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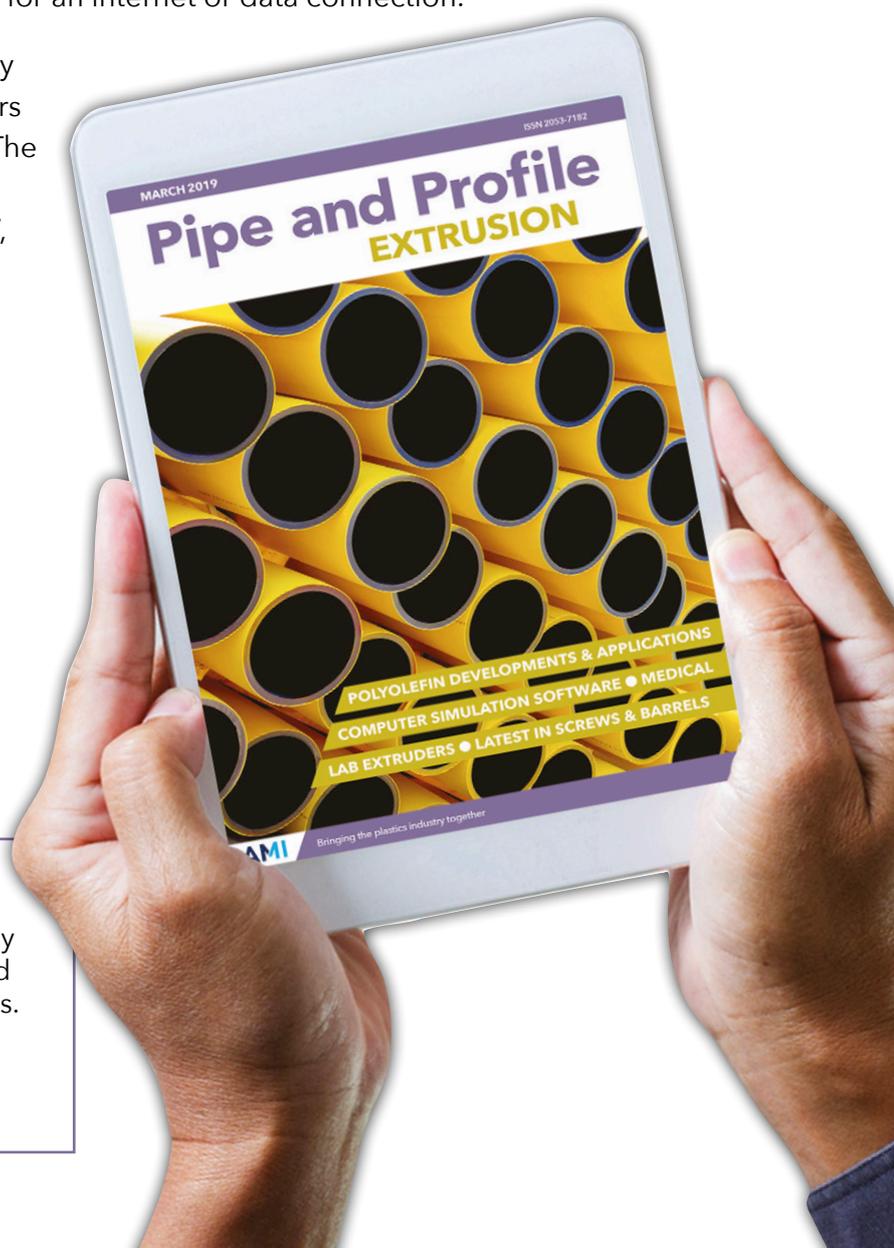
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Trex announces sales and profits increase in 2019

US-based plastic decking manufacturer Trex posted increased sales and profits in 2019.

On the back of a strong final quarter, the company reported full-year sales of US\$745 million - a 9% year-on-year increase.

Sales in its residential products division grew 13% to US\$694m, while its commercial products contributed another US\$51m - a decrease on its US\$71m turnover last year. Overall profit for the company was US\$145m, a 7% year-on-year increase, said the company

Sales in the final quarter reached US\$165m (an 18% increase), yielding a profit of US\$35m (a rise of 41%).

"Fourth quarter results were in line with our expectations for strong double-digit sales growth and sequential gross margin expansion," said James Cline, CEO of Trex.

During 2019, the company added two lines to its Nevada facility and one to its Virginia facility. In mid-2020, it will add three extra lines in Nevada and one in Virginia. In October 2019, it broke ground on a new manufacturing building

in Virginia, with capacity expected to come online in early 2021.

For the first quarter of this year, Trex expects net sales of US\$200m - an 11% rise on the equivalent period in 2019.

"For 2020, we expect capital spending to be US\$140-160m, with the majority earmarked for capital expansion," said Cline.

Cline also announced that he will vacate his role as CEO and become chairman. His role will be filled by Bryan Fairbanks.

> www.trex.com

Deceuninck sales and profits dip

Deceuninck, the Belgian profile extruder, has reported a decline in sales and profits in 2019.

Full-year sales fell by 6% to around €634 million (\$US695m).

Sales in North America increased by around 3%, while sales in Europe fell by around 2% -- while sales in Turkey fell by almost 19%.

Adjusted EBITDA for the period was nearly €61m (\$US67m), a decline of 26%, which the company said was largely down to lower volumes in Turkey, as well as restructuring costs in Europe.

Francis Van Eeckhout, CEO of Deceuninck, said: "2019 has been a very challenging year, and although results are disappointing these do not question the strategic plan we are implementing. Our business model and market position in Turkey, emerging markets, and the US remains - despite the temporary slowdown - very strong. In Europe, our business model was not efficient enough - but we are on the right track to structurally address this."

An earlier investment in a new recycling plant in Diksmuide, Belgium is largely done and is gradually increasing output.

"In parallel, over the last three years, we increased capacity in Poland which now allows us to downsize in Germany," he added.

> www.deceuninck.com

New polymer head in Europe



PlasticsEurope, the pan-European trade association representing polymer manufacturers, has appointed Virginia Janssens (pictured) as its new managing director.

Janssens, who takes up her new role in March, was previously managing director of the European Organization for Packaging and the Environment (Europen).

"Virginia brings a proven track record in advocacy on sustainability related challenges and value chain collaboration which is invaluable to deliver on our sustainability goals," said Javier Constante, president of PlasticsEurope.

> www.plasticseurope.org

Saipem tests reuse technology

Oil & Gas engineering group Saipem has signed a licence agreement with ITEA to develop its technology for chemical recycling of waste plastic.

Originally designed for

oil & gas applications, the ITEA technology is said to be particularly suited to solid urban waste disposal, including unsorted plastic materials. It uses "flameless oxy-combustion" to convert

waste to produce water, energy and CO₂ (which can be captured for industrial use). Saipem is one of a number of firms looking into chemical recycling.

> www.saipem.com

North American machinery sales recover in Q4 after weak 2019

A recent increase in deliveries of plastics machinery in North America could not make up for a disappointing performance in 2019.

The value of deliveries for the final quarter of the year rose by nearly 8%, to US\$316 million, compared to the previous quarter - according to statistics from the Plastics Industry Association's Committee on Equipment Statistics (CES).

Despite the rise - due mainly to sales of injection moulding machinery - sales of extruders declined. Single-screw extruders fell by nearly 1% in the final quarter of the year, while twin-screw sales were nearly 8% lower.

Although final quarter values generally improved, the performance against the final quarter of 2018 shows

a 16% decline. Sales of twin-screw extruders were down by 35%, while those for single-screw extruders fell 12%. (For comparison, sales of injection moulding machinery fell 15% in the same period.)

"The fourth quarter numbers confirm weaker 2019 plastics machinery shipments compared to 2018," said Perc Pineda, the organisation's chief economist. "Weaker business investment spending in 2019 - due to uncertainties from trade and tariffs and overall weaker manufacturing activity - explains the low numbers."

The CES also conducts a quarterly survey of plastics machinery suppliers that asks about present market conditions and expectations for the future. In the coming



Pineda: "Fourth quarter numbers confirm weaker 2019 plastics machinery shipments"

quarter, almost 70% of respondents expect conditions to either improve or hold steady - a reversal of the 39% that felt similarly in the previous quarter. As for the next 12 months, 74% expect market conditions to be steady-to-better, which is up from 63% in the previous

quarter's survey.

Trade and tariffs issues in 2019 negatively affected the plastics machinery trade. Exports of plastics machinery totalled nearly US\$353m in the final quarter of 2019 - almost 7% lower than the third quarter. Mexico, Canada, and Germany remained the largest US export markets. The combined exports to these countries in the fourth quarter totalled \$157m. China was the fourth-largest market in the quarter with plastics machinery exports reaching nearly US\$23m. Imports of plastics machinery fell more than 5%. Lower exports and imports caused the plastics machinery trade deficit to decrease by more than 4% from the third quarter, said Pineda.

➤ www.plasticsindustry.org

Pipe systems division outperforms other businesses in Georg Fischer in 2019

Georg Fischer's piping systems division posted a slight growth in 2019, in sharp contrast to a decline in the rest of the business.

Overall, the company saw a 4% decline in sales to CHD3.7bn (US\$3.8bn) in 2019. At the same time, profitability (EBIT, after one-offs) declined by 38% to CHF235m (US\$241m).

The piping systems division grew 'organic' sales by just over 1%, to exceed CHF1.8bn (US\$1.9bn). The company said that "headwinds from currency movements affected sales

negatively by CHF45m (US\$46m)". Profitability (EBIT) dipped marginally to CHF214m (US\$220m).

All three business segments in piping - utility, industry and building technology - showed a "strong performance in Europe", though Asian and the US markets suffered from ongoing trade tensions. China was slightly below the previous year's level, as major infrastructure projects such as the "coal to gas programme" continue to remain on hold, said the company.

"The demand for clean water solutions remains high, the pre- insu-

lated Cool-Fit product line - developed for the transport of cooling media - experienced high growth and strong demand from datacentre projects and other industrial customers," said the company.

One success for the piping systems division was a new joint venture allowing it to compete in the Egyptian gas market. The joint venture will set up a new production facility for plastic pipes and fittings for the domestic market near Cairo. Commercial production is planned to start in 2021.

➤ www.georgfischer.com



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Uponor reports dips in 2019 sales and profits

Uponor, the major pipe manufacturer, showed a fall in both sales and profit for 2019.

Net sales for the year were just over €1.1bn (US\$1.2bn), a fall of nearly 8%.

Comparable operating profit - after accounting for items such as the sale of the company's North American infrastructure pipe business - was nearly €93m (US\$100m), a drop of nearly 7% compared to 2018.

Sales were affected by a decline in the building solutions sector in Asia, and in the Nordic countries. In infrastructure, sales declined in Finland and Sweden, said

the company. Sales in North America were healthy, enjoying growth of around 10%.

Although operating profit in Uponor's building solutions division rose in all regions (especially North America), a decline in the infrastructure business of around 70% dragged overall results down.

Looking ahead to the short term, while economic growth looks set to slow - and some construction markets are moderating from elevated output levels - Uponor says it expects markets to remain healthy during Q1 of 2020.

In the USA, it said the

market remains challenged by capacity restraints, but is expected to grow compared to last year.

The market is also expected to remain healthy in Germany - though non-residential building may soften.

And, while the new build residential market in both Finland and Sweden continues to slow, Uponor says that construction in Sweden remains at a good level.

This year, Uponor says it expects comparable operating profit to improve compared to results from 2019.

➤ www.uponor.com

Coronavirus postpones Chinaplas

Organisers of the Chinaplas 2020 plastics trade fair - which was due to take place in Shanghai on 21-24 April - have postponed the show until August, due to coronavirus health restrictions.

The new dates for the show are 3-6 August. The rescheduled event will be held at the original venue, the National Exhibition and Convention Centre (NECC) in Shanghai.

In an earlier statement, published on 5 February, show organiser Adsale said: "We sincerely apologise for any inconvenience caused due to the show postponement. Health and safety of all show participants are our top priority, therefore we have to make this decision."

The annual Chinaplas show is one of the world's biggest plastics exhibitions and has traditionally alternated between Shanghai and Guangzhou. The previous event in Shanghai in 2018 attracted 180,000 visitors.

Adsale said in January it would relocate the Guangzhou show to Shenzhen in 2021 to cope with growing visitor numbers.

Dates have been set for 13-16 April 2021, which puts it three weeks ahead of Italy's Plast exhibition and five ahead of the US NPE show.

➤ www.chinaplasonline.com

EU vote may end PVC recycling

Members of the European Parliament voted against a derogation proposed by the Commission this month that would have allowed PVC articles to be placed on the market containing controlled levels of "legacy

additives", most notably lead-based stabilisers.

The **vote** goes against advice from the European chemicals agency ECHA, which has determined in a five-year **study** that allowing such restricted use was the

best waste management option for long lifetime PVC products such as infrastructure pipe and window profiles.

Industry association VinyPlus said in a **statement** it "regretted the outcome of today's vote." It added that in the absence of alternative options, it will mean much of the PVC recycled within the EU - nearly 740,000 tonnes in 2018 under its own framework - will be diverted to landfill or incineration.

Lead stabilisers were phased out across EU27 by 2015 but the long service life of many PVC products mean they will be present in the waste stream for decades.



IMAGE: SHUTTERSTOCK

European Parliament vote could block recycling of PVC profiles containing lead stabilisers

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Bandera, Macchi and Piovan at Plastics Extrusion World Expo

Bandera, Macchi and Piovan and Reifenhäuser are among the latest companies to book stands at the Plastics Extrusion World Expo 2020, which takes place at Messe Essen in Germany on 3-4 June.

The exhibition made its successful debut in Cleveland, USA last year (pictured), and features a free-to-attend conference theatre covering the latest developments in pipe, profile, tubing, film and sheet extrusion. Speakers already confirmed for the Essen event include senior representatives from Pipelife, Profine, Polyplastic Group and Norner.

The Plastics Extrusion World Expo

This event has been postponed to 7-8 October 2020.
More details [HERE](#)



will run alongside exhibitions focused on plastics recycling, compounding and testing, benefiting from the considerable crossover between these markets.

In total, there will be more than 300 exhibitors.

Other companies that have already

booked stands at Essen include Amut, Borealis, Clariant, Dynisco, Erema, Evonik, ExxonMobil, Gabriel Chemie, Gneuss, Inoex, Krauss Maffei Extrusion, Labtech Engineering, Maag, Motan Colortronic, Nordson, Plastic Systems, Starlinger, Theyson Extrusion, Westlake Compounds and many more.

For information on booking a stand at the show, please contact Levent Tounjer at levent.tounjer@ami.international or +44 (0) 117 314 8183.

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Go with the flow: latest in computer simulation

Recent computer modelling advances for extrusion include developments to simulate WPC parts, medical micro-tubes and highly filled components. Lou Reade reports



While computer modelling software is more commonly used in injection moulding, there have been a number of recent advances in simulation software for plastics extrusion.

US-based **Plastic Flow** is on the verge of releasing the latest version of its PolyXTrue extrusion simulation software. The new version has an upgrade of the post-die analysis of the extrudate distortion.

"In particular, it will allow up to 20 different calibrators/sizers in the post-die system - and the shape of the profile in calibrators/sizers can be different to the shape of the profile at the die exit," said Mahesh Gupta, president of Plastic Flow.

The new software has been used to simulate the flow and extrudate deformation in extrusion dies in which the profile shape is changed gradually in successive sizers.

Full details will be revealed in a paper at the Antec conference later this year.

If the geometry of the flow channel in an extrusion die is not designed properly, the shape of the extrudate can change significantly after the polymer exits the die. If velocity at the die exit is

not uniform, the thickness and length of a profile will increase in regions of higher exit velocity and decrease at low velocity locations. The change in length and thickness can also distort the profile shape beyond the die exit.

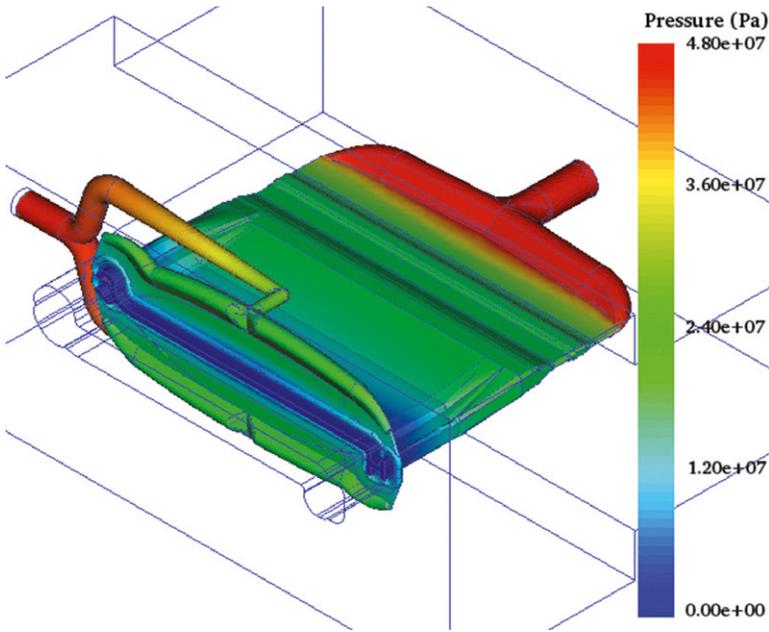
"Therefore, the main goal in design of extrusion dies is to minimise the variation in velocity at the die exit," said Gupta.

In order to correct for extrudate distortion, calibrators and sizers are often installed along the extrudate cooling system. Here, the external walls of the profile are forced to be in contact with the calibrator or sizer walls using suction generated by a vacuum.

However, the internal walls of the profile - and the external walls that are not in contact with calibrator - can get further distorted in the process.

Shape of the profile in calibrators or sizers is often different from the profile shape at the die exit. By gradually changing the shape of the profile, the shape of the extrudate profile can be significantly modified after it leaves the die. This can be exploited to simplify extrusion die design. >

Main image:
The production of this profile was modelled using Plastic Flow's simulation software



Above: Variation in die pressure can be modelled, and used to improve the final part

Polyflow used its PolyXTrue extrusion simulation software to create a model of this process, for both profile dies and sheet dies. The simulation includes the effects of non-uniform exit velocity, cooling shrinkage and the shape of sizer profiles on extrudate deformation.

The software was used to simulate a profile die with straight to Z-shaped extrudate transition. The core polymer, which enters from the back of the die, is a recycled PVC. The extruded profile has a thin cap layer of virgin PVC. Virgin PVC enters the die from the side entrance. At the die exit, the profile has an elliptical projection on one end and an H-shaped projection at the other end. Except for these projections, the extrudate is a flat sheet in shape at the die exit. After exiting the die, the extrudate goes through nine sizers with gradually changing profiles.

The velocity distribution in each cross-section of the die is calculated - and is found to be very uniform at the die exit. This uniform exit velocity distribution is critical for minimising extrudate distortion immediately after the polymer exits the die and before it enters the first sizer.

This die was fine-tuned virtually using the PolyXTrue. The first die geometry simulated had significant non-uniformity in exit velocity distribution. It took three virtual fine-tuning iterations before achieving an 'acceptable' die geometry - which was machined.

The die machined after the virtual fine-tuning needed one further fine-tuning by machining before going into production.

"The predicted extrudate shape and layer structure is found to match accurately with those in a coextruded product," said Gupta.

WPC simulation

A recent paper in Polish plastics journal *Polimery* includes a paper on the simulation of single-screw extrusion of wood-plastic composites (WPCs).

Krzysztof Wilczyński and Kamila Buziak, of the faculty of production engineering at **Warsaw University of Technology**, carried out simulation and experimental tests based on a polypropylene (PP) matrix. Rheological properties of the composite were determined by measuring pressure and material flow rate during extrusion.

"The state of the art of rheology and processing of WPC is not well-established yet," said the researchers in their paper.

A recently developed computer model, to simulate single-screw extrusion of WPCs, was modified by extending its abilities to calculations based on the power law rule. The model allows two-variant modelling of the material melt depending on wood flour content, said the researchers.

The results of the simulation correlated well with experimental results. Smaller discrepancies were seen in the case of the use of one-dimensional model of melting, said the researchers. They concluded that describing rheological properties of the WPC composite by means of the power law ensured smooth extrapolation of the results beyond the measured data.

"It should be mentioned that present studies are premised on the materials without slipping at walls. This should be considered in further studies," they said.

Micro modelling

Scientists from **Nanchang University** in China have simulated the formation of plastic micro-tubes using gas-assisted extrusion.

Micro-tubes are typically used in medical, automotive and other industries. They are very small and thin, which means they often require specialised production methods - which need careful control.

"When applying double-layer gas-assisted extrusion technology to process a micro-tube, it is necessary to find the suitable inlet gas pressure and a method for forming a stable double gas layer," said the researchers.

In their study, a double-layer, gas-assisted extrusion experiment was combined with a numerical simulation made by Polyflow. This analysed the effect of inlet gas pressure on micro-tube extrusion - and the rheological properties of the melt under different inlet gas pressures.

The research showed that when inlet gas pressure was large, the viscosity on the inner and

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outer wall surfaces of the melt was very low. This was due to the effects of shear thinning, viscous dissipation and the compression effect of the melt – meaning that the melt did not easily adhere to the wall surface of the die, allowing a double gas layer to be formed.

As inlet gas pressure decreases, so do the effects of shear thinning and viscous dissipation. However, the gas and the melt constantly displace each other, and reach a new balanced state – while the gas and melt changed rapidly and steadily in the process without sudden changes – meaning that the melt did not easily adhere to the wall of the die.

In the experiment, inlet gas pressure was adjusted to 5,000 Pa – to ensure that the melt does not adhere to the wall surface – then slowly increased to 10,000 Pa to reduce the viscosity of the melt.

Flow behaviour

Researchers in Germany have described a new flow law to describe the complex behaviour of partially crosslinked or highly filled polymer melts.

The research, led by the Institute for Plastic Technology (IKT) at the **University of Stuttgart**, takes into account the pseudoplastic flow behaviour in the regime of the viscosity curve for low and high shear rates.

“The Carpow law is a combination of the Power and Carreau laws,” said the researchers. “It describes the flow behaviour for shear rate ranges in extrusion and injection moulding tools.”

The law was applied to several materials, including thermoplastic elastomers and WPCs.

“The design of extrusion tools with numerical calculation methods has many advantages,” said the researchers. “In particular, the shear rate at the wall of the flow channel is a sensitive indicator of the quality of the design of the extrusion tool.

Colour change, residence time, temperature increase and pressure drop can be optimised.”

Below: Sigma’s new software overcomes the inhomogeneous velocity distribution that causes extrudate deformation

Die modelling

Sigma Engineering of Germany has extended its expertise in modelling software to extrusion simulation.

For the first time, its Sigmasoft Virtual Molding software – which is typically applied to injection moulding – can be used to optimise extrusion dies.

The behaviour of the melt inside an extrusion die is comparable to the flow inside a thermoplastic hot runner (or elastomer cold runner), says the company. For the extrusion die, temperature distribution inside the die alloy – and the geometry of the flow channel – have a huge influence on flow behaviour. Sigma has used its experience in the thermal and geometrical balancing of hot and cold runner systems to create a simulation program for extrusion dies.

Simulation helps identify dead spots, long dwell times in the die or high pressure losses – even before the die is built. This reduces tool changing costs and excessive trial-and-error runs to find the optimum configuration. This makes the development of a new extrusion line faster, cheaper and more predictable, says the company.

Early tests have shown that Sigmasoft helps optimise flow channels in the extrusion die within hours. This improves the quality of the extrudate. To achieve this, geometrical degrees of freedom for the extrusion die’s flow channel are defined inside the software – which then autonomously determines the ideal geometry for a dimensionally stable extrudate.

“The software now on the market helps to calculate the temperature distribution inside the extrusion die,” said Timo Gebauer, CTO at Sigma. “With the help of our software – and the included Virtual DoE – users can find a geometry that allows for extrusion with homogenous velocities.”

The optimised velocity profile inside the extrusion die helps minimise deformation of the extruded profile.

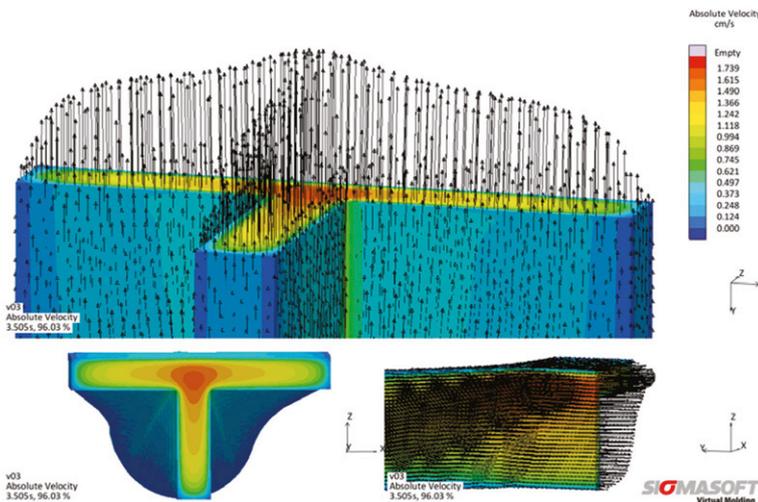
Stopping cross-flow

At last year’s *Profiles* conference in the USA, organised by AMI, delegates heard how optimised die design can help to boost line speed.

John Perdikoulis, president of **Compuplast North America**, said that methods to do this must be fast, easy and efficient. The typical ‘trial and error’ approach to improving die design involves several steps that are repeated and refined until the correct design is reached.

“This is very inefficient – but still used by most profile extruders,” he said.

He said that the underlying reason for problems



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is cross-flow - movement of the melt material across the die, perpendicular to the direction of extrusion. To solve this, he said that his company's cross-flow minimisation method (CFMM) is easy to use, allow for fast die development and is low cost.

CFMM is based on forming logical flow patterns - directing the proper amount of material to each part of the die. This minimises undesired cross-flows or material redistribution, he said.

The method uses Compuplast's Virtual Extrusion Laboratory profile die module.

Perdikoulis said that knowing the viscosity allows pressure drops to be calculated. This in turn allows polymer distribution to be calculated - according to the resistance of each path.

He showed an example of a profile that benefited from this method. The VEL was used to identify unbalanced flow through different cross-sections of the die - which could then be corrected.

The original cross section shape had poor flow balancing. To keep the part within tolerance, line speed was restricted to around 1m/min. Around six hours was needed to balance the four cross-sections - which helped to raise line speed to 4m/min.

Prediction model

Isabelle Berger, a researcher at the **Polymer Competence Centre Leoben** (PCCL) in Austria, told delegates at last year's *Plastic Pipes in Infrastructure* conference in Germany, about a lifetime prediction model for polyethylene electrofusion (EF) sockets.

The research - performed with **Agru** and **Georg Fischer Piping Systems** - made a fracture mechanics lifetime prediction based on brittle failure behaviour of EF sockets made of PE. Various internal pressure tests on EF sockets were conducted under elevated test conditions with focus on generating quasi-brittle failure curves and investigating characteristics of crack initiation and SCG.

The results showed that with a linear elastic fracture mechanics (LEFM) approach, a reliable prediction of minimum lifetimes of EF sockets for internal pressure loading situations and application-oriented installation situations was possible.

The results showed that, at sufficiently high temperatures and internal pressures, EF sockets failed by quasi-brittle SCG. However, a more systematic evaluation of crack characteristics revealed that cracks are initiated simultaneously in the cold welding zone and the heating wire cavity - merging together at a later stage of crack propagation.

■ The next *Plastic Pipes in Infrastructure* conference is held in Hamburg, Germany on 28-29 April 2020. It includes presentations from Molecor, Wavin, Frank and Georg Fischer. For more details, see the website, or contact Nicola Charlesworth (nicola.charlesworth@ami.international) on +44 (0) 117 314 8111.

Storm water management

US-based pipe manufacturer **ADS** has developed an enhanced version of its online design application for installing underground storm water management systems.

ADS Design Tool 2.0, available free on the company's website, helps customers incorporate site-specific information and create customised system layouts. The result is a system that can be immediately utilised in project documents.

"Our Design Tool 2.0 is more efficient and accurate than anything else on the market today," said Greg Spires, general manager of ADS subsidiary StormTech, which makes storm chambers.

Customers looking to design underground stormwater management systems can easily access the application via the ADS website.

They can enter site specific information and quickly produce StormTech system layouts in CAD and PDF formats. The result is a custom-tailored system that can be immediately used in project documents, he said.

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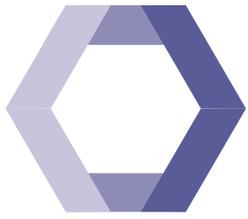
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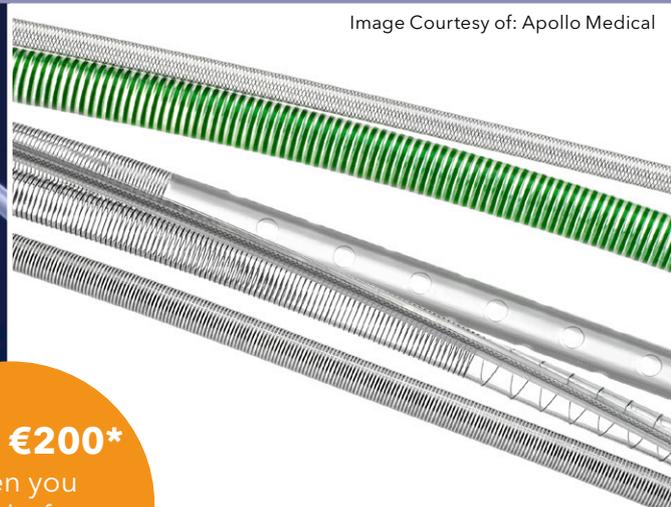


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Extruding tiny throughputs of plastic is useful as a way of testing developmental formulations - or for making precision products such as medical tubing

Small scale: update on laboratory extrusion



Economies of scale mean that large throughputs make the most sense. However, when making precision products - or testing new formulations - small-scale extrusion is the right choice.

At K2019, **Dr Collin** of Germany showed a new catheter tube line, which comprised a Teach Line extruder - of the second generation - plus a medical extruder, medical pelletiser, vacuum calibration tank and a high-precision, three-layer medical die.

During the show, the line produced micro-extruded catheter tube in 'live' mode. It included adding marking strips to the product.

"On the screen, you have a direct view to the strand," said Friedrich Kastner, CEO of Collin Lab & Pilot Solutions. "Applications are here medical safety markers or X-ray contrast strips."

Here, the outer diameter of the strand is 0.5 mm. For Collin medical strand lines, it is unique that all production steps come from a single source - compounding, coextrusion, take-off and cut.

The Teach Line extruder was an E20H model, generation 2. The single-screw extruder is the standard machine for the continuous plasticising of polymers. The table-top units combine high process variability with accurate control and regulation of all parameters.

Limited space

Davis-Standard recently ran a small-scale TPE tubing line at the MD&M West exhibition in the USA.

The line showed processing versatility by

running TPE tubing on the first two days of the show and ABS filament on the final day, said the company. The line can process a variety of flexible tubing materials at speeds up to 300 feet/minute (91 m/min).

"This line is an excellent example of a space-saving system that can be used for both medical and industrial tubing," said Kevin Dipollino, senior product manager of pipe, profile and tubing systems at Davis-Standard. "We have numerous larger scale lines like this one in the field, capable of running in excess of 800 feet per minute."

For the purposes of the show, the company wanted to demonstrate a smaller footprint and functionality for line speeds up to 300 feet/minute - for applications where space is a limiting factor.

"The line also features a turn sheave to enable processing at a 90-degree angle to accommodate additional space limitations such as those found in cleanroom environments," he added.

The main component of the line was a Davis-Standard 2in (50mm) Super Blue extruder with e-TPC-II controls. However, it also included a **Guill** spiral crosshead die and tooling, **Conair** equipment including a servo puller and automatic and transfer coiler, plus a **Zumbach** OD/ID wall gauge and control system. The four companies have often worked together to supply complete systems solutions.

The TPE tubing running at the show measured 0.145in OD by 0.0108in ID. The ABS filament rod was 1.75mm OD. Every line component was engineered

Main image:
Davis-Standard
ran a small-
scale TPE
tubing line,
featuring a 2in
(50mm) Super
Blue extruder,
at MD&M West
recently

Right: MTI's M10 laboratory mixer has a usable mixing vessel volume of up to 8 litres and was optimised at the company's R&D centre

for tight tolerances, consistent quality and output efficiency. The TPE material was supplied by **Teknor Apex**.

The eTPC II control has become popular with medical tubing processors, as it is flexible enough to support more applications.

Small scale

While it is better known for lab-scale blown film lines, Thailand-based **Labtech** also offers extrusion lines for making pipes and profiles at the smaller scale.

Its lines are designed to extrude pipes with a diameter of up to 50mm and with any desired wall thickness. It can also be used for other profile types with similar size range. The lines use extruders of sizes from 20 to 45 mm, equipped with a die, downstream calibrating vacuum tank with water spray for cooling and a caterpillar-type haul off.

The calibrating and sizing unit inside the tank, together with the vacuum, ensures high precision production of the pipe or tube, says the company.

Batch mixing

MTI Mischtechnik is to showcase a range of laboratory mixers - with heatable and coolable mixing vessels - at the forthcoming Solids 2020 exhibition.

The mixers are suitable for the entire scope of bulk material processing tasks including the production of trial mixtures and small-scale production batches in laboratories and technology centres. Applications include masterbatches and compounds for the plastics industry, including the production of natural fibre compounds.

The laboratory mixer range includes the type M vertical high-speed mixers (working volume up to



28 litres), heating/cooling mixer combinations from the M/KMV series (working cooling mixer volume up to 51 litres) and the Uni tec type UT vertical universal mixers (working volume up to 51 litres). On a small scale, they cover the entire range of conventional industrial applications from homogenisation via friction mixing, coating, agglomeration and granulation to drying.

Customers can test laboratory mixers to their own requirements at MTI's R&D centre in Detmold, Germany. The ability to store numerous mixing programs allows processes to be repeated reliably at any time.

"Our laboratory mixers are in use worldwide for trialling formulations and manufacturing small batches," said Ulrich Schär, general manager at MTI. "Our customers particularly appreciate their versatility - without the modifications often required for other systems - and the ability to acquire all process and machine parameters for use in reliable process scale-up."

Visitors to Solids 2020 will see an M10 mixer optimised for multipurpose use in the company's R&D centre.

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Material benefit: expanding applications in polyolefins

Polyolefins have recently been used in applications as diverse as corrugated pipe that carries potable water across Alaska and the air conditioning system of a shopping centre in Spain

Polyolefins are used widely across the plastics industry - and in pipe and profile can be found in a variety of demanding applications, especially in the construction industry.

Recently, **Aquatherm** of Germany installed its green and blue pipe at a new shopping complex in Seville, Spain. The two Aquatherm systems were used to distribute potable water in the building complex, and for the air conditioning system.

"Both piping systems are made of PP, which is 100% recyclable and thus meets the requirements of sustainable construction," according to the company.

All building technology used in the project was designed to be sustainable in order to achieve the BREEAM certification for sustainable construction.

The two systems are very durable thanks to their corrosion resistance. The company says they will help save energy for decades, as the water flow will not be affected by deposits. The pipes and fittings are securely connected by fusion welding.

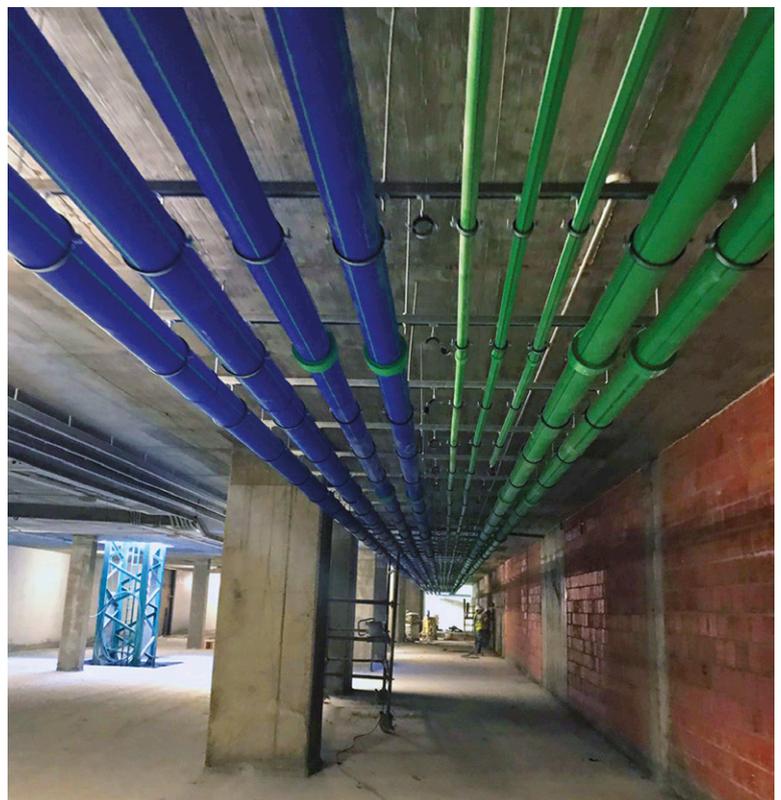
A decisive factor for the planners was that pipes and fittings were available in large dimensions up to 630mm.

To distribute potable water across the complex, 9km of Aquatherm green pipe was installed. For the piping of the fan coils, which are used throughout the building for air conditioning, the planners used around 12km of Aquatherm blue pipe. Unlike steel pipes, which are often used in air conditioning systems, there is no danger of corrosion damage with PP pipe, said Aquatherm.

HDPE for water

Winners of last year's **Plastics Pipe Institute (PPI)** awards included two HDPE pipe applications: one that diverts melting snow water into a reservoir, and a second that carries potable water across Alaska.

The drainage division's top prize went to Pacific Corrugated - whose StormTite corrugated HDPE pipe was used to divert melting snow runoff away



from the sea and into a hydropower-generating reservoir.

The project, at Terror Lake in Kodiak, Alaska, involved constructing a 1.2-mile tunnel from the pipe - and running it under Kodiak Island's National Wildlife Refuge. At the same time, the company's HDPE pipe was used to build cross-drain roadway culverts, improving vehicle access to the dam and tunnel locations.

The Terror Lake Upper Hidden Basin Diversion Project began in 2018 and will take two or three summers to complete. Once finished, the extra water flow will increase the amount of hydropower-generated electricity by around 33 million kilowatt-hours per year - adding around 25% more energy capacity to the facility.

In the municipal and industrial division, Pipeline

Main image:
Aquatherm's green and blue PP pipe has been used in potable water and air conditioning systems at a shopping complex in Spain

Plastics installed an HDPE potable water pipeline – in sizes of 6, 8, 10, 12 and 16 inches – that were pre-insulated with polyurethane foam, to ensure an uninterrupted source of water during Alaska’s harsh winters

The pipe provided a tough, durable, seismic-resistant supply line. In all, the project comprises 35 miles of pipe, expansion of the water treatment plant (in North Pole, Alaska) and a 750,000-gallon potable water reservoir.

Storm performance

Corrugated pipe – from **ADS** – played a central role on new express lane toll roads in Florida – where seven miles of corrugated PP storm pipe was installed for one new section.

The pipe, called HP Storm, ranged in size from 18 to 36in diameter, enabled the work to be done quickly while reducing costs, and provided a system with a designated 100-year Design Service Life (DSL).

The specification for the stormwater drainage system called for pipe that would have a water-tight joint between sections and a 100-year design service life – as well as fitting the budget and meeting FDOT requirements including post-installation inspection. Pipe alternatives in FDOT specifications include reinforced concrete pipe (RCP) and two types of corrugated thermoplastic pipe – HDPE and PP.

HP Storm couples PP resin technology with a dual-wall profile design for high performance and durability. The smooth interior wall offers extra strength and flow. The pipe has an extended, reinforced bell with a polymer composite band and dual gaskets that add an additional factor of safety within each joint.

Below: Seven miles of corrugated PP storm pipe from ADS has been installed on an express lane toll road in Florida, USA

According to FDOT documents, polypropylene pipe passed the needed testing to be accepted for 100-year side drain, cross drain and storm sewer applications.

Construction materials

Sabic launched several materials at K2019, aimed at construction industry applications.

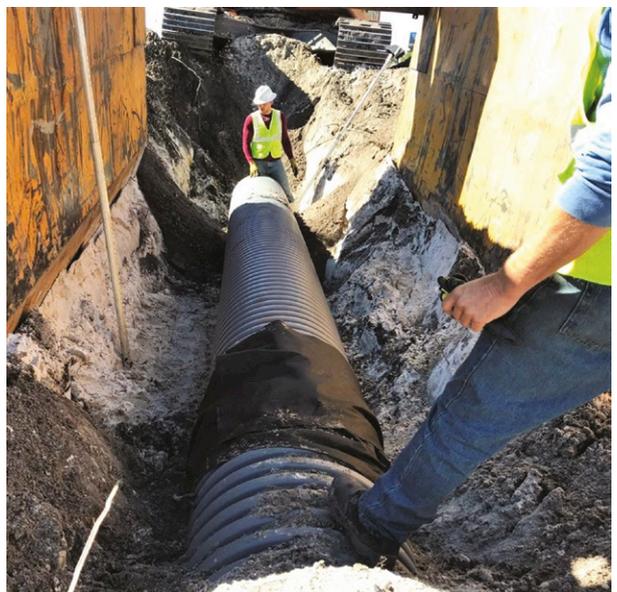
Its lightweight Stadeck heavy duty panels – made from a thermoplastic resin reinforced with glass fibre – are applicable to a range of applications. Typical uses include scaffolding and non-permanent platform. The material is light and robust, is resistant to fire and chemicals and has good anti-slip properties.

At the same time, it has created a foamed pipe insulation solution that saves energy and also helped to control condensation and noise – while protecting against pipe fracture. The pipe, which uses Cohere material as a building block, is easy to install and offers design flexibility. The company claims that it is also more easily recyclable than existing elastomeric foamed pipe insulation.

It also showcased voltage cable ducts made from its Vestolen A Rely 5944HT material – a PE100 grade – which can operate at elevated temperatures and for an extended lifetime. These ducts are typically used in solar and wind farms and are used to protect the high voltage underground cables that lead from the installation.

“It’s also cost-effective for customers as it allows for trenchless and sand-less installation across geographic landscapes,” said the company.

Separate to this, the company highlighted drip irrigation systems – made from its LLDPE and HDPE materials – that supply water to where it is needed for crop growth. ➤



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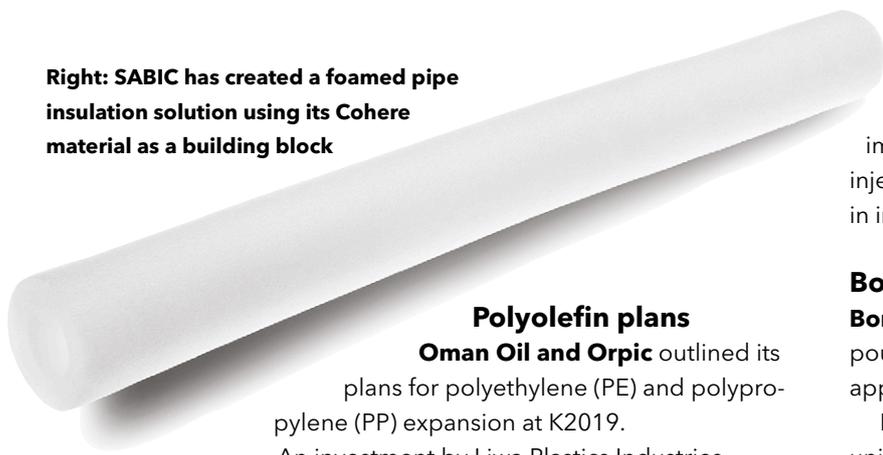


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Right: SABIC has created a foamed pipe insulation solution using its Cohere material as a building block



Polyolefin plans

Oman Oil and Orpic outlined its plans for polyethylene (PE) and polypropylene (PP) expansion at K2019.

An investment by Liwa Plastics Industries Complex (LPIC) will see production of PE and PP increase to 1.4 million tonnes by this year. The portfolio will include LLDPE, HDPE and PP.

“We are shaping possibilities across the packaging, infrastructure, household and appliances, agriculture, and healthcare industries,” said Talal al Awfi, chief commercial officer at the company.

Although many of its grades are aimed at packaging applications, some are relevant to applications such as pipe and profile.

One, Luban DGDZ-2400, is high molecular weight HDPE with broad molecular weight distribution. It is intended for use in PE80 pressure pipe applications where long-term hydrostatic strength and resistance to slow crack growth are needed – such as water, sewerage and gas pipe.

The grade has good processability and melt strength and is suited for both large and small diameter pipes, says the company. Carbon black should be added to the granular PE via LLDPE-based masterbatch to obtain a loading of around 2.25% CB in the pipe resin. The carbon black should have a particle size 10-25nm and be well dispersed in the final black pipe grade.

A second grade, Luban EP6387U, is an impact copolymer PP with good toughness and impact strength. It is suitable for extrusion and injection moulding applications. It is typically used in industrial applications and in soil and waste pipe.

Borouge boost

Borouge is to increase production of pre-compounded black polyethylene (PE) for pressure pipe applications in Asia.

It will do this by investing in a new production unit at its Ruwais complex in the United Arab Emirates, which is expected to be finished in 2020. The company has also confirmed the next expansion phase of the complex, which will see it build “the world’s largest mixed-feed cracker” – with an ethylene output of 1.8 million tonnes.

The decision to expand capacity comes in response to the revision of PE water pipe standards – by China’s Water Standards Committee – promoting the use of pre-compounded materials for piping applications.

The investment will address rising demand for the materials, as many cities in China and other emerging economies continue to modernise their utility infrastructures.

“The use of pre-compounded black PE will enable pipe manufacturers to produce superior quality pipes that help ensure the safe operation of distribution networks and minimise any losses of the products that flow through those pipes,” said Wim Roels, CEO of Singapore-based Borouge.

Better sustainability

Borealis says that its Borlink cross-linked PE can be used to improve sustainability in the offshore

Expanding in polyethylene pipe

Egeplast of Germany has begun manufacturing polyethylene (PE) pipe in the UK, through its distributor **Westwood Pipelines**.

Westwood, based in Doncaster, says it will now be able to offer more flexibility and improved lead-times on a broad range of Egeplast products – including PE pressure pipe in coils and SLA barrier pipe.

Westwood says its fabrication and fittings solutions with Egeplast pipe will bring a strong partnership to supply the utility, civil, construction and infrastructure sectors.

“The introduction of UK production will contribute to a reduction of our carbon footprint, secure jobs in the local area and reduce potential risks in the event of potential transport issues arising from the Brexit process,” said Egeplast.

In the USA, meanwhile, HDPE pipe distributor **Isco** has bought its smaller rival, MT Deason.

Isco says the acquisition will allow it to increase its service capacity in the gas distribution market. Deason will operate as a division of Isco, providing full-service offerings of pipe,

fittings, fusion equipment, and valves.

“Deason has been a pioneer in electrofusion and gas pipe fittings and has an excellent reputation for providing quality products,” said Jimmy Kirchdorfer, CEO of Isco.

Deason, founded in 1982, has locations in Alabama, Texas and New Jersey. Isco, headquartered in Louisville, Kentucky, was founded in 1962 and has more than 35 locations across North America.

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Right: Borlink from Borealis is a key component in XLPE high-voltage power cables, which transmit electricity over long distances with minimal losses

wind-energy industry - due to its recyclability.

Borlink LS4258DCE, an unfilled XLPE insulation compound, with high voltage direct current (HVDC) cable compound Borlink LE0550DC, allows the use of extruded cable technology at higher voltage and transmission levels than before.

However, by sorting, separating, and grinding XLPE cable waste - in the form of redundant cables, for example - valuable material can be reclaimed.

Among other applications, XLPE recyclate can be used as filler in various PE and PP compounds.

One Borealis partner, power cable provider NKT, recently became one of the first cable manufacturers to use recycled XLPE in the production of cable drums - helping it to contribute to the circularity of polyolefins in the power cable industry.

It has estimated that the process saves around 2,000 tonnes of CO₂ for every tonne of recycled XLPE.

"Borealis is contributing to decarbonisation in



multiple ways," said Lucrèce Foufopoulos, executive vice president of polyolefins and innovation and technology at Borealis.

Borlink recently qualified for the tender in a major infrastructure project called the German Corridor projects - which will transport renewable energy from wind farms off the north coast of Germany to southern areas of the country.

"Our polyolefin-based innovations have become crucial links to the energy transition," said Foufopoulos. "This is just one examples of our contribution to a greener future for all."

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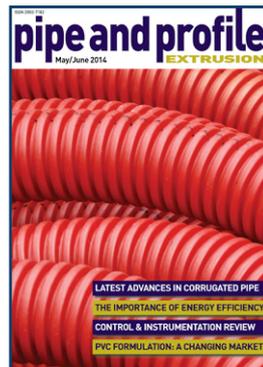
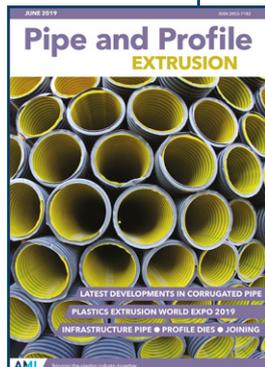
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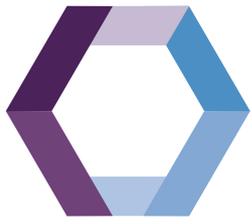


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Correct design of screws - ranging from clearance with the barrel to the correct coating materials - is vital to extruder performance

In order to maximise longevity, designers - and users - of extrusion screws need to pay attention to how the product is made and maintained. As well as sound design principles - such as the use of correct coating materials - screws need to be pulled and cleaned correctly.

Davis-Standard recently introduced the latest option in its feedscrew line, the DS-Blend.

The company says that the patent-pending design improves the performance of a single screw extruder for demanding applications by providing distributive and dissipative melt mixing. The two-stage approach achieves outputs similar to those of a single-stage barrier screw, but with a lower melt temperature and reduced energy requirements, says the company.

It can be installed on new or existing single-screw Davis-Standard extruders, as well as third-party brands. The company says it has been building increasing numbers of feedscrews for third party extruders.

"This is one of our most versatile and energy-efficient feedscrews to date," said John Christiano, vice president of technology at Davis-Standard. "As with all of our feedscrew designs, we are focused on product line performance, improved outputs, material homogeneity and feedscrew longevity."

Feedscrews are available from 0.75 to 12in (19 to 300mm) in diameter with varying L/Ds. Each is engineered for specific polymers and processes with customisation available depending on end product.

The feedscrews cover the full range of extrusion and converting applications including pipe, profile and tubing. Testing and trials are available to fine-tune the process prior to purchase.

Plasma arc welding stations provide wear-resistant materials such as Colmonoy 56 and 83. The company also has three whirlers, which are used for cutting and milling screws made of stainless steel, 4340 steel or Inconel materials. These machines produce screw surfaces at very tight tolerances. Once screws have been milled and polished, they are treated with chrome plating or other wear-resistant coatings based on application.

Wearing screws

Christiano is also the author of a recent white paper from Davis-Standard - which explains the three main causes of screw wear: abrasive, adhesive and corrosive.

"The type and rate of wear depends on many variables that include mechanical alignment of the equipment, the operating conditions used, screw design, polymer chemistry, type of abrasive additives and the materials of construction," he says in the document.

Abrasive wear is caused by hard particles - suspended in a filled polymer - or small projections from a surface roll or slide under pressure against another surface. The most effective corrective action is to use protective coatings and harder construction materials.

Main image:
Davis-Standard
says its
DS-Blend
feedscrew
improves
single screw
extruder
performance
through
distributive
and dissipative
melt mixing

Right: Nordson says that its bimetallic barrels with Xaloy X-800 lining last up to four times longer than those with standard alloys

Adhesive wear occurs when there is metal-to-metal contact of two surfaces in relative motion to each other - such as a screw flight and barrel. It is best handled by using borescoping equipment and performing regular maintenance.

Corrosive wear happens when a corrosive material attacks the surface metal, causing pitting and increased surface roughness. It can be caused by corrosive flame-retardants and some grades of PVC. It is dealt with by selecting correct construction materials - or adding coatings - that do not react with the corrosive substance.

The material used to make the screw needs enough torsional strength to transmit power to the process, resist wear and offer good machinability.

"It would be nice if one material would provide adequate physical properties, wear resistance and deliver a long life, but there is not," said Christiano. "That's why most high-performance screws consist of a base material for the body, a wear-resistant alloy applied to the flights, and a surface treatment."

Longer life

Wear protection is important for both screws and barrels - and one way to achieve longer life is to create these products with very hard surfaces.

Nordson says that its bimetallic barrels, made with its Xaloy X-800 lining, last up to four times longer than those with standard nitrided alloys (Nitalloy), due to greater resistance to abrasive fillers and corrosive volatiles. In addition, Nordson recommends using a tungsten carbide screw surfacing.

Both the X-800 barrel lining and a tungsten carbide screw surfacing (such as Xaloy X-830) are



composites consisting of tungsten carbide particles - uniformly dispersed in a nickel alloy matrix. In abrasion tests with 20,000 wear cycles, a Nitalloy barrel with molybdenum screw hard-surfacing had nearly double the wear of a Xaloy X-800/Xaloy X-830 combination. The wear resistance of the Xaloy X-800 barrel was consistent throughout its depth, whereas hardness and wear resistance progressively decreased with depth into the Nitalloy material.

An even greater difference was seen in tests of corrosion in 20% HCl - with the Nitalloy barrel showing more than four times the corrosive wear.

As well as supplying new Xaloy X-800 twin barrels, Nordson can reline worn barrels. Reline protects the original investment in the barrel by extending its working life, and costs much less than a new barrel.

Tailored service

CA Picard also offers a barrel repair service, giving customers an overhauled barrel without the need to manufacture a new external body. A used, worn barrel is examined and the flow through the cooling channels is tested. At this point, a decision is made as to how to proceed with the general overhaul.

The worn liner is removed, while cooling channels are flushed and undergo pressure testing. As the repair progresses, bores and threads are re-machined and the external body is cleaned using a suitable blast medium. Once the external body has been restored, the new wear liner is inserted into the heated external body and the sealing faces are ground.

The final stage is the outgoing inspection, which is done using a 3D measuring instrument in a climate-controlled room. At this point, all geometric data is checked. Before delivery, the refurbished barrel is checked for leaks in the cooling channels in another pressure test.

In addition, the company offers a barrel measurement device (BMD) - which provides accurate barrel wear information and analytical reports - as well as its flexible dismantling system (FDS) with PLC

Right: Cold-Jet's PCS 60 dry ice blaster promises to improve cleaning of metal components such as screws



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Right:
Schwing's
Vacuclean
Compact
cleans small
tools and
machine parts
such as screw
elements

control. This dismantles screw elements from shafts efficiently - with full protection of the screw elements and shafts, without the risk of injury to workers.

Dry ice blasting

Cleaning is an important part of extending the life of components like screws, and **Cold Jet** says that its new dry ice blaster improves the cleaning of this type of metal part.

The PCS 60 features Cold Jet's patented Particle Control System (PCS), which cuts dry ice into diamond shaped particles in the exact dimensions chosen by the operator (3mm to 0.3mm - and 28 sizes in between). This gives users great versatility in cleaning applications. With the device, a plastics processor can use one machine to clean many types of surface. Previously, a facility would need many machines to do this, said Gene Cooke, president and CEO of Cold Jet.

The company claims that the machine cleans more effectively - and requires less dry ice and air pressure - than competing machines. An optimised design, including a 'straight through' air system and redesigned SureFlow feeding system, minimises air pressure loss and dry ice sublimation within the machine. This allows the user to maximise air supply yield and reduce dry ice waste.

The model is also IoT-enabled via Cold Jet Connect - which provides remote monitoring and diagnostics while allowing users to collect and



manage data and use tools for optimum performance and productivity. It can also be combined with a Cold Jet dry ice production unit and a robot for continuous and fully automated blasting.

Clean performance

Schwing Technologies has developed a vacuum pyrolysis system called Vacuclean Compact, which can be used to clean a variety of small tools and machine parts - including screws - with a maximum load of 50kg.

"This is what many of our customers appreciate, for cleaning screw elements, spinnerets, spin packs, pelletising discs and screen changers," said Thomas Schwing, managing director.

The machine is energy-efficient and environmentally friendly, and operates without gas fuel, says the company. It removes all plastic residues from production tools - while still protecting the material - which helps to reduce machine downtime and extend the service life of the cleaned parts.

CLICK ON THE LINKS FOR MORE INFORMATION:

- > www.davis-standard.com
- > www.nordson.com
- > www.capicard.de
- > www.coldjet.com
- > www.schwing-technologies.com

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Explore the potential of chemical recycling to turn waste plastics into new materials.

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AMI's Plastics Regulations conference takes place in Cologne in March, covering everything from food contact and chemical regulation through to the single-use plastics directive. We preview the event



IMAGE: SHUTTERSTOCK

Keep in touch with regulation

Main image: AMI's fourth European Plastics Regulations conference will update on food contact, packaging and recycling regulations

AMI's fourth Plastics Regulations EU conference takes place on 11-12 March in Cologne, Germany, providing a valuable opportunity to gain focused advice on a range of legal and compliance issues impacting on polymer producers, compounders, processors and end users. Bringing together a wide variety of leading legal experts, the conference presents a cost and time efficient way to future-proof your business by making sure you are aware of changing and developing regulations.

This year's event will be preceded by a standalone pre-conference Brexit workshop that will explain the potential regulatory and trading implications of the UK's departure for UK, EU and non-EU companies. See the box on the following page for more information on the expert speakers and content or click [here](#).

Plastics Regulations 2020 will open with a global regulatory update on the plastics economy, which will be presented by **Peter Sellar**, Partner at **FieldFisher** in Belgium. This will be followed by an overview of international economic sanctions presented by **Siegfried Richter**, Policy Officer at the **European Commission**. Then **Bonita Reynolds**, Senior Director Authoring Services at

Verisk 3E in the US, will speak about the US Toxic Substances Control Act (TSCA) and achieving compliance for plastics.

Recycling issues

It would be difficult to underplay the importance of recycling and waste regulations in today's business environment. **Joachim Quoden**, Lawyer at **Law Firm Joachim Quoden** in Germany, will provide a perspective on the impact of the initiatives and tools being used to build the circular economy. Then **Luke Douglas-Home**, Managing Director of **Clear Public Space** in the UK, will share details of a study highlighting differences in plastic packaging regulations across EU member states (and the UK).

The next session will turn to the topic of REACH. **Marcus Navin-Jones**, a Partner at **Keller and Heckman** in Belgium, will ask whether REACH authorisation is becoming a barrier to recycling and re-use of plastics. **Dr Frank Friedel**, Senior Chemicals and REACH Consultant at **TSG Consulting** in the UK, will give an overview of the Single-Use Plastics Directive and the REACH regulation. And **Filippo Mattioli**, an Associate at **Step toe & Johnson** in Belgium, will cover

microplastics and the moves towards REACH restriction.

The final session of the first day looks at sustainability issues. It will be opened by **Dr Gary Ogden**, Technical Manager at **Wells Plastics** in the UK, who will discuss regulations and standards covering oxo-degradable plastics. Regulations applicable to plant-based additives for plastic food contact materials will be explored by **Job Ridderbecks**, Food Contact Technical Specialist at **Intertek** in Germany. Then **Ines Zitterbart**, Senior Regulatory Consultant at **Yordas Group** in Germany will bring the day to a close with an explanation of the challenges and misconceptions relating to biodegradable plastics.

Expert discussions

The second day of Plastics Regulations will open with a panel discussion exploring the outcome of the EU framework review and the implications it holds for the plastics industry. Expert participants will include: **Marcel Bosma**, Regulatory Expert at **SABIC** in the Netherlands; **Dr Peter Oldring**, Manager Regulatory Affairs - Europe at **Sherwin Williams** in the UK; and **Dr Anna Gergely**, Director EHS Regulatory at **Steptoe & Johnson** in Belgium.

The conference then turns to discuss the challenging topic of non-intentionally added substances (NIAS). **Dr Stamatios Stamenitis**, Senior Principal Scientist SRA at **Mars** in Germany, will open the session with an overview of what is happening in Europe in this area. NIAS testing, database implementation and post-run evaluations will be detailed by **Dr Marinella Vitulli**, Technical and General Manager at the **Food Contact Center** in Italy. And **Dr Christian Kirchnawy**, Team Leader at the **OFI Austrian Research Institute** will talk through safety assessment of food contact materials, including the value and limitations of in-vitro bioassays.

Registration of food contact resins and additives in China will be covered by **Ran Liu**, Regulatory Consultant at **CIRS Group** in Ireland. Then **Dr Ralph Derra**, Managing Director of **ISEGA** in Germany, will share some new developments in test methods for plastics in contact with food.

The final session of Plastics Regulations 2020 looks at regulation of specific additives. **Alfred Voskian** and **Jytte Syska**, both Consultants at **Syska Voskian Consulting** and based in the US and Denmark respectively, will outline the current state of play on pigments used in plastics. And **Mark Carpels**, Environment Product safety and CSR at **Campine** in Belgium, will discuss the impact of REACH on antimony and other metals.

Brexit – find out what it will mean for you



The UK's departure from the EU will have far-reaching consequences for many companies. And those consequences are not restricted to EU and UK firms; they will also affect companies from outside the EU that have, until now, used a UK subsidiary or representative to access the European market.

With this in mind, AMI has assembled a special one-day Brexit Workshop that will highlight the legal implications of Brexit and their potential impact on businesses trading from or to the EU, UK and other global locations. Taking place one day before Plastics Regulations 2020 on 10 March 2020, the event will be run by three experts on international trade and regulation: **Paul Ashford**, Managing Director of **Anthesis-Caleb** in the UK; **Simon Tilling**, Partner at **Burges Salmon** in the UK; **Dr Anna Gergely**, Director EHS Regulatory at **Steptoe & Johnson** in Belgium.

Each host will run a session looking at the impact of Brexit from different perspectives, allowing attendees to build a picture of the potential risks it entails and to formulate a readiness strategy. The workshop will be broken up with round table discussion periods moderated by the workshop hosts.

Find out more and book your place [here](#).

Learn about Plastics Regulations 2020

AMI's fourth Plastics Regulations Europe takes place on 11-12 March 2020 at the Pullman Cologne Hotel in Cologne, Germany. It will be preceded by a special one-day Brexit Workshop on 10 March 2020 (see the box above or click [here](#)).

The conference will bring together a selection of expert speakers to detail the latest regulatory developments impacting on the plastics industry, from chemicals and food contact through to recycling and single-use packaging. Aside from the formal presentations, it will provide extensive networking opportunities during the break-out sessions and complimentary cocktail reception.

To find out more, contact the conference organiser, Emily Nicholson. Email: emily.nicholson@ami.international Tel: +44 (0) 117 314 8111. Or visit the [conference website](#)



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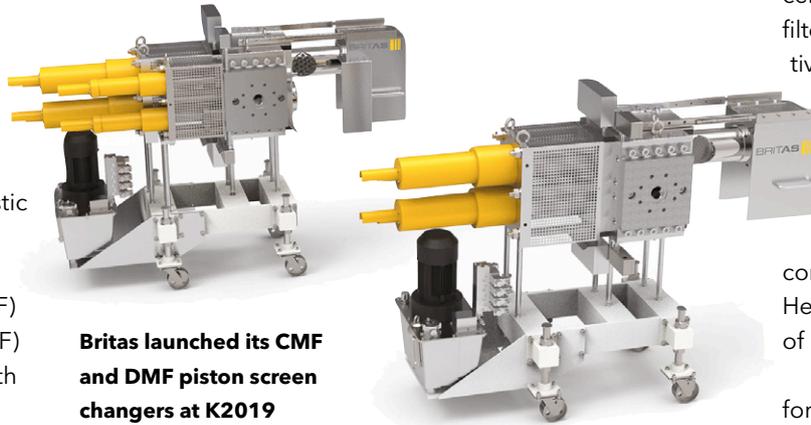
SCREENCHANGERS

Piston screen changers aimed at low-contamination waste applications

Germany-based **Britas** launched a new series of piston screen changers at K2019. They are aimed at applications where plastic waste is not heavily contaminated.

The continuous (CMF) and discontinuous (DMF) models can be used with both industrial and production plastic waste.

The systems are mainly used in the post-industrial, post-production and new product sectors. Depending on required flow rates and different operating modes, customers can



Britas launched its CMF and DMF piston screen changers at K2019

choose between the discontinuous version – which typically has one piston – or the continuous one, which has two pistons.

Basic versions are the CMF as automatic continu-

ous piston screen changer and the DMF as discontinuous piston screen changer – available in square or round execution.

“The DMF-rd is a round case that is heated with

ceramic heating bands. This filter is the most cost-effective filter version and is mainly used as a pre-filter for coarse contaminants, as a pump protection or used in reduced space conditions,” said Heiko Henss, managing director of Britas Recycling.

The DMF-sq is suitable for temperatures to 350°C and pressures to 500 bar due to its square housing, and is heated with heating cartridges. Both types can be used for polyolefins, melt adhesives and for many engineering plastics.

➤ www.britas.de

TOOLING

Tools delivered within 10 days

US-based Guill Tool & Engineering says it can now deliver certain extrusion tooling within 10 days of order.

Its ‘10-Day Extrusion Tooling Program’ applies to selected tips and dies within its portfolio.

Customers need to check with a Guill sales representative to see which tools are covered. Eligible tips and dies cannot be plated and must have a diameter less than 1.5in and a length less than 4.75in.

For all other parts, the company will review the customer’s drawing to determine if it is eligible.

➤ www.guill.com



INSPECTION

Measuring ‘undetectable’ areas in corrugated pipe

Pixargus says that its new inline gauge can measure the complete wavy structure of corrugated tubing gaplessly.

New algorithms allow the ProfilControl 7 S Corrugated Tube to inspect previously ‘undetectable’ areas – including the peaks and valleys and transition areas in between.

This reduces out-of-spec production and will cut process costs, says the company.

Corrugated tubing has become increasingly common thanks to its flexibility – which is due to their wavy structure. However, the structure can be difficult to inspect.

Using technology from its PC7 S Tube inspection system, Pixargus

has developed a new sensor head for corrugated tubing. Eight high-performance cameras capture the surface structure from different angles. New algorithms enhance the software, which can detect the change from plane to wavy and vice versa by masking out specific surface structures. Even very small flaws are visible – including holes, dents, blisters and poorly crimped joints.

In its standard version, the device is designed for tubing of up to 30mm. The scalable system can be integrated into Industry 4.0 environments and comes with all common interfaces, such as OPC-UA.

➤ www.pixargus.com

DRYING

HMI's allow better data monitoring

Conair's latest ResinWorks central drying and pre-conditioning system allows users to equip each drying hopper with a 4in colour touchscreen HMI - enabling independent operation, data monitoring and other advanced control features.

"It allows users of new ResinWorks systems to implement advanced control features on a per-hopper basis, even if they are using an older Conair dryer - or certain competitive dryers," said AJ Zambanini, drying product manager at Conair.

The new HMI's, which are part of a control system



A colour touchscreen HMI gives Conair's ResinWorks a host of advanced control features

upgrade that reaches across Conair's dryer line, offer simpler, plain-text interaction with hopper features, settings, and help information, he said.

Users have instant access

to a range of features and control settings, including: auto-start; temperature control; drying monitor; temperature setback; and energy consumption and trending.

Auto-start allows users to program automatic start-up for individual hoppers so that pre-drying begins at a set day and time, and under specified drying conditions. The drying monitor checks temperature profile at multiple points in each hopper - and stops material going any further unless it has been properly dried.

Users who pair the latest ResinWorks equipment with one of Conair's new Carousel Plus dryers have the added option of controlling all hoppers centrally using the dryer control, or locally with the optional HMI's.

> www.conairgroup.com

MATERIALS HANDLING

Gravimetric blenders aimed at high throughput applications

Maguire says that its Weigh Scale Blender (WSB) 1200 series gravimetric blenders are ideal for larger-throughput applications - helping processors to incorporate more regrind into their products.

The blenders dispense up to 12 different materials and can be configured to dose up to six major ingredients - including virgin polymer, regrind and post-consumer resin (PCR).

The WSB 1200 series has a throughput range of 900 to 2,040 kg/hr (2,000 to 4,500 lbs/hr) and is suitable for extrusion and other processes. It is the latest addition to Maguire's WSB product range, which already includes over 120 models with throughputs ranging from 40 to 5,500 kg/hr (90 to 12,125 lbs/hr).

"By providing the same capability

Maguire's WSB 1200 allows processors to use more regrind into their products

as the 2400 and 3000 Series units for dispensing up to six large-component ingredients, the WSB 1200 series blenders enable processors working in a smaller throughput range to meet growing demand for products that incorporate regrind and PCR along with virgin resin," said Frank Kavanagh, vice president of marketing and sales at Maguire.

The blenders dispense up to 12 batch ingredients - from pellets, powders and liquids - to poorly flowing ingredients such as regrind, flake, wood flour and talc filler. Each ingredient hopper has a dispensing device designed for a material in a



specific form, says the company.

In common with other blenders in the range, 1200 series WSBs provide accuracy of plus or minus 0.1% for every material dispensed into the weigh chamber, regardless of its form.

All Maguire WSBs are covered by a five-year warranty.

> www.maguire.com

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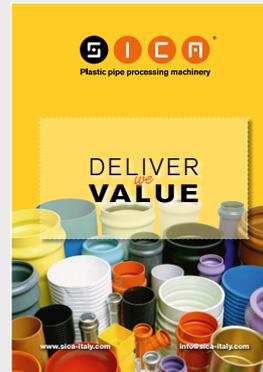
STRUKTOL: PLASTIC ADDITIVES



Struktol offers an extensive range of additives to enhance processing and performance of virgin and recycled plastic compounds. Products range from dispersants and wetting agents, through lubricants to compatibilisers.

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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 bellowing and robotised packaging machines.

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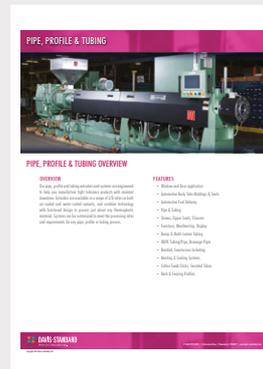
HEXPOL: DRYFLEX TPE



The Dryflex family of TPEs from Hexpol TPE add soft touch appeal, function performance and product safety features in a range of consumer, automotive, industrial and packaging applications. Find out more in this brochure.

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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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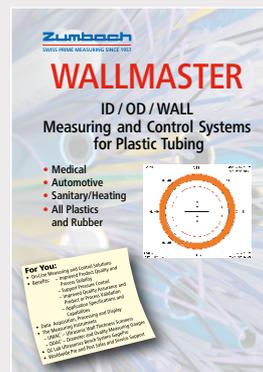
UNICOR: PIPE CORRUGATION



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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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.

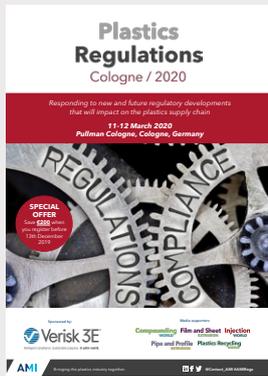
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Learn more about AMI's upcoming conferences

Click on the relevant brochure cover or link to download a PDF of the full conference programme

PLASTICS REGULATIONS EU



The 4th edition of Plastics Regulations provides advice on a range of compliance issues at one event. The event takes place on 11-12 March 2020 in Cologne, Germany. The conference provides an ideal environment for regulatory updates.

[CLICK HERE TO DOWNLOAD](#)

PVC FORMULATION USA



The 2020 edition of AMI's North American PVC Formulation conference will be held in Cleveland, Ohio, USA, on 24-25 March 2020, providing a forum for formulators, compounders and suppliers to identify future material and processing trends.

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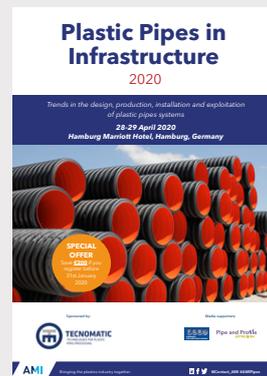
FIRE RETARDANTS IN PLASTICS



The 10th edition of AMI's Fire Retardants in Plastics conference moves to Cleveland, Ohio, USA. Taking place on 31 March-1 April, the event explores the regulatory and technical developments shaping the North American fire retardants market.

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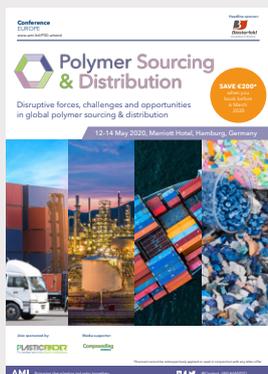
PLASTIC PIPES IN INFRASTRUCTURE



The 8th Plastics Pipes in Infrastructure conference focuses on the latest technical developments plastic pipes for water, gas, drainage and district heating applications. The conference runs on 28-29 April 2020 in Hamburg, Germany.

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POLYMER SOURCING & DISTRIBUTION



The AMI event specifically created for companies involved at every stage of the European polymer supply, Polymer Sourcing & Distribution, takes place in Hamburg on 12-14 May 2020, reviewing recent trends in sourcing options for both commodity and engineering resin grades.

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PROFILES USA



The North American profile extrusion market is demanding and fast changing. Taking place in Cleveland, OH, USA, on 2-3 June 2020, AMI's Profiles USA conference will identify key market trends and identify technical innovations.

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Nebraska Plastics

Head office: Cozad, Nebraska, USA

President/CEO: Paul German

Founded: 1945

Ownership: Private

Employees: Around 130

Profile: Nebraska Plastics was founded by the German family in 1945. It began by making irrigation products for agriculture - which it still makes - before moving into PVC fencing in the 1970s, and this is still the company's main focus - through its Country Estate brand. The first product was a plain white rail fence, designed to protect both horses and riders. From here, the company expanded into many other designs of fence, in more than 50 styles.

Product lines: The company's PVC fencing remains its main offering, available in many styles and colours. One specialist product is its high velocity hurricane zone PVC fencing. However, it also offers other PVC-based products to customers, including decking, railing and other garden products. Its decking is made from 100% virgin PVC, in a range of colours. Railing products require minimal maintenance and are reinforced with aluminium and wood for higher structural integrity. Its garden products include trellises, tables and benches.

Factory locations: The company is still located at its original location in Cozad, Nebraska, from where it makes the majority of its products. However, it recently invested US\$1 million in a new facility in Edenton, North Carolina. This should create more than 20 new jobs. The company says that the new location will give it the chance to supply its products - which are already available across the country - more effectively, while reducing delivery costs.

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

Pipe and Profile FORTHCOMING FEATURES EXTRUSION

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

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Control & instrumentation
PE100+ developments
Materials recovery/granulators
Standards & testing

May 2020

Pipe die developments
Pipe joining technology
Pressure pipes
PEWE Europe 2020 preview

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

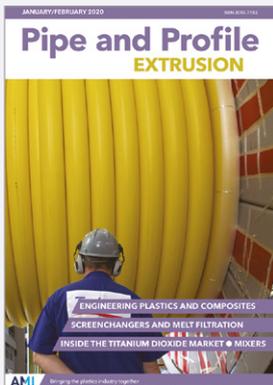
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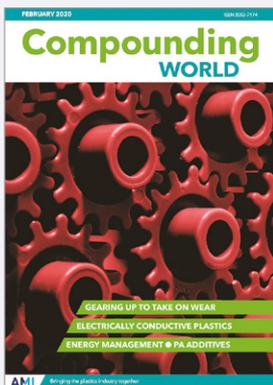
**Pipe and Profile
January/February 2020**
The January-February issue of Pipe and Profile Extrusion looks at applications using engineering plastics and composites, provides updates on mixing technology and melt filtration and delves into the titanium dioxide market.

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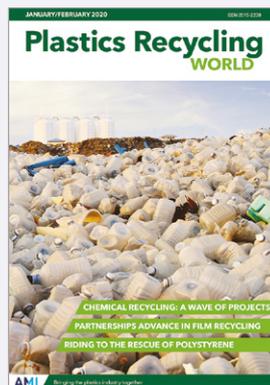
**Pipe and Profile
November/December 2019**
The November issue of Pipe and Profile Extrusion surveys the latest developments in wood-plastic composites, multi-layer pipes and PEX pipes and investigates methods for reducing wear in extruder screws and barrels. Plus news from K2019.

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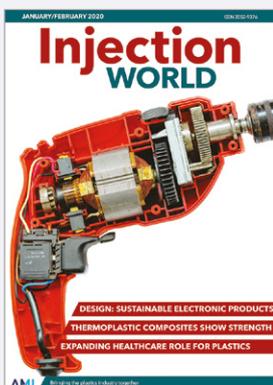
**Compounding World
February 2020**
The February edition of Compounding World includes features on wear-resistant materials, energy efficiency, electrically conductive plastics and a look at new demands on polyamides from applications in e-mobility and high powered electrical connectors.

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**Plastics Recycling World
January/February 2020**
The January/February edition of Plastics Recycling World takes a deep dive into chemical recycling, with features on the many technologies being developed for polyolefins and polystyrene. Plus the latest on film recycling technology and projects.

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**Injection World
January/February 2020**
Injection World magazine's first issue for 2020 looks at how careful plastics design can make electrical and electronic items more sustainable. It also examines the latest in thermoplastic composites and healthcare polymers.

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**Film and Sheet
January/February 2020**
The combined January/February edition of Film and Sheet Extrusion examines the latest developments in film technology, plus new polymer analysis equipment and some innovative medical materials and applications.

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GLOBAL EXHIBITION GUIDE

2020	9-11 March	Plast Alger, Algiers, Algeria	www.plastalger.com
	11-12 March	Plast Expo Nordic, Helsinki, Finland	www.plastexpo.fi
	11-13 March	Expo Plasticos, Guadalajara, Mexico	www.expoplasticos.com.mx
	26-28 March	MECCSPE, Parma, Italy	www.mecspe.com
	12-14 May	JEC World, Paris, France	www.jec-world.events
	12-15 May	Elmia Polymer, Jönköping, Sweden	www.elmia.se
	13-15 May	Plastic Expo, Osaka, Japan	www.plas.jp/en-gb.html
	19-22 May	Plastpol, Kielce, Poland	www.targikielce.pl
	8-11 June	Argenplas, Buenos Aires, Argentina	www.argenplas.com.ar
	15-18 June	Plastivision Arabia, Sharjah, UAE	www.plastivision.ae
	16-19 June	FIP, Lyon, France	www.f-i-p.com
	24-27 June	Interplas Thailand, Bangkok, Thailand	www.interplasthailand.com
	3-6 August	Chinaplas, Shanghai, China	http://www.chinaplasonline.com
	21-25 September	Colombiaplast, Bogota, Colombia	www.colombiaplast.org
	29 Sept-1 Oct	Interplas, Birmingham, UK	www.interplasuk.com
	7-8 October	Plastics Extrusion World Expo Europe, Essen, Germany	https://eu.extrusion-expo.com
13-17 October	Fakuma, Friedrichshafen, Germany	www.fakuma-messe.de	
4-5 November	Plastics Extrusion World Expo USA, Cleveland, USA	www.extrusion-expo.com/na/	
2021	4-7 May	Plast 2021, Milan, Italy	www.plastonline.org/en
	17-21 May	NPE 2021	www.npe.org

AMI CONFERENCES

24-25 March 2020	PVC Formulation, Cleveland, USA
28-29 April 2020	Plastic Pipes in Infrastructure, Hamburg Germany
2-3 June 2020	Profiles, Cleveland, USA
2-3 June 2020	Oil & Gas Polymer Engineering, Houston, USA
17-18 June 2020	Medical Tubing, Berlin, Germany
4-5 November 2020	Wood-Plastic Composites, Vienna, Austria

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



7- 8 October, 2020
ESSEN, GERMANY



4 - 5 November, 2020
CLEVELAND, OHIO

www.ami.international/exhibitions