in 2020. The preliminary figures are based on actual statistics from the first nine months of the year.

Amaplast expects production to drop from €4.4billion (US$5.2bn) to €3.6bn (US$4.3bn) for 2020, while exports are expected to fall to around €2.5bn (US$3bn). The domestic market is estimated to shrink to €1.85bn (US$2.2bn).

Exports to the rest of the European Union are expected to rise slightly, while those to most other regions are expected to fall. In addition, the trade balance is expected to shrink to €1.75bn (US$2.1bn).

"It is difficult to make forecasts for the new year, mainly because of the uncertainty that continues to surround the pandemic," said Amaplast. "A rebound is likely thanks to the impulse from exports, but it is not likely to be of such magnitude that we will soon see figures similar to those in the pre-crisis period."

› **www.amaplast.org**

Nordson sells screw division

Nordson is to sell the screws and barrels product line from its polymer processing systems division to Altair Investments.

The transaction is expected to close in early 2021. Nordson says the divestment represents a portfolio realignment consistent with its strategy. The company plans to focus its resources on precision technology solutions that will deliver profitable growth.

Sundaram Nagarajan, Nordson president and CEO, said that the product line was a market leader in the industry.

"While this product line no longer fits Nordson's strategic focus, we believe it will do well with Altair," he said.

The division, which generates annual revenues of over US$70 million, employs around 500 people.

› **www.nordson.com**
› **www.altairinvestmentsinc.com**

Primo exits Polish pipe JV to focus on profiles

Inter Primo of Denmark has sold its Polish pipe making subsidiary in order to concentrate on its core business of plastic profiles.

Primo has sold its 49% stake in Spyra Primo after 28 years of co-ownership. The buyer is its joint venture partner, Czeslaw Spyra. In 2019, Spyra Primo had a turnover of €15 million.

"Czeslaw Spyra took the initiative to cooperate 28 years ago, and its technical expertise and insight in the market has built an economically sound and solid company," said Claus Tønnesen, CEO of Inter Primo. "With the forecasts for the continuous rollout of fibre cables in Europe, there are good market prospects for the company in future – and we are confident this is a good time to let it develop independently."

Primo delivers profiles to diverse business areas including medical, offshore, automotive and construction. It has made a number of divestments and acquisitions – including buying Profilex (with facilities in Germany and China) – and Essentra Extrusion of the Netherlands in 2019.

Tønnesen: "We need to focus more on integrating our sales organisation"

Primo says the sale fits its strategy to focus on its core business and streamline growth through synergies between its extrusion plants in Europe, Russia, and China.

"Now, we need to focus even more on integrating our sales organisation, so that we appear as a unified unit in all the markets in which we operate," said Tønnesen.

■ Primo's Polish based profiles subsidiary has developed a new composite material based on reinforced ABS that can be used to make more efficient window and door profiles. Polish door producers have begun using the material, and Primo expects it to have "international potential".

› **www.primo.com**

Nexam and Uponor settle PEX dispute

Nexam Chemical and Uponor Innovation have settled a patent dispute that deals with cross-linked polyethylene (PEX) pipe production.

In the settlement, Nexam will withdraw litigation against Uponor for the patent – which includes products based on Nexam materials. At the same time, Uponor has issued a licence to Nexam, allowing it to sell products under the same patent with a licensing fee.

Under the agreement, Uponor will exclusively buy the active component from Nexam.

The patented technology makes it possible to create peroxide-free PEX pipes, by using a bismaleido crosslinker, according to the patent. This can improve the pipe's processability and properties – including reduced leaching of chemical residues.

"This agreement sets a solid ground for both companies," said Johan Arvidsson, CEO of Nexam Chemical Holding. "We now can continue to focus on innovative differentiating technology in the pipe market instead of a patent dispute."

Reetta Härkki, general counsel for Uponor, added: "We are equally satisfied with the result and about the possibility to concentrate on the development work in this area."

› **www.uponor.com**
› **www.nexamchemical.com**

Polypipe upbeat on trading

In a trading update issued in December, UK-based pipe manufacturer Polypipe said its performance at the end of last year "exceeded expectations".

Revenue in November was 8% higher than the corresponding period in 2019, with residential markets performing particularly well, it said. Operating margins continue to increase, though were still not back to "normal" levels, said the company.

Polypipe now expects underlying operating profit for 2020 to be around £40 million (US$54m), compared to the current consensus range of £35m-37m.

"We enter the new year with a strong order book and some cautious optimism," said the company.

› **www.polypipe.com**

Plastics associations say market 'on turn'

Germany's plastics and rubber machinery industry association, VDMA, said in December this year's downward trend in orders has flattened out with evidence of an upturn in September and October 2020 (the latest months for which figures are available).

Like every other part of the economy, the plastics machinery industry was badly affected by the Covid-19 pandemic. However, VDMA said the situation began to improve in mid-2020 and, cumulatively, from January to October 2020, incoming orders were just 3% below the first ten months of 2019. It said September saw a 13% year-on-year growth in incoming orders, with order books for October standing at twice the level of the same period in 2019.

"This means the German plastics and rubber machinery industry is about to turn the corner," said Thorsten Kühmann, VDMA Managing Director. "It gives us confidence to see that companies have adapted to the challenges better and better over the course of the pandemic. Business is up and running again."

IMAGE: VDMA

VDMA Managing Director Thorsten Kühmann

Total sales for 2020 are still expected to end up 10-15% down on 2019, as these lag well behind orders. However, for 2021 and 2022 the association expects to see respective sales growth of 5% and more than 10%, setting the industry on the path to return to pre-crisis levels in 2023.

Meanwhile, PlasticsEurope's latest annual report, 'Plastics: The Facts 2020', has identified similar trends in production and demand for materials. After a "sharp drop" in the first half, it said production started to recover in the second. "We expect the recovery to continue in the last quarter of 2020 and during 2021, while pre-crisis levels of production will probably not be reached before 2022," the association said.

› **www.vdma.org**
› **www.plasticseurope.org**

Plast/NPE shows hit by coronavirus

The ongoing Covid pandemic continues to impact the global plastics exhibition calendar, with NPE, the biggest show in the US, now cancelled and Italy's Plast fair postponed.

US-based Plastics Industry Association, organiser of NPE, announced earlier this month that it had decided to cancel the event, which takes place every three years and was due to take place in Orlando in Florida on 17-21 May this year. The US show typically attracts close to 55,000 visitors and more than 2,000 exhibitors.

Meanwhile, in late December last year, Plast show organiser Promaplast announced that the 2021 event in Milan, Italy, was to be rescheduled from 4-7 May to 22-25 June. The show also takes place on a three-year cycle and attracts around 50,000 visitors.

› **www.npe.org** › **www.plastonline.org**

Trex increases production capacity at two US facilities

Composite decking manufacturer Trex has opened a new production facility at its plant in Virginia, USA.

The opening is the culmination of a US$200 million expansion programme that will increase capacity at its manufacturing facilities in Virginia and Nevada.

In Virginia, the company has added around 200,000 sq ft of manufacturing and support facilities, which will manufacture its decking products.

"This will be the most productive and efficient composite decking facility designed for maximum output," said Adam Zambanini, president of Trex Residential Products. "The building is equipped with proprietary extrusion technology that allows us to manufacture Trex decking using 95% recycled content, with an emphasis on quality and energy-efficient systems."

Trex will expand production at its Virginia and Nevada facilities

In addition to the Virginia expansion, Trex has improved production capabilities and capacity at its site in Nevada, where new lines came onstream in June 2020.

Trex says that the new projects will help it to increase production capacity by around 70% and add 350 new jobs.

Bryan Fairbanks, president and CEO of Trex, added: "For every company there are moments that are history making, and this is definitely one of those for Trex."

› **www.trex.com**

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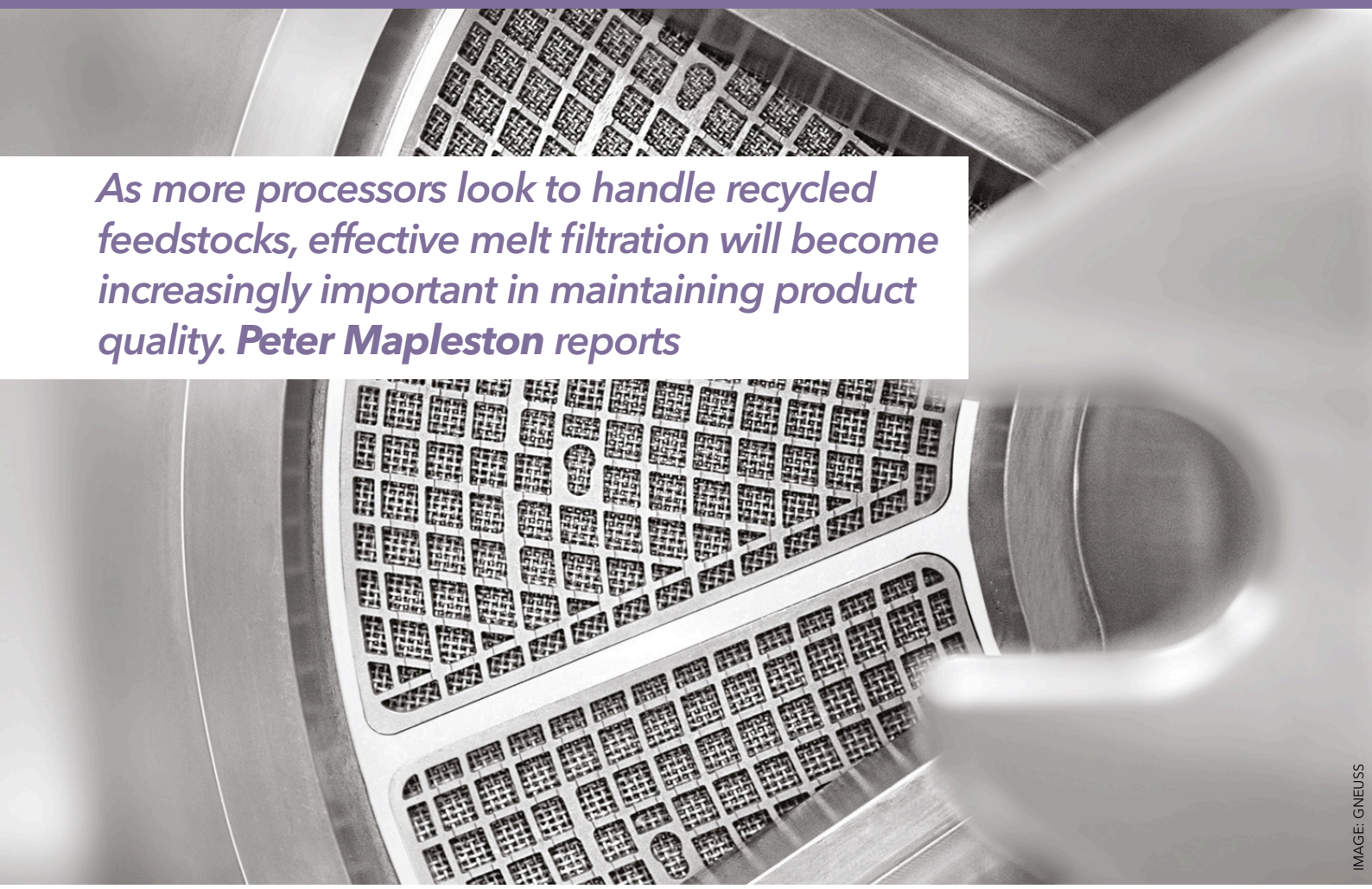

As more processors look to handle recycled feedstocks, effective melt filtration will become increasingly important in maintaining product quality. ***Peter Mapleston*** *reports*

IMAGE: GNEUSS

Melt filters take on recycling challenge

Melt filters are a key component in many plastics extrusion systems but especially in those where recycled polymers are being processed.

Melt filtration systems can handle recycled materials from a wide range of sources, with much of the more recent development work among filtration system suppliers concentrated on improving the quality of melts containing post-consumer recyclate (PCR).

"To achieve high quality pellets at the end of the recycling process, the right filtration technology should be chosen based on the input materials," said Robert Obermayr, head of the **Powerfil** business unit at Erema.

The Austrian plastics recycling systems maker established its Powerfil operation three years ago. It says it wanted to offer melt filters to the industry that it had already proven as individual components in its systems. Its SW RTF partial surface backflush filter system and Laserfilter are compatible with Erema extrusion systems and those of other suppliers.

The company says that cyclical filtration using wire mesh filters in a piston screen changer is typically appropriate for contamination levels of up to around 0.05%, while continuous filtration using a laser filter is able to process contamination levels of 3-5 %.

For its wire mesh filters, Erema uses piston screen changer systems with back flushing. Each piston carries two filter cavities in which the wire mesh screen packages are inserted. "Because the filter is made out of woven wires it provides high porosity, which means that it has a high proportion of open area per unit of surface area," said Obermayr

Erema wire mesh filter systems start with one piston and two screens and go up to six pistons and twelve screens.

"With the six-piston screen changer the melt pressure difference during backflushing is extremely low," said Obermayr. ›

Main image: Developments in melt filters aim to enable more heavily contaminated material to be processed with higher yield, reduced downtime, and improved process consistency


IMAGE: EREMA

Above: The SW RTF filter from Erema's Powerfil division is a partial surface backflush design

State-of-the-art

For its laser filters Erema uses a special hard steel plate in which the filtration holes are manufactured, as the name implies, using a laser. As holes get blocked by contaminants, a scraper movement is actuated to free them. Each screen has three scrapers, and wiping occurs on a virtually continuous basis. According to Obermayr, this ensures a high proportion of open area, which enables a high throughput even with very contaminated materials.

Laser filters are known to provide continuous filtration at very stable pressure levels and are capable of supporting uninterrupted periods of operation lasting many days or even weeks. They also provide a very short residence time of contaminants on the filter media compared to mesh screen filters, where the particles will not be removed until the next periodic backflush. "The filtration fineness can go as low as 70 microns, although in many cases a direct comparison of mesh filters and laser filters shows that the laser filter screen provides a better-defined hole-geometry which ensures a better classification efficiency," said Obermayr.

Erema melt filtration systems feature screens with large surface areas to prevent pressure spikes. "The filters are easily accessible so that they can be reached quickly, and our intuitive HMI helps the operator to interact with the system," Obermayr said. "Any wear components in the system are easily accessible to minimise down time and eliminate complex training requirements for operators."

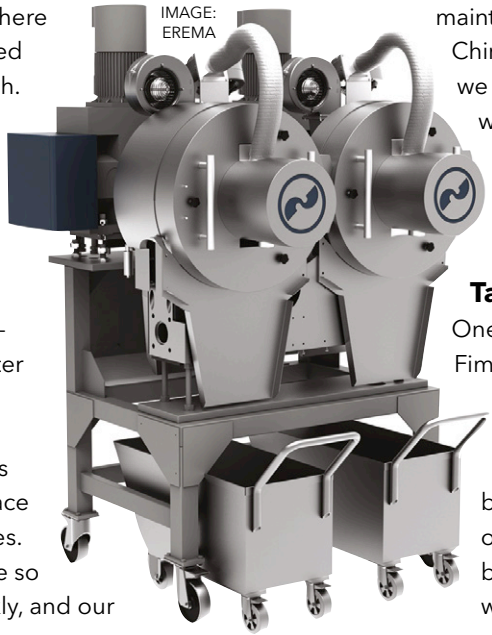
IMAGE: EREMA

Right: Erema says that its Laserfilter gives continuous filtration at stable pressure

PCR processing

At Italian machinery manufacturer **Fimic**, sales director Erica Canaia also points to increasing requirements for processing PCR. "The post-consumer recycling market is improving and increasing worldwide," she said. "Better technology is required for high-end recycling applications and filtration is a critical step to obtain high-quality pellets from post-consumer waste."

Canaia points out that PCR melt streams can differ significantly depending on the material's origin, sorting, and pre-treatment. Prime customer considerations include increased throughput capabilities and reductions in operating costs. "Melt filters need to be automatic and able to reprocess contaminated materials on a continuous basis," Canaia said. "They must be simple to use and to maintain, as well as efficient. After China's 'green fence' was created, we saw higher levels of plastics waste worldwide with more aggressive contamination, which conventional technologies were not able to handle."

Taking on PVC

One of the latest developments at Fimic is a filtration technology applicable to recycling of flexible and rigid PVC. "This is a breakthrough, because until now no continuous scraping technology could be applied to recycle PVC waste constantly," said Canaia.

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Right: Gneuss says filters such as it RSFgenius can maintain process consistency at high contamination levels

"In terms of filtration, the only option PVC recycling companies had was either a slide plate screen-changer or a continuous mesh changer…PVC is a very sensitive material and easily degrades with higher residence times."

Canaia said that using Fimic's PVC filtration technology, no degradation takes place during the melt filtration phase. The company has adaptated to its existing RAS technology to achieve this, including special hardening treatments on filter parts to provide greater corrosion resistance. Some components have been modified internally to enable higher melt flow. The filters were tested for two years before installations began.

Fimic recently installed a melt filter for a German company recycling flexible PVC from garden hose. This involved 150 micron laser filtration, which replaced the 400 micron mesh filter installed on the previous filtration system. In a second example, the installation of an RAS400-PVC filter enabled intervals between screen changes to be increased from 15 minutes to four days on a line processing 450-500 kg/h.

Focused on quality

At **Gneuss**, regional sales manager Andrew Prangnell also points to the drive to put PCR into high-quality final product where until recently only 100% virgin material would have been used.

"But the process requires fairly fine filtration. Original equipment filtration, designed with processing virgin material in mind, very quickly becomes a bottleneck," he said.

Below: The latest variant of Fimic's RAS design brings continuous scraping laser filter operation to PVC processing

Prangnell said that typical screen changers offered for processing recycled material were originally developed for repelletising applications and are not so suited to final products. "Process and melt pressure stability are of far less importance when processing material to pellets than when manufacturing a semi-finished product," he explained.

"Gneuss offers a range of melt filtration systems which offer both the ability to deal with high levels of contamination whilst at the same time maintaining extremely high levels of process consistency– for example, pressure variations of less than 4 bar during operation, together with 100% availability and a patented self-cleaning technology with unparalleled efficiency," he claimed.

Cutting losses

Nordson Corporation has developed a filtration device that reduces material loss from backflush screen changers when used in the compounding and recycling of PET, it says.

Backflushing is a self-cleaning feature in which a small portion of the melt is discharged in the reverse direction back through a screen to remove contaminants. It is automatically initiated when the pressure differential caused by contaminant build-up increases to a pre-set level. In one of Nordson's BKG HiCon V-Type screen changers with four screen cavities, for example, this backflush process is performed in one cavity after another, allowing melt flow to continue through the other three cavities.

To cut back on the material lost during back-flushing, Nordson has developed a filter stack that replaces the standard screen in each cavity. Each of these filter stacks consists of two to four FlexDisc cassettes, with two screen packs in each cassette. This substantially increases filtration area and reduces material loss by reducing the amount of polymer used in the backflush cycle and the number of cycles needed in a given period of time.

Nordson also offers the HiCon R-Type filtration system for recycling highly contaminated plastics. It uses a cylindrical 'separating head' with knives arranged on its surface in a helical pattern to move contaminant particles forward as the head rotates. Enclosing the head is a stationary filter element called a strainer tube.

When contaminated melt flows into the cylindrical space between the rotating head and the strainer tube, the knives capture the contaminant – while the contaminant-free melt moves through the strainer into flow channels that lead to an exit port. At the same time, the rotating head turns a screw

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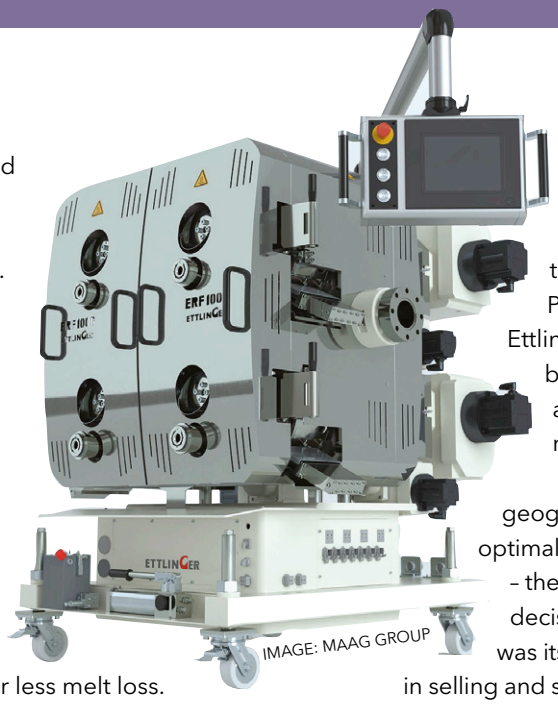

IMAGE: MAAG GROUP

Left: The ERF 1000 is the latest and largest high performance melt filter from Maag Group company Ettlinger

that guides the contaminated material through cooling sections, before it is discharged into collecting bins.

Nordson says that the HiCon R-Type system cleans more efficiently than other systems for highly contaminated polymers. The design makes possible a uniform load on the strainer tube during cleaning, providing an extended lifetime for the filter and scrapers and – increasing overall efficiency of the system at far less melt loss.

Continuous filter

At K2019, Maag Group company **Ettlinger** unveiled its largest ERF continuous melt filter for ultra-high throughputs and removing difficult contaminants. The ERF 1000 has four filter drums that together provide a filtration surface of 6280cm², twice as much as on its previous range topping ERF 500 model (which has the same footprint). It can handle feedstock containing up to 18% contaminants on lines with outputs of up to 10,000 kg/h, depending on the application.

A new feature introduced on the ERF 1000 allows the four filter drums to be replaced individually without disrupting production. This means the device can run continuously and fully automatically, often over a period of several months at a time, with advantages such as ultra-low melt losses and good mixing and homogenising of the melt. The large surface area of the drums, along with the continuous cleaning principle employed, makes it easier to check the process pressures and guarantees a constant pressure during operation. Existing Ettlinger filter owners that buy an ERF 1000 will, in the future, be able to profit from compatible wear parts such as screens, frames, and scrapers, leading to simplified spare parts management.

Distribution deals

Ettlinger has also signed up two new distributors in Europe.

Most recently, it signed up Mircan 1979 as its distributor in Spain and Portugal. The family-owned business, based in Barcelona in Spain, has been a partner of Ettlinger's patent company, Maag, since it was founded in 1979.

Last year, Ettlinger signed up Ricco International Trade & Consultancy as its distributor in Poland. As well as selling Ettlinger's systems, Ricco will be responsible for local after-sales service in the medium term.

"Apart from the central geographical location – with optimal access to nearby Warsaw – the key factor influencing our decision to partner with Ricco was its longstanding experience in selling and servicing plastics machines," according to Uwe Kellner, managing director of Ettlinger.

Compound options

Aside from its Ettlinger developments, **Maag** says it has updated its melt filtration product portfolio. "Besides their main task of removing contaminants and gels from the polymer matrix, filter systems help to homogenise the material," said the company.

The range includes continuous melt filters and various types of discontinuous melt filters.

"All melt filters have been re-designed specifically with market and customer needs in mind," said Maag. "Requirements are met by a large number of options, which can also be combined with one another."

Maag's FSC flat slide technology covers a wide range of viscosities and temperatures, for low-viscosity polymers, such as hot-melt adhesives. It incorporates a metal hybrid sealing system and can handle temperatures up to 320°C.

Meanwhile, DSC and CSC piston screen changers are available with three different cavities: the standard round cavity for very high filler contents; the enlarged "PE" cavity, which Maag says provides versatility in balancing throughput and filler loading; and the "R" cavity in the form of a curved sieve to realise a four times greater filter area.

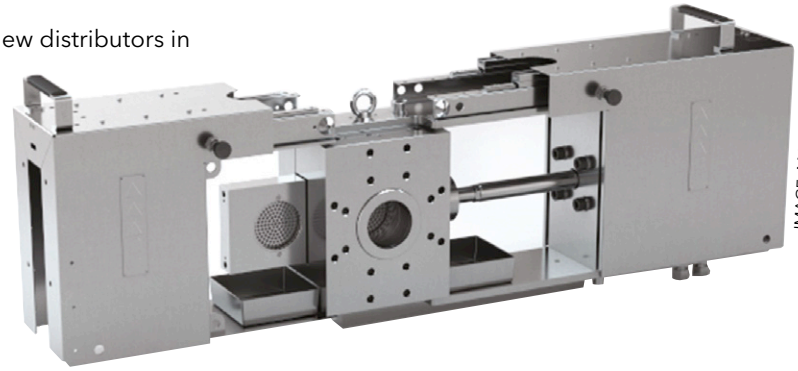

IMAGE: MAAG GROUP

Right: Maag's FSC screen changer in standard execution with stainless steel covers

Belt refinements

Last year, **Parkinson Technologies**' Key Filters brand unveiled several refinements to its KCH continuous belt screen changer, including a more robust construction, cooling enhancements and maintenance features. "From the start [in 2012], the KCH has been a well-received high-performance machine in the continuous melt filtration market," said Justin Marriott, Key Filters product manager. "This recent iteration saw the most advancements since the KCH's inception." As a consequence, he says the system is now more robust, faster, more reliable, and easier to maintain.

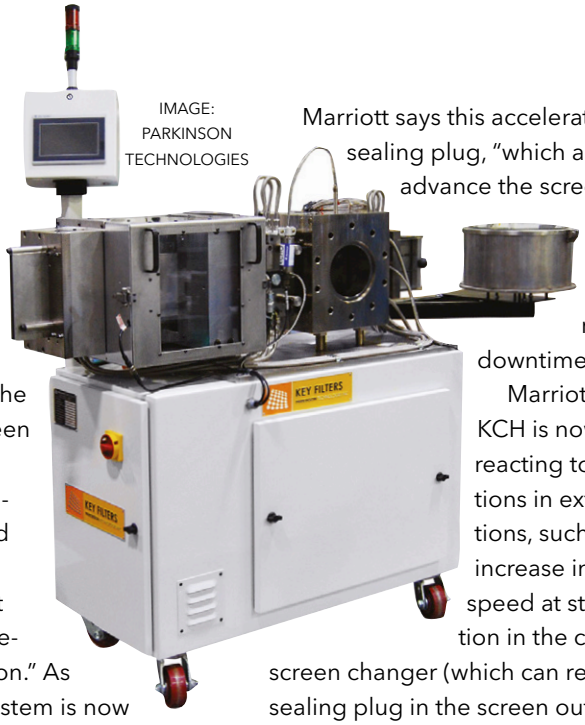

IMAGE: PARKINSON TECHNOLOGIES

Left: The latest version of the Key Filters KCH continuous belt filter is said to offer greater throughputs and easier maintenance

Sensor updates

To increase overall robustness, vital machine sensors were guarded, moved further away from high-heat locations and upgraded to meet extreme production environments.

Marriott cites the puller sensor as one example, which has been upgraded from a string potentiometer to an extreme-duty, non-contact inductive sensor that has already been proven across a broad range of demanding applications.

Additional developments include increased cooling through the inlets and outlets, resulting in three times the flow rate compared to the previous version.

Marriott says this accelerates formation of the sealing plug, "which allows the KCH to advance the screen at an even quicker rate, thus filtering out higher volumes of contaminants and reducing the risk of downtime due to seal failure."

Marriott also says that the KCH is now more capable of reacting to unintended variations in extrusion line conditions, such as an over-ambitious increase in extruder screw speed at start-up or an interruption in the cooling water to the screen changer (which can result in the loss of the sealing plug in the screen outlet).

"The Key Filters team looked at ways to reduce potential down-time to these unfortunate situations by separating the puller and outlet assemblies. The heated polymer will bypass the puller assembly, eliminating component damage and providing an easier clean-up if plug loss occurs," he said.

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Engineering plastics and composites play a key role in many extruded pipe and profile products – in industries as diverse as medical, transport and construction

Pushing performance: ETPs and composites

A broad range of composites and engineering plastics – including polyamide, polyimide and polycarbonate – are finding increasing use in extruded pipes and profiles. A good example is in the medical industry, which needs to specify high quality materials with demanding physical and mechanical properties.

US-based **Zeus Industrial Products** says that its polyimide (PI) tubing is now compliant with two important pieces of European legislation.

Its PI and PI Glide products are now compliant with both Reach and EU MDR, said the company. Reach requires companies to manage the risks linked to the substances they manufacture and market in the European Union (EU).

EU MDR is the European Medical Device Regulation, which ensures high standards of quality and safety for medical devices produced in – or supplied into – Europe. While Reach focuses on material composition, the EU MDR regulation is specific to medical devices.

The company verified compliance of both products through an independent lab.

"We are committed to helping our customers overcome regulatory burdens," said Bob Chaney, senior vice president of global sales and marketing at Zeus. "Without a compliant PI supplier, companies may have to evaluate other materials or shelve plans to distribute products in Europe. Our compliant polyimide products provide peace of mind and can potentially save hundreds of thousands of dollars by avoiding material re-evaluation, product re-designs and launch delays."

Polyimides have high chemical, thermal and mechanical performance properties. They are widely used in medical applications, especially in vascular and non-vascular catheters. Zeus offers PI tubing products that can be customised to various sizes, thickness, colour and level of lubricity.

Matt Allen, senior product manager at Zeus, added: "We are the only supplier globally that can provide Reach and EU MDR compliant polyimide

Main image: Elkamet is using polycarbonate from SABIC's Trucircle portfolio to make lighting industry products

Right: Exel supplied fibreglass profiles for a series of electric buses made by Yutong of China

tubing, and achieving this compliance did not alter our end product in any way. Chemical structure and mechanical properties of the polyimide tubing products remain unaffected."

Composite bus panels

Finnish composites producer **Exel Composites** has provided fibreglass profiles for a range of electric buses from Yutong of China.

The profiles – made using pultrusion – were used on a fleet of 33 buses that were delivered to Finnish bus and road operator Pohjolan Liikenne in Helsinki, Finland. Exel provided Yutong with the skirt and side panels for the buses.

"With Yutong's aim to produce more environmentally public transport – and Finland's aim to reduce carbon emissions by five million kilograms a year – composite materials are one of the key materials to help accomplish this," said Kathy Wang, head of the North Asia sales region at Exel Composites.

The delivery of the electric buses is the first time that Yutong has entered the Finnish market. It is also the largest volume of buses that Finland has purchased from overseas. The country aims to have 400 electric buses operating in Helsinki by 2025.

"The light weight of fibreglass was important to this project, as it reduces operating costs and helps to increase energy efficiency and environmental sustainability," said Wang. "Our composite profiles are resistant to deformation, chemicals and harsh road environments. Repairing fibreglass is straightforward and can be done in the depot. This means that the overall lifetime and operational maintenance costs of the buses is decreased."

Lighting the way

Elkamet, a German producer of lighting components, has begun using polycarbonate resin from **SABIC**'s Trucircle portfolio of renewable products.

Elkamet makes extruded lighting products, including transparent tubes and profiles, from a range of engineering plastics. It will use the Lexan polycarbonate grades for a number of end applications for the lighting industry.

"We are the first in the lighting industry to offer an alternative for our customers in order to keep up with the trend towards more sustainability in the development of plastic components," said Lukas Platt, of Elkamet's sales department. "Diffusors/covers are one of the biggest parts of a luminaire that are made of plastic. By producing them using renewable resources, lighting manufacturers can make a huge sustainability impact."

Elkamet has also been ISCC certified, to give customers proof of a sustainable supply chain.

Below: The first US gas pipe installed under the PHMSA Mega Rule used Evonik's Vestamid NRG polyamide 12

Nylon award

At last year's **Plastics Pipe Institute** (PPI) annual awards, the winning project in the energy systems division was an installation featuring Vestamid NRG polyamide 12 from **Evonik**.

A utility in Henderson, Kentucky made the first installation under the Pipeline and Hazardous Materials Safety Administration's (PHMSA) Mega Rule, which went into effect in January of 2019. It allows PA12 pipelines to be installed without special permission. Previously, any high-pressure gas lines (up to 250 psig) made of PA12 would require special approval.

Henderson Municipal Gas (HMG) laid a total of 2,720 ft of Vestamid NRG 2101 pipeline in several steps through an industrial area using horizontal directional drilling (HDD).

An HDD contractor pulled the PA12 through slurried bored holes and work crews fused the sections together. PA12, which is more ductile and lighter than steel, made HDD installation easier than it would have been with steel pipe.

"The welding required to join steel pipe sections on this project would have required additional manpower, a longer time-frame, and frequent traffic interruptions," said Owen Reeves, gas system director at HMG. ❯

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The PA12 pipes were extruded by Teel Plastics. A unique benefit of the inherent molecular make-up of the materials is that they are highly resistant to heavy hydrocarbons, making them ideal for harsh environmental conditions.

Fusion guide

PPI has also published a technical report with guidance on the fusion of PA12 pipe.

"PA12 piping is now approved for use in regulated gas applications and is well suited for high-pressure gas installations," said Randy Knapp, engineering director of PPI's energy piping systems division. "This new technical report provides a uniform joining procedure that brings a greater consistency to this aspect of gas pipeline installation. It will help to facilitate the pipeline operator's efforts to qualify the procedure, reduce costs, and simplify DOT's enforcement duties."

'TR-50 Generic Butt Fusion Joining Procedure for Field Joining of Polyamide-12 (PA12) Pipe' is available free from PPI's website.

Multi-layer RTP

Pipe extruder specialist **Conextru** of Austria recently developed a toolset for production of multi-layer reinforced thermoplastic (RTP) pipes.

The liner – or inner layer – of an RTP pipe is typically made of PE100 or PE-RT. To reduce the length of such a line, Conextru developed a standard head with side feed connection – with the extruder position parallel to the extrusion line.

The head has a helical spiral distributor system, which has advantages such as low pressure build-up, close wall thickness tolerance and short residence time. Common liners have a wall thickness range of 5-20mm and diameter range of 110-400mm at a production rate of up to 900 kg/h, says the company.

This kind of monolayer helical spiral head – with the same spiral geometry – can also be used for monolayer liners made of PA, PVDF, PPS or other suitable materials.

The multilayer head for this application can produce a three-layer structure with PE outside, adhesive layer in the middle and high temperature- and chemical-resistant material on the inside.

For best melt distribution, a triple helical spiral distributor is applied. The spiral geometries are different, depending on factors such as viscosity and throughput. Conextru says it has a library of geometries for different viscosities.

In this project, a special solution was designed to produce the liner in co-ex (PE/adhesive/PA) or mono-layer PE version. The mono-layer and multi-layer heads had the same melt feed point, so the PE extruder can stay in position in case of a change from mono-layer to multi-layer.

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- **www.zeusinc.com**
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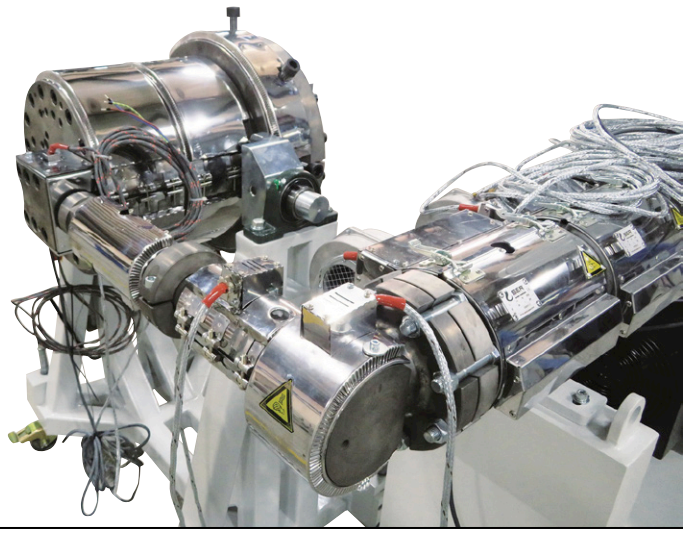

Right: Conextru has developed a tool set to make multi-layer RTP pipe

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Taking back control in plastics extrusion

Close control of ancillary systems such as feeding, conveying and weighing equipment helps to maintain more accurate extrusion production

Control systems that monitor and adjust the settings of core machinery – and ancillaries – are vital in the constant need to maintain product quality.

Coperion K-Tron has introduced the latest generation of its KCM feeder controller.

The KCM-III has a variety of new features, including a larger 5in LCD screen with improved user interface, context-sensitive help, stainless steel enclosure and built-in Ethernet capability. Ethernet capability makes it accessible via a feeder web page.

The controller combines the motor drive and control modules of a feeder and its ancillary components into one component and is generally mounted directly at the feeder – pre-wired and pre-tested at the factory. All motor setup, diagnostics, and operator interface functions are integrated into the KCM-III user interface. Each device includes a complete software package to support a variety of application types, both batch and continuous.

A new, powerful CPU with extended memory allows for the storage of more log and event files, and the ability to trace and process data. Seven days of traceability are included as standard, but this can be extended as part of an optional software bundle. Improved control algorithms provide faster communication with the feeder drive, weighing system, and auxiliary equipment and result in more precise control of the system.

When combined with the company's SFT (Smart Force Transducer) load cells, it can offer a weighing resolution of 8,000,000:1 in 20ms. This results in better short-term feeding accuracy as the controller reacts quickly to changes in the system, says the company.

"The KCM-III is easier to use, and the expanded connectivity options give the user more options for controlling their process," said Franz Neuner, director of product management in the company's equipment and systems division. "With this new technology we will be able to expand into future areas such as artificial intelligence and preventive maintenance, helping manufacturers make their processes more efficient."

Extrusion control

Maguire has developed an extrusion control system that helps wire and cable producers to reduce costs through more accurate weighing of materials.

The Maguire + **Syncro** extrusion control system can be used in extrusion or co-extrusion operations, in both new and retrofit installations. Using data from a digital post-extrusion encoder and tachometer, it adjusts extruder screw RPM and capstan speed to ensure tight coating tolerances and end-product consistency. In co-extrusion, ratio control provides accurate dimensions for multiple sheathing layers or identifying stripes.

There are three basic components of the system: Maguire's WXB Weigh Extrusion Blender; its 4088 controller – which controls the loading, blending, and metering of raw material to the extrusion process; and Syncro's controller, which uses consumption data from the 4088 controller – and downstream encoders – to adjust line speed and haul-off.

Modes of extrusion control available with the Maguire + Syncro system include grammes per meter (or ounces per foot) of extruded product

Main image: Maguire + Syncro extrusion control can help producers cut costs through more accurate material weighing

Right: Coperion K-Tron's KCM-III feeder controller includes built-in Ethernet capability

and kilogrammes (or pounds) per hour.

"Given the high speeds involved, any coating errors can quickly escalate into severe rejection rates, extensive downtime, and costly waste of polymer compound and conductor or optical fibre," said Paul Edmondson, managing director of Maguire Europe. "The control system enables the manufacturer to maximise throughput while maintaining tight tolerances."

Maguire + Syncro extrusion control is also appropriate for a range of pipe and profile extrusion processes, including both mono- and co-extrusion lines.

Smart move

Conair has upgraded its FLX conveying control system, which it says is easier and more cost-effective to configure and install.

The new system, called SmartFLX, has a new system architecture with a more powerful PLC processor, Universal I/O panel structure and an intelligent configurator. This simplifies and reduces costs for system design and installation, system expansion, and remote diagnostics, according to Conair.

The original FLX conveying control was developed as a 'flexible' alternative to complex, large-scale control systems. Users could start small with a basic system of eight loaders and two pumps yet retain the flexibility to increase capacity and capability over time.

"The new SmartFLX incorporates all the FLX system capacity, but with a new system architecture that is easier and more cost-effective to configure, install, manage, and expand," said Nick Paradiso, product manager for conveying systems at Conair. "This new platform supports intelligent features: system self-configuration to aid installation; system simulations and modelling to manage system growth; and self-diagnostic and troubleshooting capabilities that eliminate most on-site service calls."

Communications are separated into two channels. Control and diagnostic signalling for Conair equipment travels on a channel built to the Powerlink standard. All third-party equipment, plus system reporting functions, are carried on the second data communications channel, which uses Modbus.

If system growth is required, a SmartFLX configurator can automatically identify available panel and I/O capacity, assess whether this capacity is sufficient to meet the additional need, then provide an optimised installation plan.

Paradiso says that new SmartFLX product additions are already being developed, which involve inventory management, line proofing, enhanced system diagnostics and new Wave Conveying automation.

Chilling time

At the same time, Conair says a new control system has boosted the performance of the company's EP2 chillers.

The latest portable chillers include PLC control and a 7in touchscreen as standard. The touchscreen is mounted on an angled panel that puts it at an ideal height and angle for easy viewing and operation.

The new control system allows digital pump pressure, compressor/pump/fan running hours, and performance trend charts – for key operating parameters such as process fluid temperatures – to be displayed.

An optional, premium EP2 control system provides an expanded PLC system that provides additional communications capabilities such as Modbus TCP/IP, LonWorks and OPC/UA.

Medical quality

NDC Technologies has helped a medical tube manufacturer maintain product quality as it ramps up production.

›

Right: Conair says its SmartFLX conveying control system is easier to configure and install

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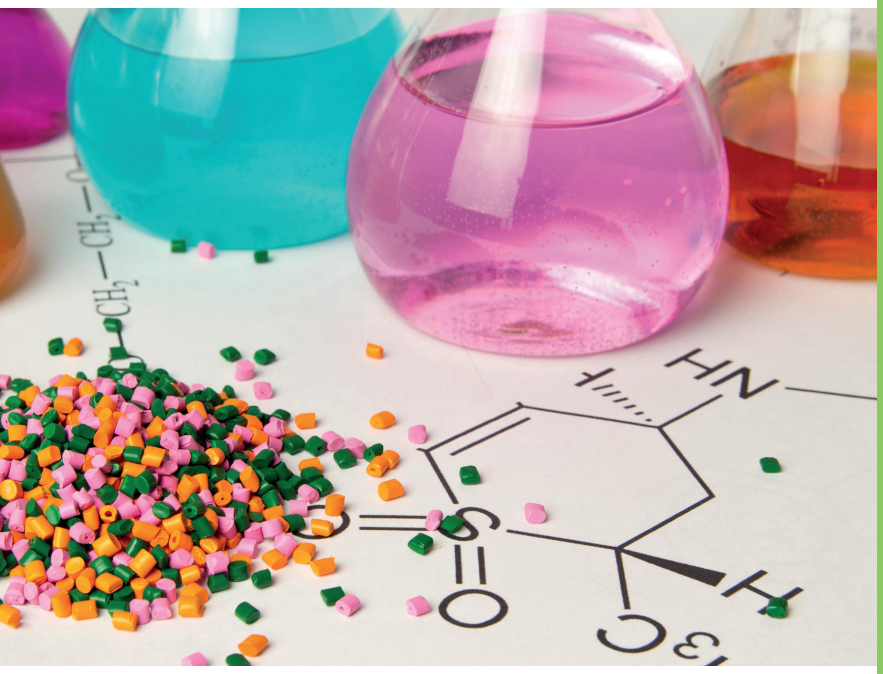

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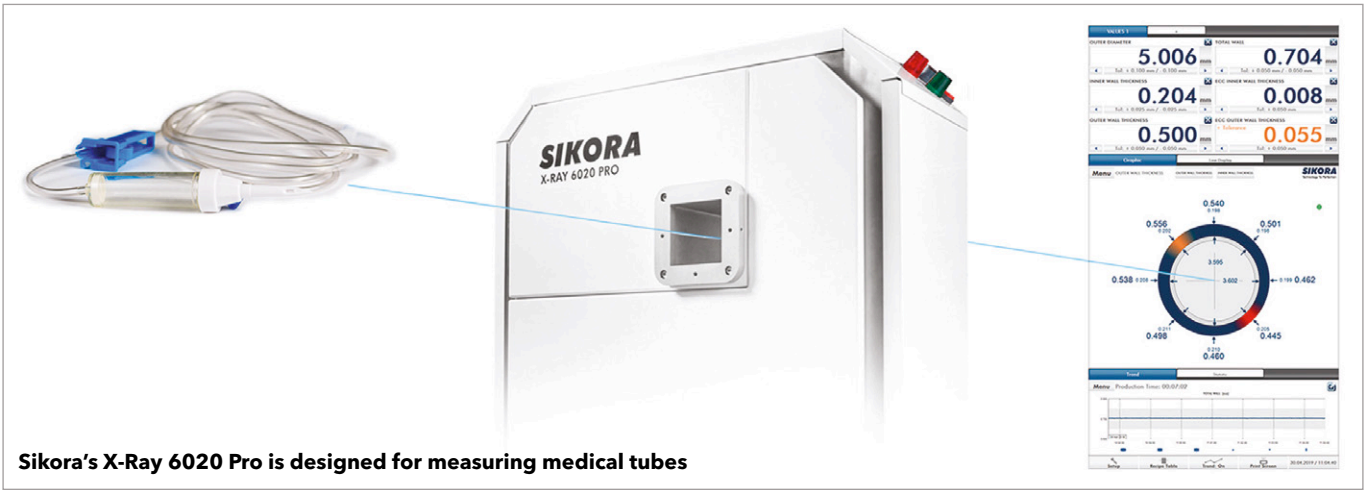

Sikora's X-Ray 6020 Pro is designed for measuring medical tubes

Onyx Hose & Tube of Canada makes medical tubing for oxygen delivery systems and ventilators, which have been supplied to field hospitals in Central Park in New York City.

It uses NDC's AccuScan and BenchMike devices to measure the diameter and ovality of its products.

A second NDC customer, based in Massachusetts, USA, was also increasing production of its medical product when its BenchMike device stopped working. NDC delivered a new unit – from its nearby Connecticut facility – the same afternoon. It also collected the broken unit – and repaired and returned it the next day.

"The customer was able to resume production, thus doing their part to help with the pandemic crisis," said NDC.

Left: LaserLinc's Metron-L is typically used to measure articles such as coronary catheters and guidewires

Quality control

Sikora supplies a number of measuring and control devices for quality control during the extrusion of medical tubes.

Two critical characteristics of medical tubing that manufacturers need to track are dimensions and surface quality. Single or multi-lumen coloured tubes, which require accurate measurement of outer diameter and ovality, can be checked with a device from the Laser 2000 XY series.

Three-axis models, such as the Laser 2010 T, offer high precision for transparent medical tubes, while an alternative series – Laser 6000 – offers a higher measurement rate, while also detecting lumps on the surface of the tube.

The thickness of single-lumen medical tubes can be measured during production using the X-Ray 6020 Pro. The X-ray measurement system is designed for smallest medical tubes with diameters of 0.65-15mm and a minimum wall thickness of 0.1mm. The system continuously records data about wall thickness, eccentricity, inner and outer diameter and ovality. The device can be combined with a three-axis lump detector: the Lump 2000 T gauge heads detect small irregularities on the product surface after cooling.

Devices can be integrated into horizontal or vertical extrusion lines.

Sample measurement

Sticking with medical quality, US-based **LaserLinc** has introduced its Metron-L sample measurement system.

Metron-L is a measurement tool for parts that require precise, accurate diameter measurements over an assigned length, says the company. This is critical when measuring articles such as coronary catheters and guidewires.

Samples are loaded into the Metron-L system and, at the touch of a button, measured automatically. Results are displayed, trended and recorded for future reference and compliance.

The system allows precise, customisable off-line measurement of cylindrical parts. It can measure parts up to 72in (1.8m) long and diameters from 0.004-1.18in (0.102-30mm). It is compatible with the Total Vu HMI platform, allowing easy visualisation of product dimensions and profiles. It also features Statistical Process Control (SPC) and data logging.

CLICK ON THE LINKS FOR MORE INFORMATION:

- **www.coperion.com**
- **www.maguire.com**
- **www.syncro-group.it**
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IMAGE: SHUTTERSTOCK

Calm returns to TiO_2 market

Slower demand seems to have eased TiO_2 pricing fluctuations a little and delayed some capacity expansions but newcomers are still eyeing market opportunities. ***Peter Mapleston*** *reports*

The titanium dioxide pigment market has certainly had its ups and downs in recent years – significant price fluctuations, substantial M&A activity, and new players coming and going. The situation today appears to be a little calmer, due in part at least to the damping effect that COVID-19 has had on activities of all sorts. In development terms, activity in pigment grades for plastics has continued and some increased capacities are in the offing. Providers of complementary technologies that help 'stretch' TiO_2 in formulations are also upping their game.

"During the pandemic, global producers have reduced production, stabilising the price of their products and maintaining manageable inventory levels. Conversely, Chinese producers have increased exports while decreasing price, increasing the price differential to near record levels," said Gerry Colamarino, managing director of **TiPMC Consulting**.

Major producers have been pushing for price increases in recent months. Venator, for example, announced global increases of $120/tonne to come into effect in March and April. In late August of 2020 SK Capital said it will purchase 80% of Huntsman's 49% stake in Venator, with an option to purchase the remaining 20%. SK owns assets producing other pigments – it acquired Clariant's Textile Chemicals, Paper Specialties, and Emulsions businesses back in 2013 and renamed them Archroma – but the stake in Venator will be its first involving TiO_2.

TiO_2 feedstock prices have continually increased, with some stabilisation for both chloride and sulphate slag products, according to Colamarino. "Increased feedstock costs are impacting margins for all producers, including Chinese producers. The margin depletion is increasing costs, as well as impacting reinvestment economics," he said.

Slowing expansions

Chemours is one of the world's largest manufacturers of titanium dioxide, vying for the top position with Tronox. Speaking in May, Chemours CEO Mark

Main image: The Covid pandemic has dampened the TiO_2 price fluctuations of recent years and delayed some capacity expansions

IMAGE: LOMONS BILLIONS

Above: The Lomon Billions Technology Centre at Jiaozuo in China. The company says it has "vigourous development plans"

IMAGE: LOMONS BILLIONS

Above: Julie Reid, Lomon Billions marketing director, says company has opened more European warehousing

Vergnano said the company is extending the timeline for planned capacity expansions into 2021 and 2022, as it cuts capital spending on growth projects this year due to slowing consumer demand. Its long term aim is to add more than 200,000 tonnes of annual capacity across various plants.

Before the coronavirus pandemic emerged, the TiO_2 sector had largely de-stocked through 2019 and was just beginning to turn up, Vergnano says. He says the company's Chemours' Ti-Pure Flex online portal has helped it increase its market share over the last 12 months. That was introduced to allow qualified customers to lock-in prices through a "buy-as-you-need" approach (it was covered in *Compounding World* August 2019, page 42).

Tracking capacity

Lomon Billions, which operates five TiO_2 pigment production sites and also owns titanium-rich ilmenite mines in China, is now the world's third largest TiO_2 pigment producer. The company currently has capacity to make 650,000 tonnes of sulphate-process TiO_2 pigment annually and has added 360,000 tonnes/year of chloride-process TiO_2 pigment capacity since 2018.

TiO_2 pigment is manufactured using either the sulphate or chloride process. Compared to the sulphate process, TiO_2 pigment produced via the chloride process has distinct properties and performance characteristics that make it the preferred choice for some applications, including plastic compounds.

Commercial production from the first of Lomon Billion's two new chloride lines began in 2019 and from the second line in the first half of last year. The company further expanded its chloride TiO_2 manufacturing capacity in June 2019 with the acquisition of a plant at Chuxiong in the south west of China from Xinli Titanium. This has since been refurbished extensively and was restarted in January of this year, adding around 60,000 tonnes of additional annual capacity.

Lomon Billions has a technical cooperation contract with Ti-Cons, a Germany-based consultancy specialising in TiO_2 pigment manufacturing technology and with special expertise in the chloride process.

The company plans to construct more chloride-process TiO_2 production lines at Chuxiong. These new lines, along with some debottlenecking of current capacity, will eventually increase annual chloride-process TiO_2 capacity at the site to around 300,000 tonnes, pushing the company's chloride-process TiO_2 production capacity to around 600,000 tonnes a year.

Aside from the capacity expansions, the company opened a new sales and technical centre in Shanghai in May of last year. It has also been expanding its European operations. "We opened our European office in Stockton On Tees in the UK in 2014," said Julie Reid, Lomon Billions marketing director. "The European team has grown significantly. We've employed more people from the area to help us with sales support, finance, and regulatory affairs. We've also added new warehouse facilities in Europe so that we can deliver from local stock with short lead times."

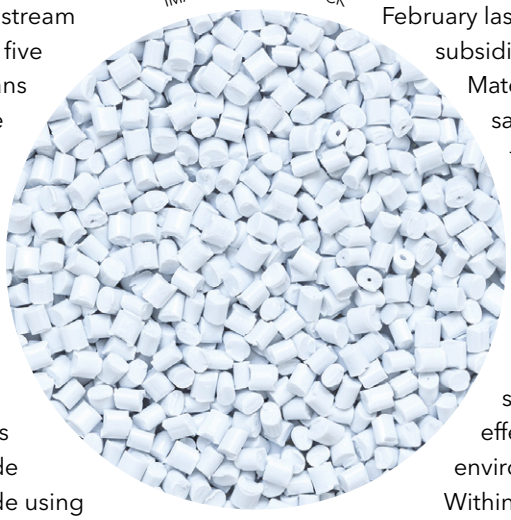
Lomon Billions now has European warehouses in the UK, France, Italy, Spain, Germany, and Poland and says that more locations are under review. The company makes no secret of its strategic investment plans to grow its business and to strengthen its competitiveness through vertical and horizontal integration.

"The company has vigorous development plans," said Lomon Billions chairman Gang Xu. "They include investment in innovative TiO_2 pigment manufacturing technology, increasing vertical integration into feedstock, and expansion of our chloride TiO_2 pigment manufacturing capacity still further. We aim to become the global market leader in the TiO_2 manufacturing industry by the mid 2020's."

The company is also making substantial

investments in mining and upstream manufacturing. Over the next five years, the company says it plans to invest $2bn in a large-scale development project to help transform vanadium-titanium magnetite mining technology and expand ilmenite mining operations at Panzhihua City, China.

IMAGE: SHUTTERSTOCK



Left: A plastics pigment grade is on the target list for TiO_2 industry newcomer TNG

Plastic products

Lomon Billion's TiO2 pigments for plastics applications include Billions BLR-886, which is made using the chloride-process. "BLR-886 is particularly suitable for polyolefin masterbatch, high-temperature extrusion coatings, cast films and engineering plastics. It's designed to deliver bright, white colour with excellent processability and lacing resistance. It also has excellent dispersion with minimal effect on melt-flow," said Reid.

"We're currently developing a super-durable chloride-process TiO_2 pigment for plastics. We've optimised its alumina and silica coating to provide superior durability, while also delivering excellent optical and dispersion performance for superb visual appearance and formulation efficiency," she added.

Reid says the company has a full product development pipeline with more new chloride-process TiO_2 pigments expected within the next five years. "We're aiming to make our chloride-process TiO_2 pigment the 'pigment of choice' for a wide range of applications worldwide," she said.

International plans

Another Chinese company with its eyes on international markets is **Fujian Kuncai Material Technology**. A relatively young company – it was founded in 1999 – its main activities revolve around special effect pigments such as pearlescents. However, in February last year it established two new subsidiaries – Zhengtai and Fushi Material Technology – which it says will enable it "to pursue two fresh strategic directions in its further development. One objective is to extend the product portfolio to include different types of pigment, another is to build and strengthen an integrated supply chain for the existing effect pigment production environment."

Within this plan, Zhengtai in Fuzhou will eventually produce around 500,000 tonnes of high-quality TiO_2 annually using proprietary extraction technology. The first production line, with an annual capacity of around 100,000 tonnes was scheduled to start up in the middle of last year with production aimed at the Asian market. That has been delayed.

Fujian Kuncai Material Technology global marketing director Corinna Ludwig said: "We are planning to produce TiO_2 and iron oxide qualities there for use in plastics, but we need more time for the finalisation of the plant and the implementation of the innovative production process. We are now planning to have everything set up by end of the year. For now, we cannot report on specific quantities or qualities for the plastics industry."

New additions

Also preparing an entry into the TiO_2 market is Australian company **TNG**. It says it is on-track with its project to produce 100,000 tonnes of TiO_2 pigment by early 2023. "Our first grade will be a highly durable pigment for architectural coatings; it will be followed by a plastics grade, but it is still too early to talk about it," said Philippe Guillemaille, Paris-based general manager for sales & marketing at TNG. ❯

EU classification of certain forms of TiO_2 as a Cat 2 carcinogen comes into effect in October 2021

The EU position on TiO_2

The EU harmonised classification of certain forms of TiO_2 as a suspected carcinogen (Cat 2) is due to come into force on 1 October 2021. The Brussels-based Titanium Dioxide Manufacturers Association (TDMA, part of CEFIC) provided the following update on the situation as it sees it.

"Since the publication in the Official Journal on 18 February 2020, the Titanium Dioxide Manufacturers Association and its members have attempted to find a practical and defensible interpretation of the classification to enable meaningful and consistent compliance given the uncertainties and ambiguities created in the classification.

In June 2020, the TDMA's interpretation was made available for downloading by businesses manufacturing, importing, or using TiO_2 and products containing TiO_2. It expresses the TDMA's interpretation of the scope and application of the new classification in order to help manufacturers, importers, and downstream users in applying this classification to the extent possible. However, considering the uncertainties inherent to this classification, alternative interpretations may exist. Ultimately only the Court of Justice of the European Union is competent to authoritatively interpret Union law. The document is available for download **here**.

In addition, TDMA and its members have made their expertise available in multiple other areas that may be affected by the classification for instance, in relation to waste, cosmetics and updated safety data sheets.

The TDMA continues to disagree with the classification of TiO_2 as there is no reliable, acceptable, or available data to suggest that TiO_2 causes cancer. The Member Companies of the TDMA as a part of a wider group of TiO_2 producers and users submitted on 13 May 2020 an action to the General Court of the European Union seeking annulment of the harmonised classification.

The decision of the General Court is expected to take two to three years and therefore will be after the classification comes into force on 1 October 2021. In the meantime, TDMA and its members will focus on finding a way to implement the regulation from that date despite the uncertainties of the classification."

› **www.tdma.info**

Explaining its technology, TNG says the traditional sulphate route typically uses an ilmenite feedstock, which has a high content – typically 47% – of iron oxide. The rutile feedstock used in the more modern chloride process contains around 10% iron oxide. TNG uses a pigment production process based on the sulphate route, but has developed a hydrometallurgical process that creates a feedstock that is low in iron oxide – just 2.3% – making the overall process much more sustainable.

Another newcomer is **Avertana** in New Zealand. Founded in 2012, it has developed technology for extracting mineral and chemical ingredients – including TiO_2 – from waste slag created during steel manufacturing. "Avertana's technology not only consumes the solid by-products of steelmaking but also avoids mining and further waste generation by conventional industrial processes," the company claims. It says it has brought together the necessary capital and expertise with the proven skills required to scale its industrial process from laboratory to commercial production.

Working with slag from BlueScope New Zealand Steel, as well as samples obtained from steel mills in China, Russia, and South Africa, Avertana has now confirmed that its process could be applicable to more than 200m tonnes of slag globally, providing a global platform for technology deployment.

In 2019, Avertana won the Sustainability category at the Institute of Chemical Engineering's IChemE Global Awards for its process, which consumes 4-6 tonnes of slag to make a tonne of TiO_2 pigment. The remaining balance is converted into chemicals used in water treatment and fertilisers, as well as inputs to make building materials such as cement and wallboard.

The road to success can not be guaranteed though. In October 2015, our sister magazine *Compounding World* reported on a development at Canadian start-up company Argex Titanium that promised improved economics for high-quality TiO_2 pigment. Things appeared to be going well and, in June 2019, the company announced a strategic agreement for a multiplant development deal with a major Chinese engineering procurement and construction company that it said would address growing demand in China. But, just a few days later, Argex Titanium filed for bankruptcy, saying it was unable to raise sufficient funds to complete construction of its own production plant. The company is no longer trading.

New introductions

New TiO_2 pigments for plastics are not thick on the ground at the moment, but there are some. Tiona

244 is a high-performance chloride product from **Tronox** intended for use in a wide range of masterbatch applications. The company says the grade "has been designed to deliver the best balance of opacity, processability and consistency. Tiona 244's excellent dispersion characteristics maximise efficiency and performance in plastic processing."

The Tiona 244 product is manufactured at Tronox's Stallingborough facility in the UK, using the company's proprietary chloride technology. "Consistency and quality are effectively managed through sophisticated control of surface treatment, advanced particle size testing and filter pressure testing," the company says. It adds that Tiona 244 is recommended for evaluation in custom colour concentrate, white concentrate, polyolefins, ABS, polystyrene, flexible PVC, PVC pipe and plastisols.

Meanwhile, **Venator** launched Tioxide TR29 – described as an ultra-low moisture TiO_2 pigment – at the K2019 show in Germany. The company says it is its highest performing white pigment for low moisture applications and demanding processing conditions. The TR29 grade is designed for use in manufacture of highly technical thin films and in engineering polymers where moisture sensitivity is a consideration. It can be used to create masterbatches with a very high TiO_2 loading, according to Venator. Potential applications are said to include earphones and smartphone shells; ski masks; and air conditioning units.

The latest addition to the Ti-Pure product line from **Chemours** is TS-4657, a rutile pigment manufactured by the chloride process and focused on ink applications. The company says the product is brighter and whiter than competing sulphate products and that it combines high opacity and colour retention with low abrasion. The low abrasion characteristics may see the new grade win some applications in plastics, it is thought.

IMAGE: VENATOR

Above: The latest addition to the Venator product line is Tioxide TR29, an ultra-low moisture pigment grade

Extender options

Development also continues on materials that offer the ability to "extend" TiO_2. The FP-Opacity Pigments are described by producer FP-Pigments as "the next generation development in TiO_2 efficiency, moving forward from randomly distributed rutile into engineered composite pigment particles."

According to Andy White, business unit director

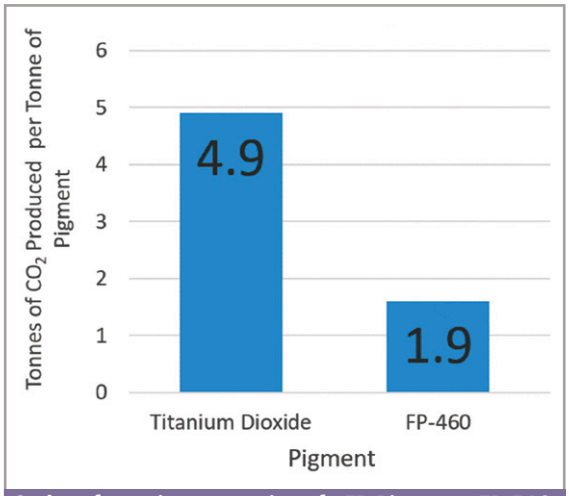
paints and plastics at FP Pigments: "Despite almost three years of falling TiO_2 prices and the need for TiO_2 replacements seeming to be going out of fashion, FP-Pigments' business has gone from strength to strength. Our Opacity Pigment products provide significant cost saving opportunities through TiO_2 optimisation (typically 10% to 20% reduction in TiO_2 use) while maintaining performance characteristics."

White says that with TiO_2 prices beginning to pick up again, TiO_2 optimisation (and cost control) are moving back to the forefront of producer's priorities.

"Demands for TiO_2 may well be compounded too by the probable infrastructure investments that all governments plan in the coming years in order to rebuild broken economies after the pandemic," he adds. "On top of this is also the rising issue of sustainability, becoming an increasing factor in the raw material choices made by producers and consumers."

White says that with these likely scenarios in mind, FP-Pigments is continuing to invest in its technology. Investments include a new online offering, which was developed as a result of the COVID-19 pandemic. "Our new website is now a comprehensive technical site," he says. Information available to visitors includes application results and discussion articles, for example explaining the use of FP-510 as a partial TiO_2 replacement in PVC pipe.

FP-Pigments will soon bring to market some new products such as ultra-high brightness pure PCC and further optimised FP-Opacity Pigments. "Initial evaluation of these concept products has shown positive results that should allow further formulating cost savings through TiO_2 and functional extender replacement in plastic compounds; all while maintaining the original performance and providing a carbon footprint reduction," White said.



Carbon footprint comparison fo FP-Pigments FP-510 pigment and TiO_2
Source: FP-Pigments

Below: SEM images with cut-away schematic showing distributed rutile in FP-Pigment's FP-Opacity Pigment

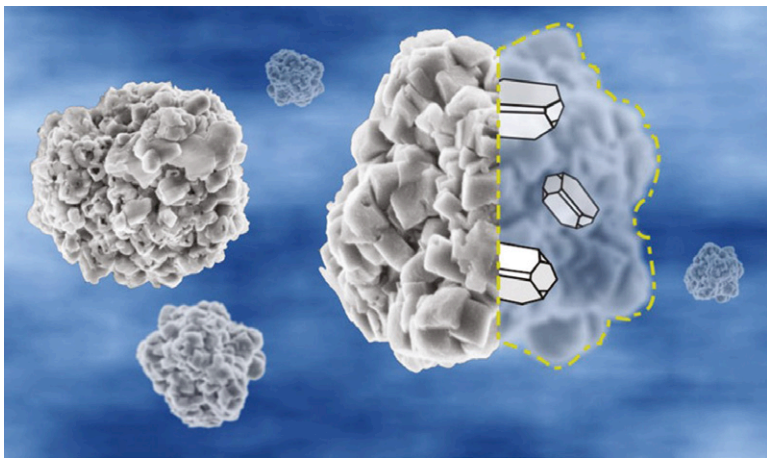


IMAGE: FP-PIGMENTS

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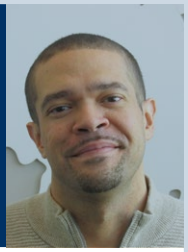

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ELASTOMERS

TPE meets German rules on drinking water hygiene

Teknor Apex has developed a new series of TPEs, which it says meets stringent German standards for drinking water applications.

Monprene RG-14000 TPEs have been tested and approved by German laboratories for compliance with drinking water hygiene standards. They are certified for cold (23°C) and warm-water (60°C) applications in accordance with Germany's KTW (Kontakt mit Trinkwasser) guideline for hygienic assessment of organic materials in contact with drinking water.

In addition, the materials meet the requirements of the DVGW (Deutscher Verein des Gas- und Wasserfaches) technical Standard W270, a test method used to determine the microbial growth on non-metallic materials intended for use in drinking water systems.

The materials also comply with European directive EU 10/2011 for food contact applications and are made with FDA CFR 21-compliant ingredients.

Available in Shore A hardnesses from 50 to 90, the compounds can be supplied in natural or black formulations and exhibit a light natural colour for ease of colouring. They can be extruded and injection moulded.

The materials can be used to make a range of components, including hoses, pipe fittings and seals.

"These TPEs help to avoid chemical or microbial contamination of potable water systems and prevent impairment of water quality with unwanted odours, flavours, or colours," said Chris Smith, senior market manager for Teknor Apex in Europe. "Besides making them available in a wide range of standard grades, we can develop custom formulations to meet specific customer requirements."

› **www.teknorapex.com**

RECYCLING

Turning silicone into oil

US-based New Age Industries is to recycle waste silicone from its production processes into silicone oil.

The scrap – from its silicone tubing and braid-reinforced hose extrusion processes – is sent to recycling specialist Eco USA, which converts the waste into oil that can be used for industrial applications.

"We're always looking for ways to reduce manufacturing waste," said Matt Bauer, production manager at New Age Industries. "Producing silicone oil from silicone tubing is a multi-step reclamation process that few companies are doing."

The amount of silicone scrap generated adds up to tens of thousands of pounds, says Bauer.

› **www.newageindustries.com**

BEARINGS

Bearing materials made with solar energy

Vesconite, a South African producer of polymer bearings, is using solar energy in the production of a range of extruded products.

A system of solar panels at the company's Johannesburg plant supplies of power to its extrusion department – which it uses to make its proprietary Vesconite and Vesconite Hilube wear-resistant self-lubricating hollow bars and rods.

Solar energy provides three-quarters of the department's electricity needs – of 80kW/h – during peak sunlight hours. A smaller proportion of its electricity needs are catered for from dawn and after 12 noon.

"This is a 60kW, on-demand grid-tied system," said Marius Du Plooy, head of extrusion at the company. "This means that the inverter is synchronised with the municipality's supply and we use what we produce during day time."

It is not yet cost effective to use storage batteries, so the full energy capacity of the solar system is not harnessed. However, the company is investigating how to expand the usage of the system.

Extruders are power intensive, as energy is needed for the barrel heaters, screw drives and digital control systems, says the company.

Jean-Patrick Leger, CEO of Vesconite, added: "This is one thing that small businesses can do to save money and make themselves less reliant on State-provided electricity."

› **www.vesconite.com**

JOINING

Raising performance in pipe fusion

McElroy has introduced its new TracStar iSeries, which it says will bring a new level of performance and reliability to pipe fusion.

The three models in the series maintain the TracStar's rugged, self-contained tracked vehicle while adding new features, says the company.

"The iSeries is an evolution inspired by the feedback we have received from those on the front lines of fusion," said Geoff Koch, vice president of product development at McElroy. "We believe this will move the fusible pipe industry forward in the water, mining and natural gas distribution sectors."

The iSeries is powered by the new FusionGuide control system, which offers three levels of control – from operator-controlled to completely automatic, machine-controlled operations. These were added to reduce common user errors and to improve productivity. A DataLogger 7 is integrated with the iSeries, and enhanced guided workflow takes the operator deep into the fusion process. It also ensures that each fusion joint is recorded and complies with the fusion standard.

The TracStar 630i, 900i and 1200i cover three size ranges from 8in IPS to 48in OD (225mm-1200mm). All are equipped with a new, quieter engine that meets US Tier 4 and EU Stage V environmental regulations while providing greater torque. The system pressure was raised to more than 3,000 psi for more powerful ground drive, pipe lifts and other functions that use higher levels of pressure.

› **www.mcelroy.com**

ANCILLARIES

Zeppelin takes over MTI

Zeppelin Systems of Germany is the new owner of MTI Mischtechnik, which became insolvent in October last year.

The MTI portfolio includes heating, cooling and universal mixers for plastics processing and chemical applications.

"Since the mixer solutions from MTI and Zeppelin are largely used in different industries, the overlap of the portfolio is small," said Rochus Hofmann, managing director of Zeppelin Systems.

The former MTI team will continue to be based at the company's site in Detmold.

› **www.zeppelin-systems.com**

SOFTWARE

Update simulates cooling and distortion of polymer extrudate

PlasticFlow has developed a new version of its PolyXtrue simulation software, that accurately models extrudate cooling and extrudate shrinkage in the complete cooling system.

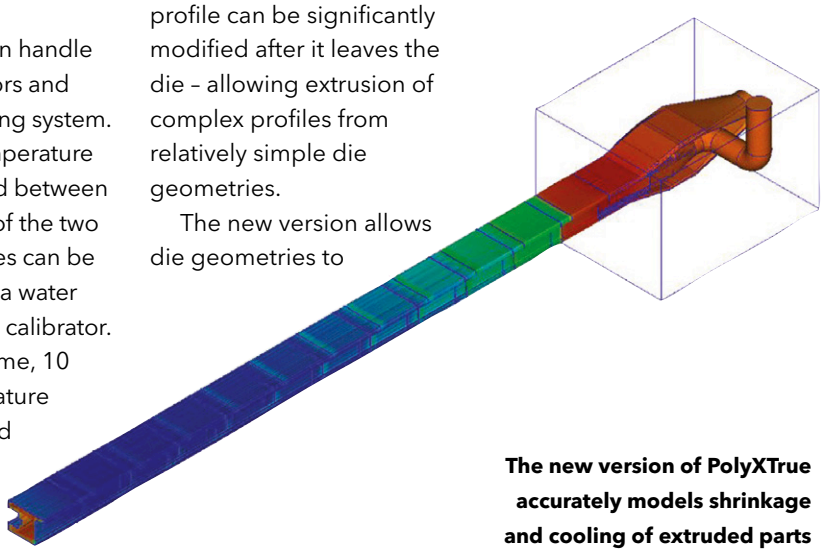
The update can handle up to 20 calibrators and sizers in the cooling system. Two different temperature zones are allowed between calibrators. One of the two temperature zones can be a wiper between a water tank and the next calibrator.

At the same time, 10 different temperature zones are allowed between the die exit and the first calibrator, and 10 different temperature zones are allowed after the last calibrator.

By gradually changing the shape of the profile in subsequent calibrators, the shape of the extrudate profile can be significantly modified after it leaves the die – allowing extrusion of complex profiles from relatively simple die geometries.

The new version allows die geometries to be imported in native Creo file format. Geometries in SolidWorks and Inventor file formats can be imported as before, according to the company.

› **www.plasticflow.com**



The new version of PolyXTrue accurately models shrinkage and cooling of extruded parts

Download these new product brochures

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STRUKTOL: INNOVATIVE ADDITIVES

Struktol manufactures a wide range of additives that benefit performance and processing of resins and compounds. Its portfolio includes additives for PVC, wood-plastic composites, recycling, odour control and more.

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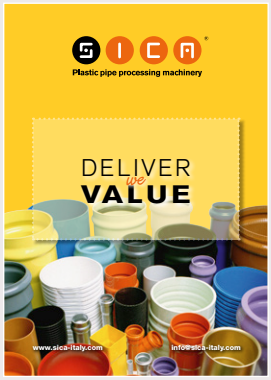
SICA: PIPE PROCESSING



This brochure from Sica covers the company's full range of performance pipe finishing equipment including its novel TRS-W cutting and chamfering, Unibell electric belling and robotised packaging machines.

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UNICOR: PIPE CORRUGATION

This brand new 48-page brochure from Unicor provides detailed insight into the design, production, applications and advantages of corrugated pipes. It includes specification data on the company's wide range of pipe corrugation equipment.

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DAVIS-STANDARD: PIPE & PROFILE

Davis-Standard supplies a wide range of extruders and extrusion systems for pipe, profile and tubing applications, including medical tubing. This brochure details the range of equipment available and key performance benefits.

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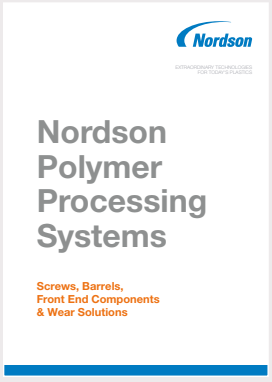
NORDSON: SCREWS AND BARRELS



Xaloy plasticising system components produced by Nordson Polymer Processing for extrusion applications include a range of bimetallic barrels and a variety of barrier and mixing screws. Learn more in this brochure.

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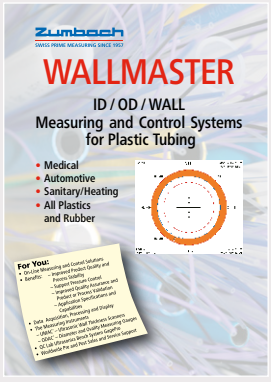
ZUMBACH: MEASUREMENT CONTROL



This eight-page brochure details the main features of Zumbach's Wallmaster measurement and control system for improving product quality, process stability and data capture in plastic tube and pipe extrusion applications.

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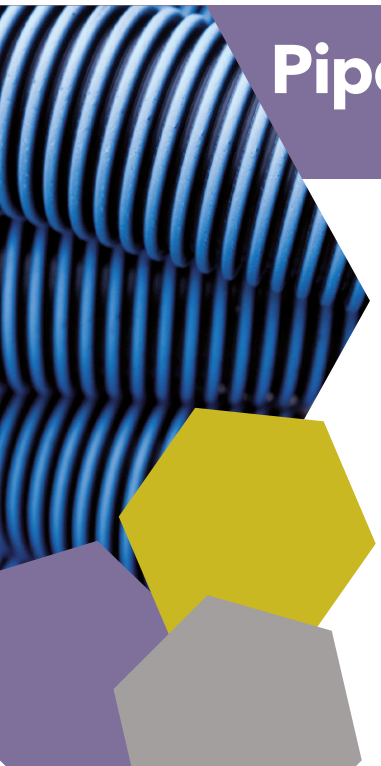
Trex

Head office:	Winchester, Virginia, USA
CEO:	Bryan Fairbanks
Founded:	1996
Ownership:	Public (traded on New York Stock Exchange)
Employees:	Around 1,300
Turnover:	US$740m
Profile:	Trex, founded in 1996, is a US-based manufacturer of wood-plastic composite products including decking and siding. Its products are predominantly made from recycled materials. It was recently named one of the top 100 fastest growing companies by Fortune magazine – and was the highest placed building materials manufacturer on the list.
Product lines:	From its beginnings as a producer of WPC profiles for decking, the company has expanded to offer a wider variety of WPC-based products. As well as many variants of decking – including its Transcend, Enhance and Select brands – it offers other WPC products including fencing, railing and cladding. Products are offered in a range of tones. Its cladding – made from its Trex Transcend deckboards – can be used vertically or horizontally.
Factory locations:	The company has production facilities in both Virgina and Nevada – both of which have recently been expanded. This is due to a US$200m investment programme – which has added a new 200,000 sq ft manufacturing facility to its Virginia plant. At the same time, Trex also expanded production at its Nevada facility in June last year. It says the combined expansion will help it to lift production capacity by 70% and add 350 jobs.

To be considered for 'Extruder of the Month', contact the editor on lou@pipeandprofile.com



Pipe and Profile EXTRUSION FORTHCOMING FEATURES

The next issues of Pipe and Profile Extrusion magazine will have special reports on the following topics:

March 2021
Screws & barrels
Polyolefin developments
Computer modelling software
Laboratory extruders

April 2021
PE100+ developments
Materials recovery & granulators
Pipe joining
Mixers

Editorial submissions should be sent to Lou Reade: lou@pipeandprofile.com

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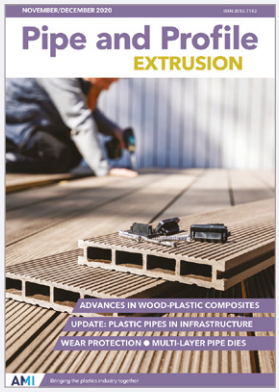

Pipe and Profile
November/December 2020
The November-December issue of Pipe and Profile Extrusion has in-depth features which cover infrastructure pipe, innovations in wood-plastic composites, the latest in multi-layer pipe and an update on extruder wear.

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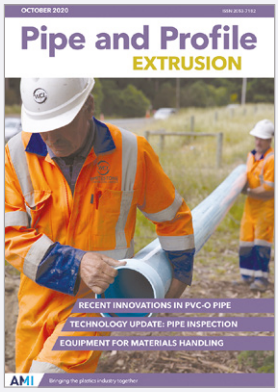

Pipe and Profile
October 2020
The October 2020 edition of Pipe and Profile Extrusion magazine explores the latest developments in oriented PVC pipes (PVC-O). It also takes a look at some new applications of pipe inspection technology and materials handling equipment.

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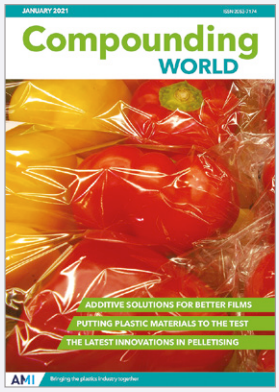

Compounding World
January 2021
The first 2021 edition of Compounding World magazine looks at the latest additive developments for film production. It also explores the latest pelletising technologies and reviews new materials testing options.

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Plastics Recycling World
November/December 2020
The final 2020 edition of Plastics Recycling World looks at the latest developments in the world of plastics granulation. This edition also reviews innovations in PVC recycling and examines some applications of automated quality control technology.

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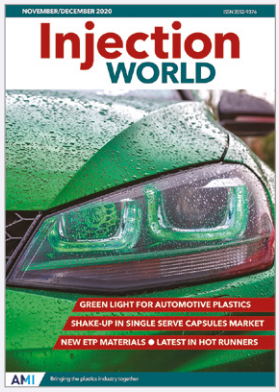

Injection World
November/December 2020
Injection World's November-December edition has features on materials for automotive interiors and exteriors, new ETPs, the latest in hot runners, plus an article by AMI Consulting on a shake-up in single-serve capsules.

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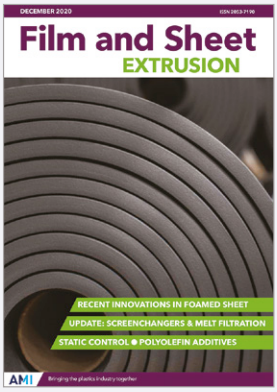

Film and Sheet
December 2020
The final 2020 edition of Film and Sheet Extrusion looked at the latest trends in foamed sheet materials. It also reviewed some of the newest developments in polymer melt filtration, static charge control, and additives for polyolefin films.

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Compounding WORLD
Film and Sheet EXTRUSION
Pipe and Profile EXTRUSION
Injection WORLD
Plastics Recycling WORLD

GLOBAL EXHIBITION GUIDE

2021

9-11 March	Plastimagen Light **VIRTUAL EVENT**	www.plastimagen.com.mx
7-9 April	Plastics, Printing & Packaging, Dar-es-Salaam, Tanzania	www.expogr.com/tanzania/pppexpo
13-16 April	Chinaplas, Shenzhen, China	www.chinaplasonline.com
4-6 May	Kuteno, Rheda-Wiedenbruck, Germany	www.kuteno.de
17-21 May	NPE 2021, Orlando, USA **CANCELLED**	www.npe.org
1-2 June	Plastics Extrusion World Expo Europe, Essen, Germany **POSTPONED**	https://eu.extrusion-expo.com
1-3 June	JEC World, Paris, France **NEW DATE**	www.jec-world.events
15-18 June	FIP, Lyon, France	www.f-i-p.com
22-25 June	Plast 2021, Milan, Italy **NEW DATE**	www.plastonline.org/en
21-25 June	Colombiaplast, Bogota, Colombia	www.colombiaplast.org
28-30 September	Interplas, Birmingham, UK **NEW DATE**	www.interplasuk.com
10-12 August	Feiplar Composites, São Paulo, Brazil	www.feiplar.com.br
14-18 September	Equiplast, Barcelona, Spain	www.equiplast.com
29-30 September	Plastics Extrusion World Expo Europe, Essen, Germany **NEW DATE**	https://eu.extrusion-expo.com
3-7 October	Plastex, Brno, Czech Republic **NEW DATE**	www.bvv.cz/en/plastex/
12-16 October	Fakuma, Friedrichshafen, Germany	www.fakuma-messe.de
3-4 November	Plastics Extrusion World Expo North America, Cleveland, USA	https://na.extrusion-expo.com
8-12 November	Plastico Brasil, Sao Paolo, Brazil **NEW DATE**	www.plasticobrasil.com.br
15-18 November	Arabplast, Dubai, UAE	www.arabplast.info
1-3 December	Plast Print Pack West Africa, Accra, Ghana	www.ppp-westafrica.com

AMI CONFERENCES

23-25 February 2021	Fire Resistance in Plastics **VIRTUAL SUMMIT**
2-4 March 2021	Medical Tubing & Catheters **VIRTUAL CONGRESS**
2-4 March 2021	Chemical Recycling North America **VIRTUAL SUMMIT**
16-18 March 2021	Functional Fillers **VIRTUAL SUMMIT**
20-22 April 2021	PVC Formulation North America **VIRTUAL SUMMIT**
27-29 April 2021	Plastics Pipes in Infrastructure **VIRTUAL SUMMIT**

For information on all these events and other conferences on film, sheet, pipe and packaging applications, see

www.ami.international