JULY/AUGUST 2020

ISSN 2053-7182

Pipe and Profile EXTRUSION

APPLICATIONS IN THE OIL & GAS INDUSTRY

PVC STABILISERS ● EXTRUDER TECHNOLOGY

EUROPE MOVES CLOSER TO PVC RECYCLING GOAL

AMI

Bringing the plastics industry together

GET THE APP...

Pipe and Profile EXTRUSION

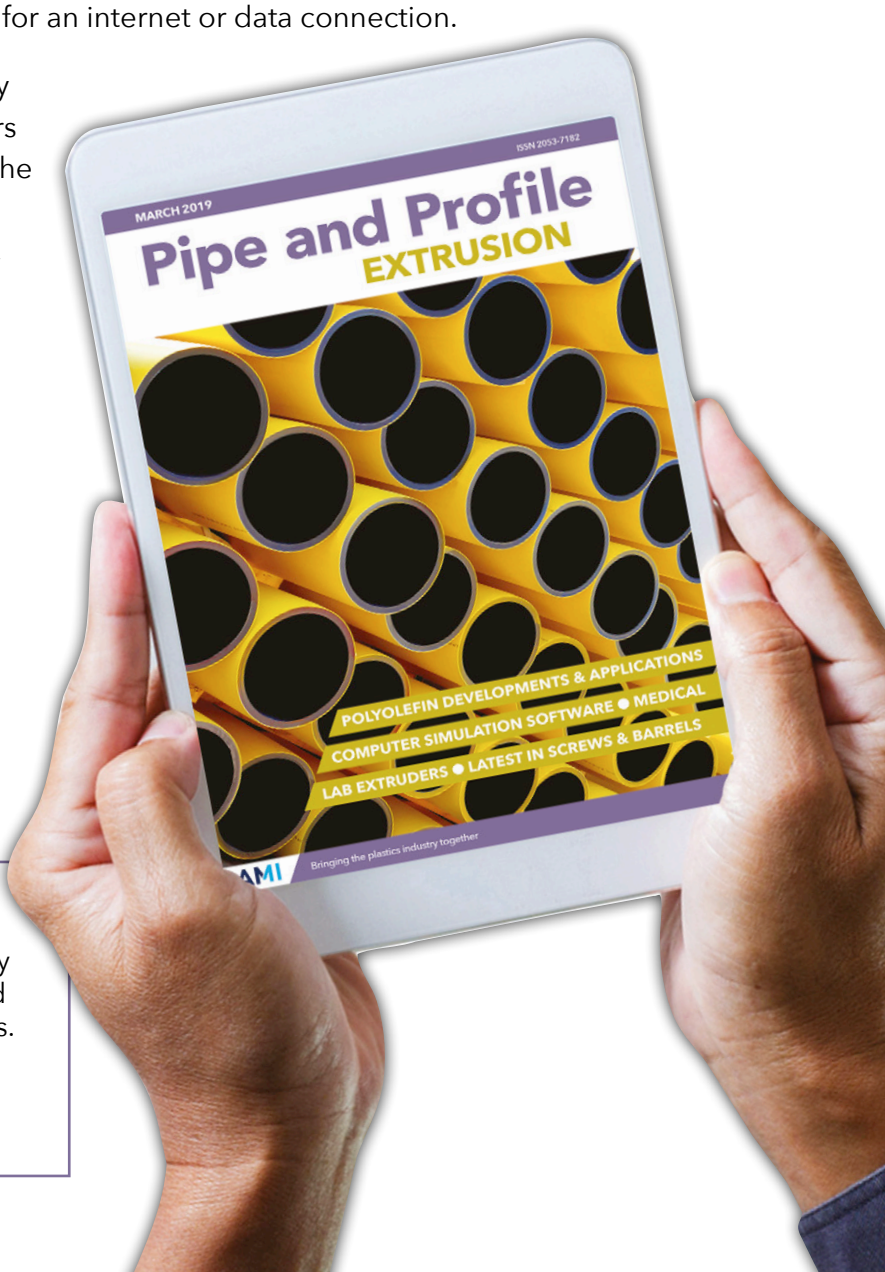
Pipe and Profile Extrusion magazine is available free-of-charge on iPads, iPhones and a huge range of Android-based tablets and smartphones.

Our dedicated Pipe and Profile Extrusion app is easy to use and provides completely free access to the latest edition of the magazine plus back issues – more than 15 in total. Once you have downloaded an issue, you can read it offline – there's no need for an internet or data connection.

The Pipe and Profile Extrusion app has already been downloaded by more than 5,400 readers in over 80 countries. Why not try it yourself? The app is available in Apple's App Store, iTunes and Google Play. Just search for 'AMI Plastics', or simply click on the relevant button below.

Download on the App Store

GET IT ON Google Play



Sponsor the app

Sponsoring the Pipe and Profile app is a highly effective and affordable way to put your brand before our audience of key industry specialists.

To find out more contact Levent Tounjer
Sales and Commercial Manager
E/ levent.tounjer@ami.international

Pipe and Profile EXTRUSION


PAGE 13


PAGE 19


PAGE 31


PAGE 37

COMING NEXT ISSUE

› Window profiles › Downstream equipment › Large diameter pipe › PEWE Essen preview

CONTACT US

CLICK HERE TO MAKE SURE YOU GET YOUR COPY

AMI
Third Floor, One Brunswick Square,
Bristol, BS2 8PE, United Kingdom
Tel:+44 (0)117 924 9442
Fax:+44 (0)117 311 1534
www.ami.international
www.twitter.com/plasticsworld
Registered in England No: 2140318

EDITORIAL

Editor-in-Chief: Chris Smith
chris.smith@ami.international

Editor: Lou Reade
lou@pipeandprofile.com

Events and magazines director:
Andy Beevers
andy.beevers@ami.international

ADVERTISING

Advertisement manager: Claire Bishop
claire.bishop@ami.international +44 (0)1732 682948

Sales & commercial manager: Levent Tounjer
levent.tounjer@ami.international +44 (0)117 924 9442

Sales manager (China): Jenny Zhou
jenny.zhou@ami.international +86 13651 985526

DOWNLOAD MEDIA DATA

© Copyright Applied Market Information. No part may be reproduced without the prior written permission of the publisher.

Conference
USA
www.ami.ltd/attend-profile-USA

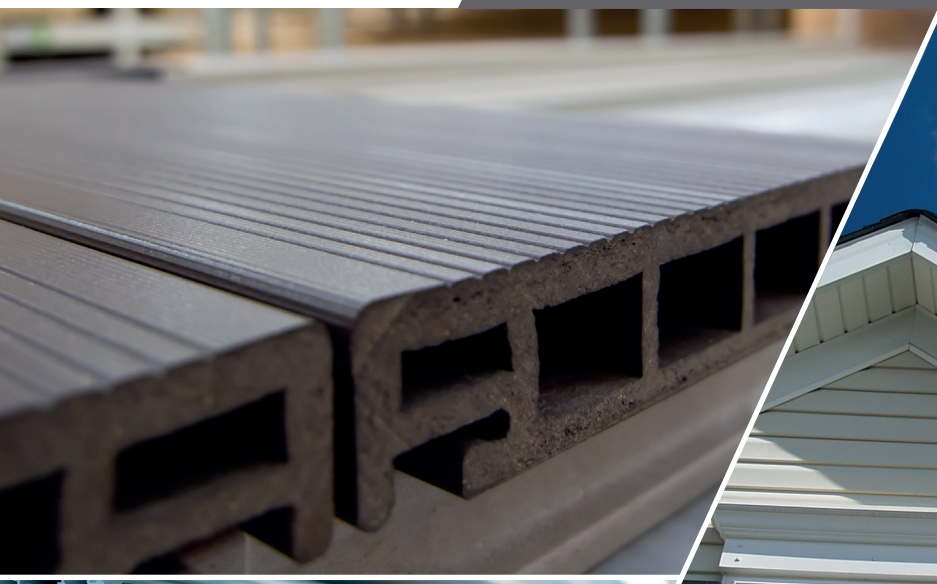
NEW DATES

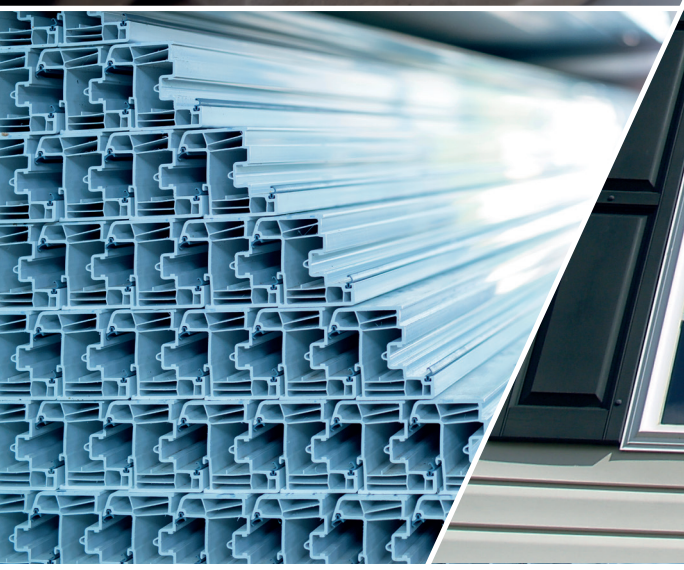
Profiles

SAVE $300*
when you
book before
September 4, 2020

Delivering extruded profiles through the expert integration of skill, materials, machinery and process technology

November 2-3, 2020, The Westin Cleveland, Ohio, USA





Media supporter:

Pipe and Profile EXTRUSION

*Discount cannot be retrospectively applied or used in conjunction with any other offer

Polypipe to cut 8% of jobs due to slowdown

Polypipe is cutting 250 jobs in the UK, though will not close any of its facilities

UK-based pipe manufacturer Polypipe is to cut 250 jobs – around 8% of its workforce – caused by a slump in construction activity.

The UK construction industry has been badly affected by the Covid-19 pandemic, it said.

"Forecasts from the Construction Products Association show that residential new build demand in 2021 is likely to be 20% lower than 2019, housing RMI 15% lower, and commercial demand 18% lower – even with recovery in the second half of 2021," said the company.

Polypipe will now enter a consultation period with its employees. If carried out in full, it will lead to the loss of around 250 jobs.

"It is important to note that there is no planned permanent closure of any facility, which leaves us well placed to react to any sustained but unexpected increase in customer demand," the company added.

The company said it has seen some improvement in activity since May: although revenue in June 2020 was 30% below 2019 levels, this compares with a 66% shortfall in April 2020.

The commercial and infrastructure systems segment remained "relatively resilient" in this period, as the company was involved in a number of health service projects – especially in its Nuaire ventilation business.

› **www.polypipe.com**

VinylPlus may miss 2020 target

The European PVC industry says it may not meet its 10-year recycling target at the end of this year, as recycling operations "deteriorated rapidly" after mid-March.

"It will be difficult to compensate the volumes that have been lost – but we will do what we can," said Brigitte Dero, managing director of VinylPlus.

■ A longer article on PVC recycling in Europe starts on **page 37**.

› **www.vinylplus.eu**

› **www.plasticsrecyclers.eu**

Pexco adds Exlon to its portfolio

US-based specialist extruder Pexco has acquired plastic tube manufacturer Exlon Extrusion.

Exlon, based in Greensboro in North Carolina, offers custom and proprietary lines of nylon, polyurethane, polypropylene and polyethylene pneumatic tubing and recoil hose products.

"The acquisition of Exlon further expands our capabilities and technical expertise in high-performance polymers," said Sam Patel, CEO of Pexco. "The addition of Exlon's personnel, equipment and relationships will provide valuable resources as we continue to demonstrate our proficiency with products that require higher-grade raw materials for niche applications."

The takeover is Pexco's seventh since it was acquired by private equity firm AEA Investors in 2018.

"We remain committed to pursuing investments that broaden our capabilities," said Patel.

› **www.pexco.com**

Simona buys aquaculture pipe firm stake

Simona of Germany is buying a 75% stake in Stadpipe, a Norwegian supplier of aquaculture piping systems.

Stadpipe has around 50 employees at two sites in Norway. Its customers are mainly project planners and end-users in the aquaculture and oil and gas sectors. Its product range primarily includes pipes, fittings, pre-manufactured components and tanks made of polyethylene (PE).

Simona sees the growing global market for equipment used by fish farms as a core segment that it can supply with products for tank systems and pipelines. It says the acquisition of Stadpipe gives it access to project planning companies and end consumers in the industry.

"This will allow us to hone our industry focus when it comes to the growth market of aquaculture," said Matthias Schönberg, CEO of Simona. "Stadpipe's product range perfectly complements and extends our existing portfolio of pipes and fittings."

› **www.simona.de**

Online tool calculates ideal wall thickness for HDPE conduit pipe

US-based Plastics Pipe Institute (PPI), has developed a free software tool helps determine the most appropriate wall thickness of HDPE conduit for horizontal directional drilling (HDD) techniques.

The Conduit Design Calculator (CDC) simplifies complicated calculations into an easy-to-use online application. It automates the Mini-HDD calculations pioneered by Larry Slavin and described in PPI TR-46. It uses inputs such as directional changes in the underground bore path, drill rod diameter, bore depth and length to determine the calculated tensile load on the selected HDPE conduit, as compared to its allowable safe pull strength.

The calculator gives users the options of HDPE conduit manufactured from a standard- or higher-strength HDPE resin.

"As long as the jobsite conditions are known, the calculation for a given installation can be completed in two to three minutes, for most projects," said Lance MacNevin of PPI, one of the project leaders.

Output can be emailed directly from the calculator, saved as a PDF file, or printed as a paper file to simplify sharing and record keeping, said PPI.

The calculator is available on PPI's website.

› **www.plasticpipe.org/conduitcalc**

Nordson expands in medical

Nordson of the USA has acquired Fluortek – a plastic extrusion manufacturer that provides custom dimensioned tubing to the medical device industry.

Fluortek will become part of the Nordson Medical product line. The acquisition builds on the company's strategic objective to grow its offerings to the medical device market.

"As Nordson Medical continues to expand, the acquisition of Fluortek enhances our ability to deliver critical components that enable our customers' most complex medical device innovations," said Jeffrey Pembroke, executive vice president of Nordson Advanced Technology Solutions.

Terms of the deal were not disclosed.

› **www.nordson.com**

The project took place in Greater Maputo, which includes Mozambique's two largest cities

PE100 pipe delivers water to 50,000 people in Mozambique

Water pipe made from PE100 from Borealis is helping to deliver water to more than 50,000 people in Mozambique.

Partners in the project to supply and install the pipe include Water & Sanitation for the Urban Poor (WSUP), Borouge, Borealis and Portuguese pipe extruder Politejo – which produced the pipe.

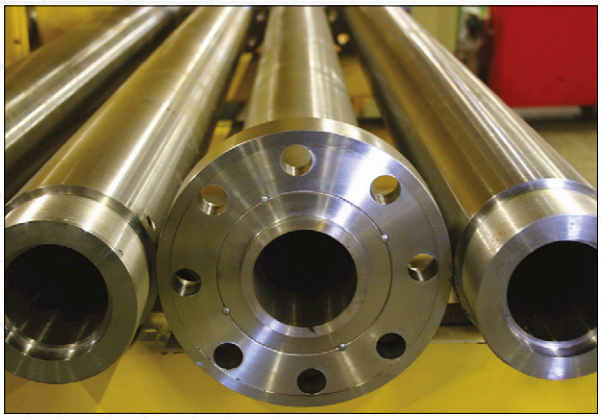
The project took place in the Greater Maputo region, which includes the country's two largest cities, Maputo and Matola. The work included building water supply networks using HDPE PE100 pipe, repairing existing water tanks, and training staff to manage, operate and maintain the pipeline systems.

"Using high-quality HDPE pipes made from our BorSafe PE100 material means that this upgraded system will last longer – and need less maintenance – than a system using PVC or metal pipes," said Robin Bresser, head of marketing for pipe at Borealis. "This will help to ensure a sustainable water supply for local residents for years to come."

› **www.borealisgroup.com**

› **www.politejo.com**

OPTIMIZING YOUR **PRODUCTIVITY** & **PROFITABILITY.**



Visit davis-standard.com to learn more.

THE SECRET TO EXTRUDER PERFORMANCE?

Feedscrews and Barrels!

Davis-Standard's award-winning DSB® feedscrews and bimetallic barrels are the industry benchmark for design excellence.

Our feedscrews are world renown for mixing performance, high output rates, product consistency and energy efficiency. Each screw is engineered for specific polymers or processes with customization options for every extrusion application.

Barrels are built to support all extrusion applications, including those with highly abrasive and corrosive properties. We manufacture every type of barrel including vented, groove-feed, nitrided, jacketed and re-sleeved.

And the best part? This technology is available as an upgrade for non-Davis-Standard brands.

DAVIS-STANDARD®
Where your ideas take shape.

davis-standard.com
TEL +44 (0) 1384 471930

Italy plastics machinery exports and production fell 6% in 2019

Italy's machinery sector declined in 2019 for the first time in eight years.

Figures from trade association Amaplast show a 6% decline in both production and exports. At the same time, machinery imports fell by nearly 9% and the domestic market shrank by almost 8%.

Amaplast said a number of factors were behind the decline. These included low domestic industrial production and consumption, and international factors – such as Brexit and rising tensions between the USA and China.

"This economic instability caused a contraction in investments – as Industry 4.0 incentives dried up – translating into a reduction in imports and alterations in export dynamics," said Amaplast.

Machine production fell more than 6% to a value of €4.4billion. As well a reduced demand for machinery, the Italian plastics industry also consumed marginally less material in 2019 – seeing a 1% decline to around 5.7m tonnes. Amaplast said this could be down to 'plastic-free' campaigns "and the directive against disposables".

Total exports fell more than 6% to a value of just over €3bn. Exports to Europe were generally reduced, while those to Asia increased. Examples of this include a 22% decline in sales to Germany (to around €362m) and falls of 7% and 14% to Poland and France, respectively. However, sales to China rose by 31% (to exceed €150m) and to India by 14% (to exceed €93m). Sales to the USA rose by almost 8%, to reach €315m. Overall, exports of extruders fell 4%.

Amaplast pointed out that German plastics machinery companies had similar results in 2019 – with a 6% decline in production, a 5% reduction in imports, and a 7% fall in exports.

It added that the 2019 decline came before the current Coronavirus pandemic. Italy was the first European country to be affected by the pandemic.

Although the plastics industry continued to operate, orders were reduced – and output was affected, said Amaplast.

› **www.amaplast.org**

Italian Market for Plastics & Rubber Machinery (million Euros), 2019

	2018	2019	Change 2019/2018 (%)
PRODUCTION	4,700	4,400	-6.4
EXPORTS	3,260	3,060	-6.1
IMPORTS	1,010	920	-8.9
DOMESTIC	2450	2,260	-7.8

Source: AMAPLAST

Exports of Italian machinery by region ('000 Euros), 2019

	2019 Sales	% of total	Change 2019/2018 (%)
EUROPEAN UNION	1,490,020	48.7	-9.9
OTHER EUROPE	238,935	7.8	-23.8
NAFTA	469,200	15.3	-4.2
SOUTH AMERICA	141,244	4.6	+0.8
CENTRAL AMERICA	20,669	0.7	+1.0
FAR EAST	431,676	14.1	+12.6
MIDDLE EAST	91,868	3.0	+27.6
NORTH AFRICA	78,619	2.6	-27.1
OTHER AFRICA	78,458	2.6	+20.2
OCEANIA	16,134	0.5	+13.8
WORLD TOTAL	3,056,823	100	-6.2

Source: AMAPLAST

Mobile HDPE pipe extrusion opens in Florida

Tubi of Australia has established a mobile manufacturing site in Florida, USA.

The extrusion lines are used to make 500ft lengths of pipe at the job site. Previously, the Florida HDPE pressure pipe markets were geographically isolated from HDPE pipe manufacturing plants, said Tubi.

"Having direct access to the new Tubi plants in central Florida reduces freight and installation costs, improves safety, reduces carbon emissions and creates local jobs," it said.

Tubi currently operates a mobile extrusion plant in Odessa, Texas, with plans to move a fourth new mobile extrusion plant to Tucson, Arizona in September.

"Establishing a base site in Bartow, Florida creates new opportunities for innovation and differentiation," said Marcello Russo, CEO of Tubi.

› **www.tubigroup.com**

We're Here For You.

NDC TECHNOLOGIES
a spectris company

Instant support via myNDC service cloud

There are a lot of unknowns in the world right now. But one thing is certain – **NDC is here for you.** To help support you through this time of crisis, the OneNDC team stands ready to serve your immediate business needs.

Whether it's to talk about a challenging application by phone, schedule an on-site visit or getting immediate on-line support, the standards of excellence we've built for over 50 years are in place to help you through these uncertain times.

We are committed to your success.

Over 50 Years Proven Performance

www.ndc.com

AMI Webinars

WATCH NOW FOR FREE

Forecasting the impact of coronavirus on economies and plastics markets

Gain insights to future proof your business from our expert analyst who answers your questions on:

- How do you model the impact of coronavirus on markets?
- What are the longer-term impacts of coronavirus?
- What is the potential for market and economic scarring?

Includes: Discussion on forecasts of the global mechanical recycling industry in the wake of coronavirus

David Buckby
Principal Global Resin Analyst
AMI

Watch the FREE webinar now www.ami.ltd/covid-forecast

Discuss current forecasting for your market by contacting
sales@ami.international

www.ami.international/market-reports

PLASTICS EXTRUSION WORLD EXPO EUROPE

7-8 October, 2020

MESSE ESSEN, GERMANY

Speaker spotlight

Zoran Davidovski
Pipelife International GmbH

Alfeo Bonato
Bausano & Figli S.p.A

Christian Apel
POLYPLASTIC Group

Dr Bernadette Quinn
REACHLaw

Morten Augestad
Norner

- Network with leading players in the industry
- Meet vendors and make informed purchasing decisions
- Keep up-to-date with industry advances and the latest technology

120+ SPEAKERS
200+ EXHIBITORS
across the four expos

DOWNLOAD CONFERENCE PROGRAMME

GET YOUR FREE TICKET NOW

and click here to join thousands of your industry colleagues already registered.

Brought to you by: AMI

Colocated with: COMPOUNDING WORLD EXPO, PLASTICS RECYCLING WORLD EXPO, POLYMER TESTING WORLD EXPO

Proudly supported by: Film and Sheet EXTRUSION, Pipe and Profile EXTRUSION

Extrusion machinery bucks trend of falling sales in North America

Sales of primary plastics machinery in North America decreased in the first quarter of 2020 as a result of Coronavirus-related shutdowns.

Statistics from the Plastics Industry Association's Committee on Equipment Statistics (CES) reveal that sales fell almost 7% – to around US$254 million -- compared to the equivalent period in 2019. Compared with Q4 2019, the drop was almost 20%.

While total sales fell in Q1 2020, single-screw extruder sales rose by nearly 35%, with twin-screw extruders up by 19%, compared to Q1 2019. In comparison with Q4 2019, single-screw extruders rose nearly 16%, and twin-screw extruders were down by about 1%.

Compared to Q1 2019, the value of single-screw and twin-screw extruders were significantly higher by 34.9% and 19.3%, respectively.

While total sales fell in the first quarter, figures for single-screw extruders rose by nearly 16%, while those for twin-screw extruders were down by about 1%.

For comparison, injection moulding equipment sales fell nearly 12% compared to Q1 2019, and around 24% compared to Q4 2019.

"First quarter shipments were expected to come in lower due to the coronavirus shutdowns in March," said Perc Pineda, chief economist at the association. "Nevertheless, we saw robust growth in single-screw and twin-screw shipments on a year-over-year basis."

Exports of plastics machinery in the first quarter grew by nearly 2%

Pineda: "Lower first quarter shipments were expected, due to Coronavirus shutdowns"

since Q4 2019, to exceed US$358m. Imports rose by 0.5% in the same period, to US$746m. The USA continues to rely on Mexico and Canada as its first and second largest plastics machinery export markets. Combined exports to these partners exceeded US$153m, accounting for nearly 43% of all US plastics machinery exports.

In its quarterly survey of plastics machinery suppliers, CES found that nearly 19% of respondents expect conditions to improve or hold steady in the next quarter – far lower than the 69% who that felt that way in Q4 2019. Over the next 12 months, nearly 23% expect market conditions to be steady-to-better, down from nearly 74% in the previous survey.

"The coronavirus pandemic continues to disrupt the manufacturing and service sectors of the economy, both impacted by the plastics industry. However, the demand for plastics remains fundamentally healthy, particularly in the medical and consumer essentials spaces, and the economic slowdown is transitory," said Pineda.

› **www.plasticsindustry.org**

THE GLOBAL MECHANICAL PLASTICS RECYCLING INDUSTRY 2020

NEW REPORT
AVAILABLE NOW

Get a clearer understanding of the competitive intensity, size and structure of each market within your industry.

Discover:

- Which countries are recycling the most
- Which end use applications are made from the recyclate being produced
- How the Chinese National Sword Policy has transformed the global recycling industry

Click here for more info

AMI www.ami.ltd/Global_Mechanical_Recycling

Conference
EUROPE
www.ami.ltd/attend-pipes

NEW DATES

Plastic Pipes in Infrastructure

Trends in the design, production, installation and exploitation of plastic pipes systems

27-28 October 2020, Hamburg Marriott Hotel, Hamburg, Germany

Sponsored by:

lyondellbasell
Advancing Possible

TECNOMATIC
TECHNOLOGIES FOR PLASTIC PIPES PROCESSING

Media supporters:

EPJ EUROPEAN POLYURETHANE JOURNAL

Pipe and Profile EXTRUSION

In the pipeline: plastics applications in oil and gas

Acidic gases, extreme pressures and high temperatures are just some of the conditions that plastic pipe must withstand in the offshore oil and gas industry

The offshore oil and gas industry is one of the most punishing environments for materials. Extreme temperatures and pressures and corrosive substances are commonplace – meaning there have traditionally been few applications for plastics.

However, this is beginning to change. Engineering plastics and composites are able to resist these environments, when designed correctly into products. At the same time, plastics even have a huge advantage over

Downhole applications

Abderrazak Traidia, senior research scientist and team leader at **Aramco Overseas**, told delegates at the *Oil & Gas Non-Metallics* conference – organised by **AMI** – that polymer composite tubing is becoming more commonplace in downhole applications.

This is one of the most challenging applications there is – with temperatures of around 230-300F (110-150°C), pressures of 4,000 to 10,000psi and high concentrations of acidic gases such as hydrogen sulphide. These conditions can cause up to 50% losses in typical steel piping, he said.

Traditional solutions to this include coating the inner pipe with an epoxy-based resin, or adding a composite lining. While these help to boost corrosion resistance and cut scale build-up, they have limitations – such as reducing the inner pipe diameter.

Traidia said the 'corrosion free' composite systems are a valid alternative: they have a high strength-to-weight ratio, are lightweight, smooth and transparent to electromagnetic waves – as well as being spoolable.

He pointed out that composite tubing can also lead to substantial cost savings – through reduced corrosion and scale management, lower material costs and increased life expectancy.

However, he said there are a number of challenges to large-scale adoption – in areas including cost, design, operation and installation. For instance, there are many standard steel piping products in the industry – which are well understood – while there is no standard for design/qualification of composite pipe.

Other advantages for steel include: established commercial software for well design and analysis; a large operating envelope; industry procedures are

Main image: Plastics are increasingly being used in downhole drilling operations

Above: In addition to offshore applications, Evonik's PA12 is used for domestic has installations

geared towards steel pipe; operators have wide experience in steel pipe; and there are many steel pipe suppliers – making costs competitive.

In order to accelerate the use of composite tubing, an integrated non-metallic design tool is needed, said Traidia. This tool would need to use advanced modelling to account for downhole conditions and predict long-term performance envelopes. One method of modelling would be to predict laminate failure as a way of predicting pipe burst; another is to combine models in a 'homogenisation-dehomogenisation' methodology.

Traidia highlighted a case study to determine the required thickness and ply stacking of a composite pipe, with respect to downhole pressure and load conditions. It used a pipe based on a carbon fibre-reinforced Peek Optima structural layer. It found that a pipe with and outside diameter of 127mm and internal diameter of 78mm required a structural layer that was 5.5mm thick. This was thinner than a similar design, which used PVDF as the structural layer.

"Initial feasibility shows that the material is a technically valid candidate for steel tubing replacement," said Traidia.

Further analysis is needed at varying temperatures, he added.

PA qualification

Polyamide 12 (PA12) is an engineering plastic that has found broad use in the oil and gas industry – with different grades used for liner, reinforcement matrix material and elsewhere in thermoplastic composite pipes (TCPs).

Carsten Schuett, senior project manager for oil and gas composites at **Evonik** in Germany, told delegates that the material, reinforced with carbon fibre, has a good track record in the oil and gas industry – being API qualified. It has good resistance to typical hydrocarbons and corrosive substances, works across a wide temperature range and has well-known and predictable long-term ageing behaviour.

As part of the qualification process for the material, Evonik put it through a number of tests to define its end of life criteria. Carbon fibre was evaluated and considered as insensitive to ageing within the scope of environment of applications. PA12 itself was considered sensitive to ageing, which was known in quality and kinetics. Interface ageing was not known in quality or kinetics.

Four approaches were taken to defining end of life criteria.

The first approach was to identify matrix and interface shear properties as indicators of degradation or embrittlement. Hydrolysis has been shown to be the most severe ageing mechanism in offshore applications. Trials using static interlaminar shear strength (ILSS) testing were used to determine the impact of exposure time. This included hot and sour water screenings – in full media contact – to force fast hydrolytic degradation. This approach determined that interface static performance was insensitive to ageing.

The second approach – carried out with DNV-GL and NTNU – included further testing with a dynamic ILSS approach for ageing of the matrix or interface. Different testing temperatures were used, and an additional microscopy study helped to evaluate failure modes. Results showed that dynamic fatigue testing confirmed ILSS static interface performance results. NTNU is now looking into creating a fatigue master curve for dry/wet/saturated samples.

A third approach evaluated properties sensitive to ageing – such as matrix embrittlement, leading to a loss of fracture toughness. Here, tests showed no matrix embrittlement or limiting impact on matrix and interface performance.

"However, a pragmatic solution was needed in order to continue," said Schuett.

The fourth approach took the 'weakest link' approach – considering the full TCP in collaboration with DNV-GL. Liner material behaviour and degradation is known in terms of quality and kinetics: here, the composite was aged in an identical way to the liner. Composite fracture mechanics were compared with liner performance under identical sour conditions.

Results showed that carbon fibre-reinforced PA12 was barely affected by severe sour ageing conditions – and load transfer potential via the interface was not impaired.

The 'weakest link' approach gives a conservative

plasmec
Excellence in Mixing

For over 50 years a landmark in the international market for the manufacturing of complete mixing plants

PVC DRY BLEND
POWDER COATINGS
MASTERBATCH AND PIGMENTS
THERMOPLASTIC RUBBER
WOOD PLASTIC COMPOSITES

PLAS MEC S.R.L.
Via Europa, 79 - 21015 Lonate Pozzolo (VA) **ITALY**
Tel: +39 0331 301648
E-mail: comm@plasmec.it
www.plasmec.it

100% MADE IN
ITALY

Above: Soluforce's thermoplastic pipe has been installed at Groningen Seaports to transport hydrogen

estimate for the structural CF PA12 part for three main reasons, said Schuett: diffusion is delayed by the liner and laminate thickness; there is a lower temperature in the laminate than in the liner; and there is a high conservatism in liner cut-off criteria.

Overall, this made it a good approach to take for generic material qualification, he said.

Steel rehabilitation

Steel pipe continues to be used widely in the offshore industry. However, its tendency to corrode means that it will often need to be replaced – and this can be done using reinforced thermoplastic pipe.

Liang Yu, chief technology officer at US-based **Baker Hughes**, told delegates how the company used co-extruded thermoplastic pipe to make fast and cost-effective repairs to corroded steel pipe.

Its Thermoflex pipe comprises multiple layers – of materials including polyamide, polyphenylene sulphide (PPS) and HDPE. A braided aramid fibre layer helps to increase strength-to-weight ratio and boost fatigue resistance.

A key factor in using the new pipe was its high resistance to permeation by hydrogen sulphide and other gases.

"The permeation coefficient through PPS is an order of magnitude lower than through HDPE," said Yu.

This, he said, reduces hydrogen sulphide partial pressure on the existing steel pipe by 90%.

In this example, the company rehabilitated six miles of 8in steel pipe – which has more than 20 turns and one river crossing. It has a design pressure of 1000psi and a design temperature of 80F (around 27°C). Thermoflex Plus pipe, 5in in diameter, was pulled through the steel pipe and brought to full pressure. The total line was pulled in four segments – with a maximum single pull of two miles.

Hydrogen economy

The use of hydrogen gas as a fuel is becoming more widespread – mainly due to its reduced effect on global warming. (The only by-product of burning hydrogen is water.) However, in order to set up hydrogen pipelines – as countries such as The Netherlands are doing – the pipes must first be tested for permeability. Hydrogen is a far smaller molecule than methane – so its permeation must be understood in order to prevent leaks and possible explosions.

At the same time, there are no existing standards for transporting hydrogen via reinforced thermoplastic pipe, according to Sjoerd Jansma, material consultant at **Kiwa Technology**.

Permeation of hydrogen through a pipe must be tested for three main reasons: safety (ensuring a build-up of hydrogen does not cause an explosion); contamination (maintaining hydrogen gas quality); and economics (ensuring hydrogen is not lost from the pipe).

To do this, Kiwa tested a typical thermoplastic composite polymer (TCP) pipe – the M570-GT H2T from Soluforce – assessing individual layers and the system as a whole. Testing the four individual layers (HDPE liner, aluminium gas-tight layer, reinforcement layer and HDPE cover) gave a released volume of nearly 10 litres of hydrogen per year, per 400m of pipe.

A test on the complete system (1km of pipe at 42 bar and ambient temperature) gave a value of around 8 litres H_2/year/400m.

The materials were also tested for compatibility with hydrogen – being exposed to it for 2,300 hours at 42 bar and ambient temperature. Mechanical tests carried out afterwards showed no statistically significant differences, said Jansma.

"Results are being used to implement a completely new application for polymers," he said.

The pipe has been certified for hydrogen applications up to 42 bar. The first application was at Groningen Seaports, where around 4km of pipe has been installed for hydrogen distribution.

■ The next *Oil & Gas Non-Metallics* conference is held in London on 20-21 October 2020. For more details, contact Harriet White on +44 (0)117 924 9442 (**harriet.white@ami.international**).

CLICK ON THE LINKS FOR MORE INFORMATION:

- **https://europe.aramco.com**
- **www.ami.international**
- **www.evonik.com**
- **www.bakerhughes.com**
- **www.kiwa.com**
- **www.soluforce.com**

Conference
EUROPE
www.ami.ltd/pipeline-attend

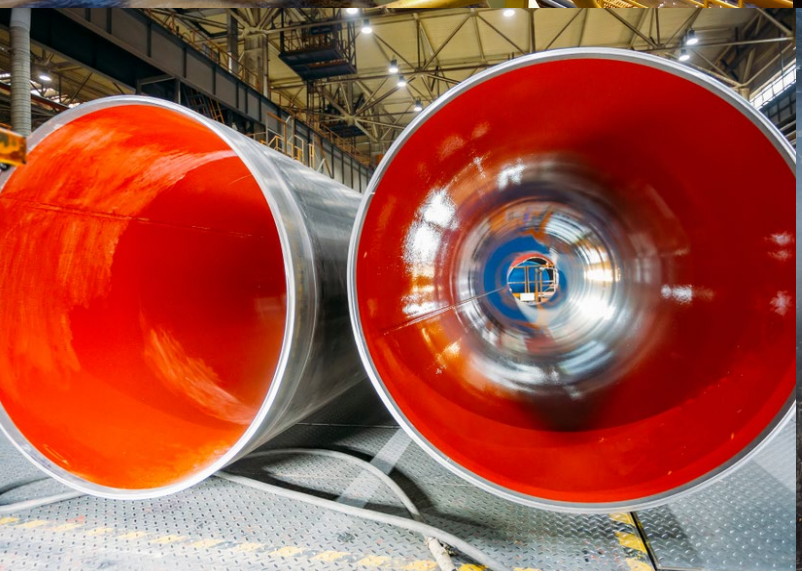
Pipeline Coating

Exploring line pipe and field joint coatings

SAVE €200*
when you
book before
13 November 2020
using EBC1098
code

9-11 February 2021, Austria Trend Savoyen Hotel, Vienna, Austria






Sponsored by:

JOTUN

Media supporters:

ipcm Protective Coatings

Pipe and Profile EXTRUSION

*Discount cannot be retrospectively applied or used in conjunction with any other offer

Access the Asian market at the PVC Formulation Asia conference

PVC Formulation

26-27 January 2021
Bangkok, Thailand

Join PVC chemists and other experts from around the world at this targeted conference.

Discover the latest global trends in PVC innovations to optimise and add value to your formulations

Reasons to attend:

- Understand global trends in the polymer industry, including mergers and acquisitions affecting PVC compound supply
- Network with key industry leaders that are driving the market forward
- Update your knowledge on additives, from new innovations to renewable sources, substitutions, selections and legacy additives
- Hear what construction, packaging, healthcare, and automotive manufacturers want from PVC suppliers

Book your place
www.ami.ltd/attend-PVC-Asia

Special rate for compounders and processors!
Just $145 until
16 October 2020

Founding sponsors:

SUNACE
TRONOX
TROY
The Gold Standard for Performance
BÆRLOCHER
SONGWON
HCA
HOLLAND COLOURS

Organised by:

AMI

Supported by:

AVC
EAN VIN DUNC

CONTACT US

Emma Hall
Conference Organizer

T +44 (0) 117 314 8111
E emma.hall@ami.international

IMAGE: SHUTTERSTOCK

*Suppliers of PVC stabilisers continue to work on improving the effectiveness and safety of their products. **Peter Mapleston** explores some of the latest developments*

Stabiliser makers push the safer approach

Performance and safety appear to be the top priorities for PVC stabiliser development, with many PVC stabilisers working on increasingly complex systems that contain no substances of very high concern (SVHCs) while still providing superior performance. This is especially the case in Europe, according to the European Stabiliser Producers Association (**ESPA**, a Cefic sector group), whose nine members represent over 95% of the PVC stabiliser industry in the region. "ESPA members have committed to proactively use in their systems only molecules which, at the current knowledge, do not fall under future regulatory restrictions," says ESPA's Manager, Jordi Just.

This ambition is being supported by the Additive Sustainability Footprint (ASF) tool, which is a recent development from the VinylPlus Additives Committee and is a project led by ESPA President Ettore Nanni (who is also President of ESPA member Reagens). ASF is an industry-wide methodology based on the Sustainability Life Cycle Assessment approach developed by The Natural Step, an NGO advisor to VinylPlus. "Through a 10-step approach, this tool allows its users to assess and promote the sustainable production and use of PVC additives across entire product life cycles, including the role of additives in the performance of PVC products," says Just.

The stabiliser system is the key performance related additive in any PVC formulation, according to Guido Allieri, Business Manager at **Reagens**. He says that for the processing of flexible PVC, systems based on liquid mixed-metal soaps (LMMs) are the most commonly used form of stabiliser, but solid stabilisers are becoming more and more important because of increasingly demanding technical requirements and calls for reduction of emissions.

Reagens manufactures a full range of liquid stabilisers, including products with inherent self-lubrication properties as well as non-lubricating types, designed to fit different application technologies. Allieri says that as well as its conven-

Main image: PVC stabilisation system developments aim to provide better performance with an improved safety profile

Right: Markets such as flooring are demanding an overall reduction in emissions

tional products, Reagens offers systems that meet with low odour/low phenol and low emission criteria. "In harmony with these concepts, all the products in Reagens' portfolio are characterised by the absence of chemicals that can be subjected to restriction by REACH regulations, like CMR category 1 and 2, PBT and ED and other undesirable chemicals," he says.

Explaining that REACH is driving the European chemical industry to develop safer solutions, Allieri highlights the SVHC list based on hazard classification. A supplier of any product on the list needs to communicate the presence of that product along the supply chain if it is used at levels above 0.1 wt.%. "This is triggering the development of new chemistries, and Reagens has developed a new generation of LMMs that are not only REACH-friendly today, but also REACH-friendly long term: the new liquid Reagens 600 & 900 Series that include products free from any S-VHC or potential S-VHC substances."

Allieri says Reagens has developed a process that enables it to manufacture organophosphate intermediates free from any phenol contamination. This makes it possible to formulate LMM stabilisers (barium/zinc or calcium/zinc) that are said to have zero phenol. "Reagens 600 & 900 Series stabilisers are giving a significant contribution to reduce emission problems from the final articles, particularly for indoor applications that have to meet more stringent regulatory and technical demands – flooring, wall covering, etc," he says.

In a number of applications, typically for indoor uses, technical requests are driving recipes towards a significant reduction in emissions from the final article, Allieri explains. "More and more, the answer to these requests is in the selection of a solid COS [Calcium Organic Stabiliser]," he says. "Reagens' Reapak range of solid COS stabilisers includes several grades in powder form, some of them available also in granules or in pastilles, to fulfil all technical requirements. The use of solid stabilisers is now increasingly possible also in plastisol operations, because of the appropriate composition and

IMAGE: SHUTTERSTOCK

the physical form of the powder – micronised – that allows an easy dispersion into the plastisols."

Enhancing value

At **Galata Chemicals**, Vice President Peter Frenkel says that, in an effort to enhance the cost-in-use value of its additive offerings, the company has developed, patented and commercialised a new range of high efficiency solid and liquid stabilisers. These are designed specifically to be used in compounds plasticised with its Drapex Alpha 200 and Drapex Alpha 215 bio-based plasticisers. He says efficiency of the new stabilisers exceeds the most demanding requirements.

Required loadings of solid Mark 3600, Mark 3601 and Mark 3602 – intended for use in general purpose, tarpaulin and cable PVC compounds respectively and all plasticised with Drapex Alpha 200 – were 60-80% lower than those needed for conventional Ca/Zn stabilisers in compounds plasticised with conventional plasticisers, he says. "These heat stabilisers imparted excellent transparency and extended long-term heat stability as well as improved overall dynamic heat stabilising performance of the plasticised compounds."

Similarly, stabiliser loadings could be reduced by 50-60% when using the new liquid Mark 3610 and Mark 3611 in combination with Drapex Alpha 200. Frenkel says the new stabilisers considerably

	Time (minutes)									
	0	10	20	30	40	50	60	70	80	90
CaZn Control/DOTP										
Mark 3600/Drapex Alpha 200										

SOURCE: GALATA CHEMICAL

Figure 1: Chip chart showing how a combination of Galata Chemicals' Mark 3600 solid stabiliser and Drapex Alpha 200 plasticiser imparts superior long-term heat stability to a PVC compound than a combination of a Ca/Zn stabiliser and DOTP at 200°C

outperformed conventional liquid Ca/Zn and Ba/Zn stabiliser/plasticiser combinations in terms of both static and dynamic heat stability, while imparting comparable transparency.

"It is expected that incorporation of these high-efficiency stabilisers at reduced loadings into flexible PVC compounds will lead to improved plasticiser permanence as well as enhanced performance of final articles," Frenkel says. "In addition to the described performance attributes of the new liquid and solid high efficiency stabilisers, Drapex Alpha bio-based plasticisers also impart plasticisation efficiencies superior by 5-15% compared to conventional plasticisers such as DOTP and DINP."

Galata says that incorporation of these high efficiency stabiliser/plasticiser combinations into flexible PVC compounds can result in cost-in-use reductions. The company adds that the Mark 3600, Mark 3601, Mark 3602, and Mark 3610 products are all suitable for use in selected food contact applications in the US.

PMC Organometallix is developing what Clarke McGuire, Global Business Director Stabilisers, says is a next generation of organotin stabilisers that incorporate proprietary fatty acid ligands and that can be used by themselves or in conjunction with the standard 2-EHMA (ethylhexyl methacrylate) ligands. The fatty acid ligands are being utilised in octyl- and methyl-based stabilisers to overcome regulatory issues with dioctyltin EHMA (DOTE) stabilisers, he says.

REACH restriction

"DOTE has recently undergone further REACH restriction in its use and alternative stabiliser technologies have been developed. As well as providing potential alternatives to DOTE, these materials can also bring cost and performance improvements against traditional methyl-based EHMA stabilisers," he says.

The fatty acids are sourced from sustainable agricultural products and are produced by another company in the PMC Group, PMC Biogenix. Its activities are focused on speciality chemicals produced from renewable resources.

McGuire says a representative example in the new range of materials is Advastab OM-3126. The additive, which contains substantially less tin than traditional methyl-based EHMA stabilisers, has been shown to provide similar end-use perfor-

AMI Webinars

WATCH NOW FOR FREE

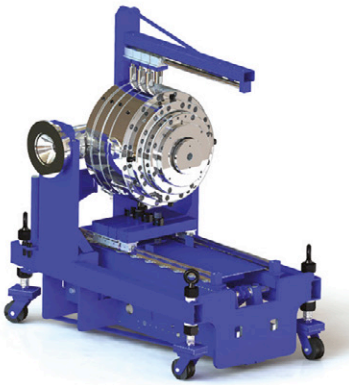
Technology Trends for Thermally Conductive Plastics

- Keep up to date with the latest news from AMI
- Stay in touch with your industry
- Watch in your own time

Chris Smith
Editor, Compounding World Magazine

Watch the FREE webinar today
www.ami.ltd/conductive-trends

Guill
EXTRUSION TOOLING...



Guill Tool & Engineering is a leading supplier of rubber and plastic extrusion tooling for products ranging in size from 0.005 inch diameter tubing, various size profile extrusions, and up to 20 inch industrial pipe. We offer six or more layer inline dies and crossheads backed by engineering support that's unmatched in the industry.

3D CAD, CFD and FEA software begin our process and all products are made in our quality-first production facility.

"ENGINEERING SOLUTIONS THAT MAKE SENSE"

We welcome all challenges!

www.guill.com

tooling@guill.com

West Warwick, Rhode Island (USA)

401-828-7600

IKA claims its patented S-granule technology enables broader formulation flexibility

mance in demanding applications such as exterior profiles and foam board. "Process improvements include lower torque as a result of the higher internal lubricity derived from the fatty acid components relative to the EHMA ligand," he says.

PMC Organometallix is also exploring tin stabilisers that are fully EHMA-free. An example is Thermolite OM-3130, which McGuire says has shown process and finished article improvements relative to the use of traditional octyl-based EHMA stabilisers in applications such as PVC film and sheet.

Established expertise

At **Valtris Specialty Chemicals**, Business Director Stabilisers Brenda Hollo points to an 80-year history of developing heat stabilisers for PVC applications, built up through its predecessors and acquisitions (notably Ferro, Lamberti and Akros).

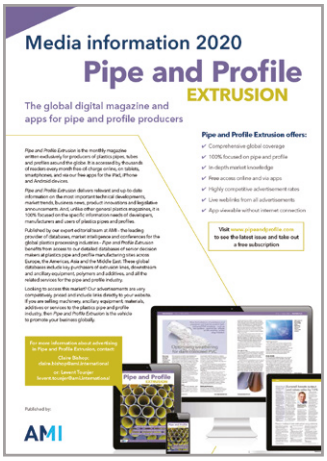
Valtris offers state-of-the-art stabilisers free of TNPP (trisnonylphenol phosphite), such as Lankromark LZC668 for flexible PVC food-contact applications. "Valtris continues to be the market leader in low-emission phenol-free liquid stabilisers for both ePVC and sPVC applications," claims Hollo. Recent introductions are more cost-effective but technically comparable to their predecessors (Lankromark LZC690 and Lankromark LZB1227) and are attractive in cost-sensitive market sectors where technical demands are increasing, she says.

The company has also recently developed several grades for the still fast-growing PVC floor covering market. Examples include Therm-Chek VT 348P, which is a heavy metal-free one-pack stabiliser for highly filled rigid LVT compounds. Hollo says it offers "excellent internal lubrication and provides long-term stability at an economical price point." Therm-Chek VT 117P is a non-toxic Ca/Zn stabiliser used in flexible/highly filled LVT layers, providing very good long-term stability and balanced rheology and lubrication. For carpet backing, Therm-Chek RC 995P (Ca/Zn) and Therm-Chek RC 996P (heavy metal-free) heat stabilisers have been developed to work synergistically with the Santicizer Platinum G-2000 bio-based plasticiser and offer what Hollo says is a sustainable, economical and high performing system.

In the area of traditional tin stabilisers for rigid PVC, recent Valtris product introductions have focused on technologies using renewable carbon sourced solvents. The product offering now features two weatherable stabiliser systems – Akcrostab T-5322 (22% butyl tin) and Akcrostab T-5335 (15%) – as well as Akcrostab T-5339 (9%) and Akcrostab T-5336 (6%) for non-weatherable and substrate applications. The new systems can

Reach out to new customers

Advertise in Pipe and Profile EXTRUSION



- 100% focus on pipe and profile technology
- Free access online or via iOS and Android apps
- Global email distribution to 22,499 individuals
- More than 11,500 app downloads worldwide
- Highly competitive advertising rates
- Live web and email links from all advertisements

Find out more about *Pipe and Profile Extrusion* and the benefits it can provide your business in our **media pack** Alternatively, contact Sales and Commercial Manager **Levent Tounjer**

Pipe and Profile Extrusion magazine is published by AMI, the leading provider of databases, market intelligence, conferences and exhibitions for the global plastics processing industry. Our detailed databases include senior decision makers at pipe and profile manufacturing sites worldwide.

www.ami.international

VIRTUAL FORUM

Plastics and the Pandemic

21 July | 28 July | 3 August 2020

Free-to-attend virtual forums analysing the impact of Covid-19 on the global plastics industry

REGISTER FREE TODAY

This forum series, held over three consecutive Tuesdays, will give you the chance to:

- **Hear results** of AMI's survey into how the global plastics industry has been impacted and is reacting to the Covid-19 pandemic
- Help **future-proof** your business with insights from industry leaders and AMI consultants
- **Examine** models that forecast how the industry could recover, including the potential for market and economic scarring
- **Explore** the impact the Covid-19 pandemic is having on plastics recycling and the image of the plastics industry

Media supporters:

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

Industry-leading speakers include:

Alexandre Dangis
Managing Director,
EuPC

Mike Boswell
Managing Director,
PLASTRIBUTION

Gary Alecock
CEO,
JIARUI INTERNATIONAL MANAGEMENT

Kevin Vyse
Head of Technical,
RAP

Lizzy Carroll
Consultant - Recycling and Sustainability,
AMI

David Buckby
Principal Global Resin Analyst,
AMI

AMI

REGISTER FOR FREE TODAY www.ami.ltd/attend-Pandemic

be used to replace existing ones without any performance deterioration.

"Valtris has a wide range of additives for flexible PVC and as such is ideally positioned to provide complementary products to maximise the individual performance of each additive," Hollo says. She cites the example of its well-established heat stabiliser Lankromark LZB996, which is highly compatible with the company's Intercide and Micro-Chek biocides.

Building innovations

IKA Innovative Kunststoffaufbereitung offers high performance EuroStab calcium-based and GreenStab heavy metal-free heat stabilisers. Although primarily targeting building product applications such as window profile, foam profile and pipe, it also provides a full range of stabilisers for specialist and niche applications such as rigid sheet, high temperature cables and high Vicat injection moulding. In the building product sector, IKA sees an ongoing trend for stabilisers imparting exceptional earlier colour brightness, heat stability and surface finish and offers systems with or without calcium acetylacetonate co-stabiliser additive.

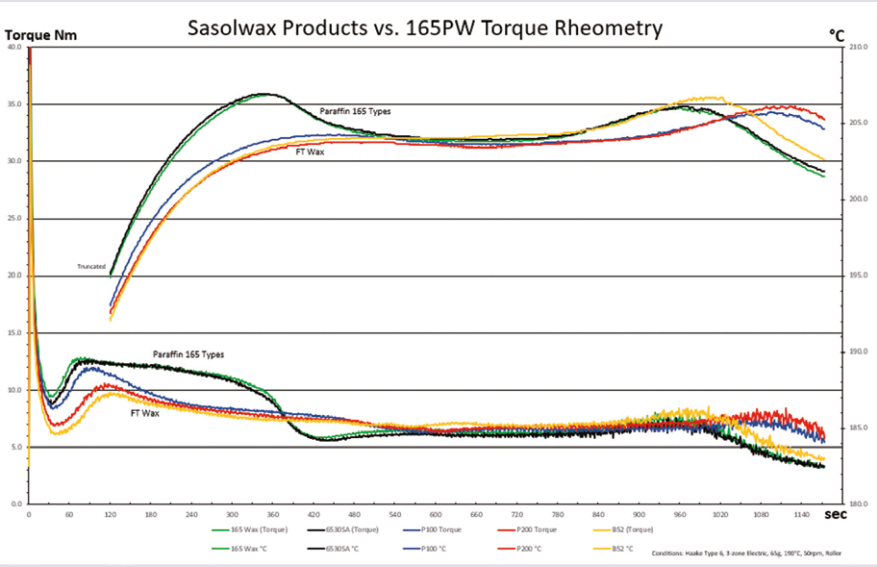
"Our stabilisers can be supplied in the full range of product forms from powder to low dusting compacted granule and melted tablet, ensuring that we have all bases covered," says Thomas Hillen, Managing Director and Head of Research at IKA. He says that IKA's novel melted tablet technology, marketed as S-granule, is produced via a patented production technology via extrusion and under-water granulation and is important in terms of effectiveness. "Manufactured by continuous process at temperatures that prevent secondary

High-efficiency lubricant options

Sasol is introducing two new Fischer-Tropsch lubricants, which it says are engineered for extrusion of PVC-U pipes, conduit, and profiles. Pat Haugen, Market Development Manager Americas at the company, says the Sasolwax P100 and P200 products will have PPI and NSF approvals, making them suitable for potable water, sanitary, and waste pipes.

The Sasolwax P100 and P200 additions are based on an existing Sasol lubricant, Sasolwax B52. This is described as highly external in function with some internal lubrication and metal release character. Haugen says it is 30 to 45% more efficient than 165F paraffin waxes. The new Fischer-Tropsch products are derived from the fully synthetic production of wax, which is said to provide low impurity levels, high crystallinity, n-alkane linearity, low viscosity, excellent thermal stability and lubricating properties.

According to Dr Phil Richards, Sasol's Technical Leader North America, the Sasolwax P100 and P200 products have been created to meet the industry's need for a wider operating window (peak torque versus equilibrium torque versus nominal operating temperature). Haake torque rheometry curves show the modifications to the products provide the same high efficiency as Sasolwax B52, but with a shift toward earlier shear heat generation. This results in a faster fusion time.



"Utilising highly efficient Fischer-Tropsch materials means less lubricant to interfere with fusion during extrusion, reduced die swell, and less die build-up" says Steve Torchia, Senior Manager Global Polymer Additives at the companmy. "We have observed higher melt viscosity and a stiffer melt exuding from the dies. This means less die swell and enhances the calibrator's role in controlling wall thickness."

In one series of tests, Fischer-Tropsch waxes were compared with 165F paraffin formulations in production of sanitary pipes, using flood feeding. With the new waxes, melt pressures were reduced by up to 20%, allowing for increasing screw speed for output rate increases from 5 to 15%. Average over-weight was less than 5% with the Sasolwax based formula, against slightly over 7% with the 165F paraffin. "For a plant producing 20,000t/yr of compound, that 2% saving in material is worth half a million dollars," says Torchia.

› **www.sasol.com**

PLASTICS EXTRUSION WORLD EXPO
NORTH AMERICA

PIPE, PROFILE AND TUBING EXTRUSION

Registration is now open!

November 4 - 5, 2020
Huntington Convention Center
CLEVELAND, OHIO, USA

Co-located exhibition for the plastics industry

200+ EXHIBITORS
5 CONFERENCE THEATERS
1 FREE TICKET
across the four expos

REGISTER FOR YOUR FREE TICKET

GET YOUR FREE TICKET NOW
click here to find out more

NETWORKING PARTY
November 4, 7pm
Punch Bowl Social
Don't miss out!

Brought to you by: AMI

Colocated with: COMPOUNDING WORLD EXPO, PLASTICS RECYCLING WORLD EXPO, POLYMER TESTING WORLD EXPO

Proudly supported by: Film and Sheet EXTRUSION, Pipe and Profile EXTRUSION

Right: PVC pipe production is a key market for Chemson's stabilisers

reactions between key stabiliser components, this allows a wide base of formulation flexibility to enhance stabiliser performance," he says.

Tackling dust

Peter Marschalek, Head of Global Marketing at **Chemson Polymer-Additive**, says the company continues to develop processes and products, particularly in the field of dust-free tablet systems. "These are tailored to all specific requirements of the processor/converter," he says. "The 1K tablet is enjoying increasing popularity, balancing strong stabilisers, sensitive co-stabilisers and lubricant packages, and combining them into a strong additive system. This product line is proven for demanding window formulations but also for reliable pipe applications, such as bi-oriented PVC pipes (OPVC)."

Chemson is also continuing to develop additive systems in powder form and as press granules, Marschalek says. Work has also resulted in a PVC filament for 3D printing, which he says makes use of the good processing properties as well as the durability of the polymer. The filament, first seen at the Formnext 2018 additive manufacturing show in Frankfurt, is available under the VBEE brand. "VBEE requires a different degree of attention to 3D printing details than most of the other AM/3DP polymer materials," Marschalek points out. "Chemson's advanced, benign stabilisation technology has provided remarkable and unprecedented thermostability for the 3D printing materials."

Chemson is also planning to strengthen its global presence in China and US with an annual capacity expansion of 40,000 tonne, as well as investing around €30m in its production operations in Austria over the next two years.

Below: Songwon's new partnership with Uniwel will lift capacity for tin-boosted stabilisers for PVC pipe fittings

Strategic cooperation

Other key players with expansion in mind include **Songwon**, which entered into a strategic cooperation agreement with Chinese firm JiangSu Uniwel Chemistry Co, effective as of July 2019, to meet the growing need for PVC stabilisers.

IMAGE: SONGWON/ISTOCK

IMAGE: CHEMSON

Uniwel was founded around the turn of the century and is now a leading supplier of PVC stabilisers in China. Songwon says the partnership will provide it with immediate access to state-of-the-art production of liquid and solid mixed metal stabilisers and competitive Chinese raw materials. It says it will continue with its stabiliser production in South Korea. For customers, the cooperation brings an immediate capacity increase for its Songstab liquid and solid mixed metal stabilisers.

Songwon says it also plans to produce tin-boosted calcium/zinc stabilisers at Uniwel. "Specially designed for pipe fittings, these stabilisers have the combined advantages of a high Vicat softening temperature, a wide processing window and a solid physical form, attributes favoured by numerous pipe producers," the company says. "Since the products contain a unique tin stabiliser with a very high tin content, only a low amount of tin stabiliser is added in the one-pack, to achieve top performance. The main product, Songstab CZ-SF670, has been very well received in the market and is being used by a growing number of customers."

CLICK ON THE LINKS FOR MORE INFORMATION:

- **www.stabilisers.eu (ESPA)**
- **www.reagens-group.com**
- **www.galatachemicals.com**
- **www.pmcorganometallix.com**
- **www.valtris.com**
- **www.ika-wolfen.de**
- **www.chemson.com**
- **www.songwon.com**

Wood-Plastic Composites has gone virtual!

Future-proof your business and identify new opportunities for wood-plastic composites materials

- **Hear** top experts discuss the current wood-plastic composites industry
- **Learn** about new technology developments and review market trends
- **Build** your own schedule during the event and access presentations on-demand
- **Benchmark** your company against other leading players
- **Network** with suppliers in a safe environment from your home or office

Register for free
www.ami.ltd/attend-WPC

Wood-Plastic Composites

— VIRTUAL SUMMIT—

15 - 16 September 2020

The global virtual summit for the wood-plastic composites industry

Media supporters:

Pipe and Profile EXTRUSION

Compounding WORLD

Organised by:

AMI

CONTACT US

Emily Nicholson
Conference Organiser

T +44 (0) 117 314 8111
E emily.nicholson@ami.international

PLASTICS EXTRUSION WORLD EXPO

PLASTICS RECYCLING WORLD EXPO

POLYMER TESTING WORLD EXPO

COMPOUNDING WORLD EXPO

GET YOUR FREE TICKET FOR ESSEN! 7 - 8 October, Essen, Germany

These are just some of the 250+ exhibitors who will be in Essen:

AMUT GROUP
THEYSOHN Extrusion
AUSER POLIMERI
BANDERA EXTRUSION INTELLIGENCE
BOREALIS Keep Discovering
AQUAFIL ENGINEERING
COLORS & EFFECTS BASF We create chemistry
MPI chemie
CLARIANT
MITSUI & CO.
Vecoplan®
XINDA Compounding · System
binova COMPOUNDING & RECYCLING
brabender TECHNOLOGIE
MONTELLO Recovery and Recycling Industry Plastic - Fertilizers - Energy - Biomethane
bausano Your Extrusion Allies
coperion confidence through partnership
Dynisco
Unipetrol ORLEN GROUP
BUNTING
FIMIC ITALIAN MELT FILTER
FEDDEM
NGR PLASTIC RECYCLING TECHNOLOGIES
motan colortronic
EREMA PLASTIC RECYCLING SYSTEMS
EVONIK POWER TO CREATE
ExxonMobil
FARREL POMINI continuous compounding systems
norner The Polymer Explorers
Fraunhofer LBF
FRONTIER LAB www.frontier-lab.com
soremA PLASTICS RECYCLING SYSTEMS
VEOLIA
GAMMA MECCANICA RECYCLING LINES FOR PLASTIC MATERIALS
ICMA SAN GIORGIO Advanced Compounding and Extrusion Systems
IMERYS Performance Additives
JSW THE JAPAN STEEL WORKS, LTD.
Biesterfeld Competence in Solutions
Krauss Maffei Pioneering Plastics
PALLMANN TOP PERFORMANCE IN SIZE REDUCTION
Leistritz
FB Balzanelli
Macchi
MARIS Technological Company
MICROBAN PROTECTION THAT LIVES ON
Reifenhäuser EXTRUSION SYSTEMS
RODEPA PLASTICS
SIKORA Technology To Perfection
van werven
sogapol
BRITAS FILTRATION SYSTEMS

Brought to you by: AMI

Proudly supported by:

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

4 EXPOS 2 CONTINENTS

The international exhibitions for the plastics compounding, recycling, extrusion and testing industry

BOOK YOUR STAND

GET YOUR FREE TICKET FOR CLEVELAND! November 4-5, Cleveland, Ohio

These are just some of the 250+ exhibitors who will be in Cleveland:

ABS Advanced Blending Solutions LLC
Addex Experience Addex
AdvanSix
ASACLEAN Purging Compound
Bärlocher
Aditya Birla Birla Carbon
B&P Littleford
Brenntag Specialties
Budenheim
Buss excellence in compounding
BYK
Cardinal Recycling Company
CPM Extrusion Group Local Service Global Reach
cumberland
aec
Davis-Standard Where your ideas take shape.
Dover Chemical Corporation A Subsidiary of ICC Industries Inc.
gneuß
Heritage Plastics
Dover Chemical Corporation A Subsidiary of ICC Industries Inc.
Entek
Geon Performance Solutions
Greiner Extrusion Group
MTI the mixing company
intertek Total Quality. Assured.
Kaneka
Konica Minolta Sensing Americas, Inc.
MAAG Group a COMEXI company
Macro Advanced Extrusion Systems
Maguire Syncro
Matsui
Milliken
Mixaco Maschinenbau
Polystar
NETZSCH Proven Excellence.
NFM
Nordson
Omya
orion Engineered Carbons Focused. Innovative. Responsive.
PTI
Q-Lab
schenck process
SI Group The Substance Inside
Steer America
struktol
Sukano
ThermoFisher Scientific
TPEI Technical Process & Engineering Inc. Customer Service, Compounded Daily
Zeppelin We Create Solutions
Zerma The Home of Size Reduction 847-291-1300
Zoltek Toray Group

www.ami.international/exhibitions

Chemical Recycling

3-4 November 2020
Marriott Hotel
Hamburg, Germany

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

SAVE €200*

by booking before 7 August 2020. Use code EB1075

This conference is your chance to expand your knowledge through industry presentations, panel and roundtable discussions and group Q&A sessions

- Join the discussion on advancing the circular economy
- Network with industry experts
- Discover how chemical recycling will aid in meeting plastics recycling targets
- Get to grips with the technologies available and their impact on the wider environment

Download Conference Programme

Sponsored by:

MURA

INEOS STYROLUTION

Industry-leading speakers include:

Carlos Monreal
CEO
PLASTIC ENERGY

Guy Castelan
Life Cycle Thinking and Sustainability Projects Manager
PLASTICS EUROPE

Outi Teras
Head of Technology Commercialization, Chemical Recycling
NESTE

Christian Krueger
Corporate Sustainability
BASF

Inari Seppa
Director of Corporate Innovation
EASTMAN CHEMICAL COMPANY

Pailak Mzikian
Project Management
REMONDIS RECYCLING

Media supporters:

CHEMICAL RECYCLING EUROPE

RE III

RECOUP

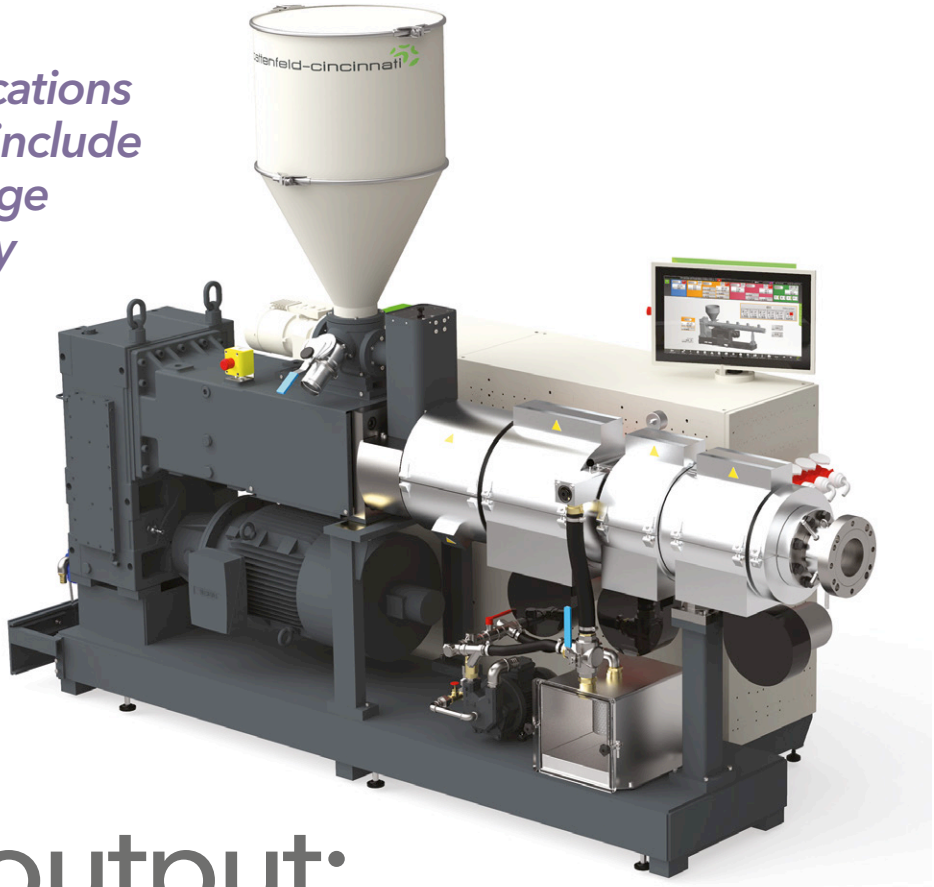
Plastics Recycling WORLD

*Prices may be subject to VAT. Discount codes cannot be used in conjunction with any other offer.

AMI

Book your place today at www.ami.ltd/attend-chem-recycling

Some of the latest applications in extrusion technology include a training line in Italy, edge strip production in Turkey and a multi-partner TPE medical tubing line



Boosting output: new extruder applications

Extruder technology continues to be increasingly sophisticated – with manufacturers working to boost output, reduce energy needs and add new levels of process control and data collection to their machinery.

Recently, **Tecnomatic** of Italy supplied a new laboratory and training extrusion line to the Italian Plastics Institute (IIP) – at its new centre of excellence. The new equipment will help IIP and its sister organisation, Cesap to improve its services in plastics testing and certification.

Tecnomatic has supplied a tailor-made line with an extruder from its Atlas series, with an L/D ratio of 30 and a special screw design that can manage a range of different materials. The extruder and line are controlled via the EPC (Extrusion Process Control) to centralise all parameters of the process, including the integrated loss in weight gravimetric system.

Other elements of the line include a die-head based on spiral distributor, a 4m vacuum tank, a two-caterpillar haul-off and a guillotine cutter.

At the same time, Tecnomatic has increased its presence in the Russian market by delivering four new extrusion lines to a pipe manufacturer there.

Orelsibgazapparat JSC, based in Oryol Oblast, has been developing its activities in the production of polyethylene pipes and fittings for water supply, sanitation and gas supply systems since 1997.

"In a continuous effort to enforce our market position – offering high quality, reliable PE pipes that meet all environmental requirements – we work on modern, high-precision equipment, using quality certificated raw materials and a strict quality control service," said Aleksei Dubrovin, managing director at the company.

"Process efficiency in terms of throughput, waste reduction and optimal resource utilisation is the natural result of these efforts."

The company uses Tecnomatic's Vega extruders – with an L/D ratio of 37 – and Venus die heads with internal pipe cooling (PAC), to produce HDPE pipes with diameters up to 400mm.

Screw design

Vega extruders are characterised by a constantly updated screw design, a water-cooled straight feed bush, and optimal plasticizing – even at high output rate, says Tecnomatic. The machines are equipped with synchronous AC motors for use in applications at high dynamic performances with variable speeds.

Main image: Turkey-based Egger Dekor is using conical twin-screw extruders from Battenfeld-Cincinnati to make edge strips for furniture

Right: Tecnomatic has supplied a laboratory and testing line to IIP's new centre of excellence

The motors are mechanically sturdy in order to withstand high overloads. Effective insulation avoids a gradual deterioration caused by operating at high frequencies.

The lines are synchronised using gravimetric system on each extruder, to give a continuous raw material feed and record variations in mass throughput, says Tecnomatic.

Adding an edge

Egger, an Austrian-owned manufacturer of edge strips – which are mainly used in furniture – is using conical twin-screw extruders from **Battenfeld-Cincinnati** in its Turkish operations.

Egger Dekor, based in Gebze in Turkey, is using several ConEx NG 65 models. Egger is mainly a wood processing company but uses the machines to make edge strips from ABS and PVC.

"In addition to ABS and PVC, which we process in roughly equal quantities, we make a small amount of special strips from PMMA," said Ender Celebi, technical plant manager. "Our edge strips are sold in some 70 countries worldwide."

While ABS strips are more in demand in Western and Central Europe, PVC strips are common in Eastern Europe and North America.

Egger Dekor installed its first ConEx NG 65 extruder in 2017. Some existing components designed by the customer were connected to the extruder to form a complete line.

When choosing the new extruders, it was important for all raw materials to be processed on the same extrusion lines.

"Together with the customer, we processed several compounds at our technical lab in Vienna, to demonstrate the performance of our new conical extruders," said André Wieczorek, CTO of Battenfeld-Cincinnati.

A long preheating zone and an optimised screw design ensure a balanced ratio of mechanical and thermal energy input – allowing different materials to be processed, and tool pressures of up to 520 bar to be applied, he said.

"The new extruders have a small footprint, low energy consumption and modest investment costs in relation to their high performance," he added.

The extruders are available in the three sizes of 42, 54 and 65mm. For profile applications, they can reach outputs of 35-250 kg/h, and for pipe applications from 50 to 450 kg/h.

Medical showcase

Davis-Standard operated a TPE tubing line at the MD&M West show in the USA earlier this year.

The line showed its versatility by running TPE tubing on the first two days of the show, then switching to ABS filament on the final day. The line can process a variety of flexible tubing materials at speeds up to 300 feet per 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.

"For the purposes of the show, we wanted to demonstrate a smaller footprint and functionality for line speeds up to 300 feet per minute when space is a limiting factor," 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."

Line components included a Davis-Standard 2in (50mm) Super Blue Extruder with e-TPC-II controls, Guill spiral crosshead die and tooling, a Conair 12ft multipass vacuum sizing tank, a servo puller and automatic and transfer coiler, and Zumbach OD/ID wall gauge and control system. The TPE was supplied by Teknor Apex.

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.

The TPE tubing that ran at the show measured 0.145in outside diameter and 0.0108in inside diameter.

The DS-eTPC II control is a popular option for medical tubing processors. It has a 15in (380mm) viewing screen with multi-touch capabilities to

PVC Formulation

April 20-21, 2021
The Westin Cleveland Downtown, OH, USA

A two-day program of technical and market presentations from expert speakers will covering global trends in PVC trade and technology, including the latest advances in a range of PVC additives.

Sponsored by:

TROY
The Gold Standard for Performance

NITTO
since 1947

Organised by:

AMI

Media supporter:

Compounding WORLD

BOOK YOUR PLACE

Join your industry at this conference:

- Learn about applications and market developments
- Exchange tips and tricks on formulation practice
- Meet with international chemists representing the entire PVC supply chain
- Find out how to optimize formulations for rigid and flexible compounds
- Discover how regulatory changes and industry-driven sustainability campaigns impact on your business

BOOK YOUR PLACE TODAY
www.ami.ltd/attend-PVC-USA

Right: Davis-Standard's Super Blue extruder – with e-TPC-II controls – was at the heart of a line it showcased at MD&M West recently

enable zoom-in and out, as well as extruder control for up to three extruders with real-time and historical data trending.

The DS-eTPC also has integration capabilities for vendor downstream equipment to enable communication and line control from one location.

Other benefits include: an increase of heat-only zones from four to eight, with an option up to 20; two auxiliary drives; a remote set-point; and speed trim via discrete inputs from gauging equipment.

Close control

KraussMaffei presented its new EasyTrace data collection system at K2019 last year. The modular system gathers relevant plastics processing production data and transfers it to specific customer systems – such as MES – for evaluation. It can be applied to extruders, injection moulding machines, automation and peripherals, according to KraussMaffei.

EasyTrace acts as a central data hub between the individual levels of production, and creates more transparency over the entire value chain to boost quality assurance, says the company.

While sophisticated machines communicate with their production environment, the various protocols are not always fully compatible, says KraussMaffei.

It says that EasyTrace acts as an 'interpreter' between machines of different generations, types, brands and instruments.

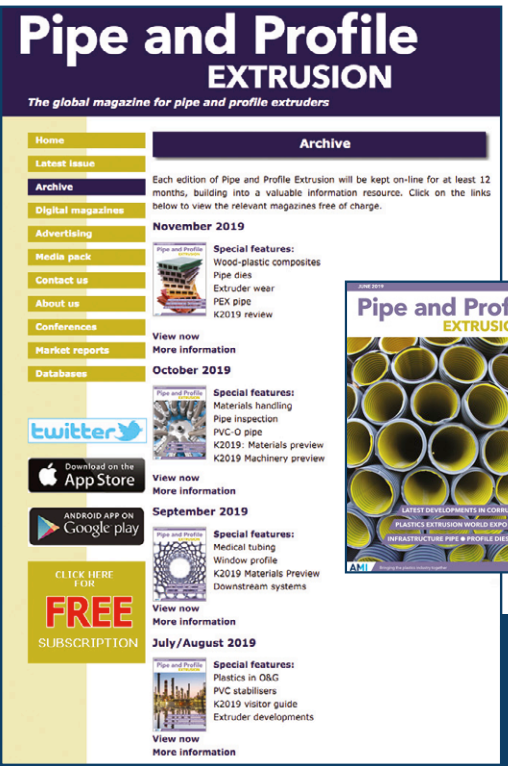
KraussMaffei says that making data available for evaluation – by an MES system, for instance – is essential, particularly in the age of Industry 4.0. These systems should be as simple as possible and not overloaded with powerful IT systems. However, this is a shortcoming of most solutions – and as such, they are not tailored to plastics processing says the company.

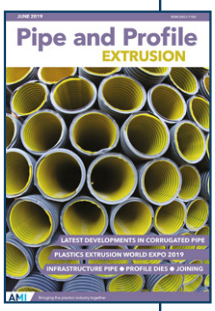
EasyTrace acquires information from various systems – such as material dryers, processing machines, automation systems and scanners. The company says that its special feature is the ability to support most interfaces on the market – including E63, Profinet and E77.

"This makes it possible to integrate machines from different manufacturers or older machines into digital production," said the company.

CLICK ON THE LINKS FOR MORE INFORMATION:

- **www.tecnomaticsrl.net**
- **www.battenfeld-cincinnati.com**
- **www.davis-standard.com**
- **www.kraussmaffei.com**





HAVE YOU MISSED OUT?

Did you know every edition of *Pipe and Profile Extrusion* magazine back to November 2011 is still available for FREE viewing? That's more than 50 editions and some 2,500 pages of industry news and developments in materials, machinery and processing technology. All FREE.

To use this valuable resource, go to:

www.pipeandprofile.com/archive

Plastics Regulations

3 November 2020
The Huntington Convention Center
Cleveland, OH, USA

Responding to new and future regulatory developments that will impact the plastics supply chain

Gain focused advice on compliance issues for your business at this one day event.

The full one-day program will provide expert analysis and guidance on a range of international legislative and regulatory issues that impact on polymer producers, compounders, processors, and end users doing business in the US and beyond.

BOOK YOUR PLACE
www.ami.ltd/attend-reg-USA

Take advantage of your time in Cleveland

Visit the free-to-attend co-located compounding, extrusion, recycling and testing expos on Nov 4 - 5, North America's largest dedicated plastics event in 2020.

FIND OUT MORE

Why attend?

- Learn from industry experts about new and impending regulations in areas such as TSCA, EU REACH and CLP, FDA Food Contact Notification Program
- Gain insight into global plastics legislation and regulatory updates
- Discover how to protect and future-proof your business
- Understand the real implications of forthcoming legislation in practical terms
- Network with international regulatory, compliance and legal professionals

Media supporters:

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

AMI

THE LEADING ORGANISER OF CONFERENCES FOR THE GLOBAL PLASTICS INDUSTRY

Upcoming conferences

Medical Tubing & Catheters
23 - 24 September 2020
San Diego, CA, USA

Profiles
2 - 3 November 2020
Cleveland, OH, USA

Pipeline Coating
9 - 11 February 2021
Vienna, Austria

PVC Formulation
27 - 29 September 2021
Cologne, Germany

Oil & Gas Non-Metallics
20 - 21 October 2020
London, UK

PVC Formulation
26 -27 January 2021
Bangkok, Thailand

Cables
19 - 21 April 2021
Cologne, Germany

Plastic Pipes in Infrastructure
27- 28 October 2020
Hamburg, Germany

Polymers in Cables
2 – 3 February 2021
Charlotte, NC, USA

PVC Formulation
20 - 21 April 2021
Cleveland,OH, USA

Book your place to attend a conference or find out more about the opportunities to speak, sponsor or exhibit.

eventsales@ami.international

www.ami.international/events

Information correct at time of publishing and may be subject to change.

The European PVC industry is still marginally short of meeting its 2020 recycling target – at a time when the Coronavirus slowdown may cause recycling to actually fall this year

VinylPlus still short of its 2020 PVC recycling target

Despite another increase in recycling last year, VinylPlus – the voluntary recycling commitment of the European PVC industry – is still marginally short of its stated target.

According to the latest VinylPlus progress report – which covers activities in 2019 – recycling of PVC in Europe now exceeds 770,000 tonnes. This puts it more than 96% of the way to its goal of recycling 800,000 tonnes/year – which it needs to meet by the end of this year.

Being so close to its 2020 target, VinylPlus has since set a new goal: to recycle 900,000 tonnes/year by 2025 – and at least 1 million tonnes/year by 2030. It is also in the process of setting further targets for the future.

Brigitte Dero, managing director of VinylPlus, said: "Each progress report is an opportunity for the industry to reflect on its achievements and on future challenges and opportunities. With the culmination of VinylPlus in sight, we are building a new programme towards 2030 – which will be launched in May 2021."

However, the economic slowdown caused by the Coronavirus pandemic may even see PVC recycling fall this year, said VinylPlus.

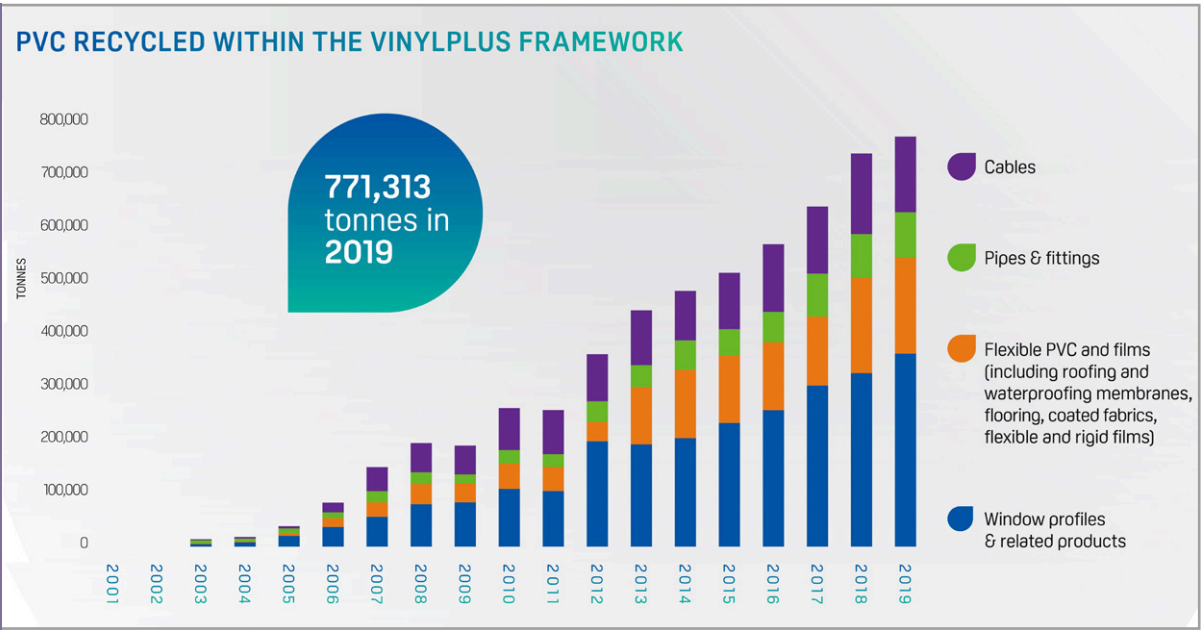
The latest progress report reveals that the European PVC industry recycled 771,313 tonnes of PVC last year, a total rise of around 4%. This is far lower than the 16% rise in recycling seen between 2017 and 2018.

"Market conditions for recycling were difficult in 2019," said Dero. "Converters appeared to choose virgin materials over recyclate, due to the comparatively low price of virgin PVC. Brexit also created uncertainty in the UK – which so far has been one of the most active recycling countries."

Another reason for the small rise in recycling is a dip of around 5% in the recycling of PVC cables. The total volume reclaimed in 2019 was around 142,000 tonnes (down from around 151,000 tonnes in 2018). According to the report: "More PVC waste was available from cables – particularly

Main image: Almost half of Europe's recycled PVC in 2019 was from window profiles and other building equipment

Europe recycled more than 770,000 tonnes of PVC in 2019



Source: VinylPlus

in the Czech Republic, France, Germany, Poland and the UK – due to reduced exports to China."

Profile building

Window profiles and related building products accounted for just over 363,000 tonnes of material – 47% of the total. This represents an 11% increase in the amount of material recycled, compared to 2018. Because window profiles typically have long lifespans, those being recycled may contain additives – such as lead stabilisers – that have since been phased out in the European Union.

Although the European Commission – backed by the European Chemicals Agency (ECHA) – proposed allowing this recycle to be used, it was voted down by the European Parliament. VinylPlus says that, if this ruling were finalised, much of the PVC recycled in the EU would effectively be unrecyclable – and may end up in landfill.

In his foreword to this year's report, Stefan Sommer, chairman of VinylPlus, said: "Legacy additives remain a thorny issue, and represent the main threat to our recycling targets."

In 2019, window profiles trade body EPPA began a technical project aimed at understanding the potential hazard classification under European waste legislation of rigid PVC containing legacy additives. The study is investigating whether end-of-life PVC windows contain substances classified as 'HP 14' (Hazardous Properties ecotoxic).

Dero added: "We are in the middle of the legislative process on lead additives, and the discussion between the European Parliament and European Commission is underway. The delayed legislative process raises uncertainty in the recycling industry and postpones investment decisions."

Recyclate for pipe

Recycling of PVC pipe and fittings increased slightly in 2019 – rising around 3% to exceed 85,000 tonnes.

Over the past three years, the use of recycled PVC in pipe systems by members of The European Plastic Pipe & Fittings Association (Teppfa) has declined – settling at around 40,000 tonnes/year – according to the report.

Because the potential for recycling is much higher, Teppfa has begun a project to test increased levels of recyclates in pipe systems and demonstrate the performance of the final products. Co-extrusion is a proven technology and could be suited to increasing the use of recyclates, it said. However, take-up of the technology is limited by customer acceptance: for instance, multi-layer pipe systems are not currently allowed in the Nordic countries, Austria and Belgium. There is also a lack of material at the right price and of suitable quality, said the report. Teppfa is working on a new approach to increase R-PVC uptake in solid-wall pipes – such as sewer pipes approved to the EN 1401 standard.

Alternative methods

VinylPlus is looking beyond pure mechanical methods of recycling PVC. For instance, the Thermovinyl project assesses the environmental characteristics of the PVC waste treatment processes in Swiss waste-to-energy plants. Some plants use the SolVair process to neutralise hydrochloric acid (HCl) gas by sodium bicarbonate, and recover residual sodium chemicals (mainly NaCl). These are then recycled in a separate dedicated plant.

Chemical recycling – in which a plastic such as PVC is broken down into its constituent chemical

3D Printing Plastics

November 3, 2020
The Huntington Convention Center
Cleveland, OH, USA

Developing polymers and filaments for optimized additive manufacturing applications

Identify opportunities for your business at the first North America edition of 3D Printing Plastics.

This new one-day conference will explore the developments, production and applications of innovative polymers and compounds for 3D printing and other rapid manufacturing technologies.

BOOK YOUR PLACE
www.ami.ltd/attend-3D-plastics-USA

Take advantage of your time in Cleveland

Visit the free-to-attend co-located compounding, extrusion, recycling and testing expos on Nov 4 - 5, North America's largest dedicated plastics event in 2020.

FIND OUT MORE

Five good reasons to attend:

1. Discover new ways to optimize production and to add value in this rapidly evolving market
2. Hear experts address new processing and real-world application opportunities
3. Identify new and emerging market opportunities for polymers and compounds for 3D printing
4. Listen to your customers' views on their future needs
5. Build focused, professional networks with key industry stakeholders

Media supporters:

Compounding WORLD

Film and Sheet EXTRUSION

European recycling "closes production"

In mid-June, the European plastics recycling industry said it was "closing production due to the current market developments caused by the Covid-19 pandemic". It said that lack of demand (due to the closure of converting plants), record low prices of virgin plastics and decreased activity globally were to blame.

Ton Emans, president of trade body Plastics Recyclers Europe (PRE), said: 'If the situation persists, and no action is taken, plastics recycling will cease to be profitable. This will hamper the attainment of the EU recycling targets and put in jeopardy the transition towards circular plastics."

In such a case, recyclable plastic waste would have to be sent to landfill or incinerated, he said. PRE has asked the EU and member states to support the recycling sector in their recovery plans and to continue implementing circular economy measures.

Above: Dero: "Market conditions for recycling were difficult in 2019"

components – is also under consideration. The Oreade chemical plant in France began a pilot project in 2019, using chemical recycling on roofing membranes. However, a fire at the plant has delayed this project.

"We treated in total 300 tonnes of PVC waste – either flooring or tarpaulins – in 2019," said Dero. "For now the trials at the Oreade chemical plant have been stopped. We are looking at alternative solutions."

Despite this setback, this type of technique is being actively considered as a way of recycling certain types of PVC.

"Chemical recycling could contribute by allowing the recycling of PVC waste that is difficult to recycle mechanically – such as because it is part of a composite material or is too contaminated. But no fully technology-ready solution is available yet," she said.

Recycling slump

The figures in the VinylPlus progress report predate the Coronavirus pandemic, so were unaffected by it. However, the subsequent economic slowdown has had a serious effect on recycling in Europe.

"Recycling operations were nearly normal across Europe until mid-March, but then the situation deteriorated rapidly," she said. "This was due to lack of demand, lack of supply, reduced workforce availability, and government lock-down decisions."

Another factor was that the cost of virgin PVC collapsed – in line with global oil prices – making it cheaper than recycled PVC. The situation was felt across the whole plastics recycling industry – which has now effectively closed down (see box story on this page)

Dero says it is hard to assess the impact of the current situation on this year's recycling volume – but accepts that VinylPlus may even miss its target.

"It will be very difficult to compensate the volumes that have been lost since mid-March – but we will do what we can," she said.

CLICK ON THE LINKS FOR MORE INFORMATION:

- **www.vinylplus.eu**
- **www.plasticsrecyclers.eu**

Follow us on...

Be the first to know when we publish a new edition, plus updates on our conferences and useful links.

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

www.twitter.com/plasticsworld

Plastics Regulations

2-4 November 2020
Pullman Cologne,
Cologne, Germany

Responding to new and future regulatory developments that will impact on the plastics supply chain

www.ami.ltd/attend-reg

RESERVE YOUR PLACE

Sessions cover:

- A global outlook on legislation
- Recycling and waste strategies for the circular economy
- The regulatory view on sustainable materials
- The Outcome of the framework review and the implications for the plastics industry
- Updates on NIAS and FCM
- Exploring additive and chemical regulations

ALSO INCLUDING

Brexit Workshop
Wednesday 4 November 2020

Our Brexit workshop looks at aspects effecting both European and UK businesses. Take advantage of this workshop and join us to learn about protecting your business from potential threats post-Brexit.

Industry speakers include:

Dr. Stamatios Stamenitis
Senior Principal Scientist SRA
MARS WRIGLEY

Mr. Marcus Navin-Jones
Partner
KELLER AND HECKMAN LLP
SERVING BUSINESS THROUGH LAW AND SCIENCE®

Dr. Anna Gergely
Director, EHS Regulatory
Steptoe

Mr. Siegfried Richter,
Policy Officer

Mr. Marcel Bosma,
Regulatory Expert
sabic

Mr. Job Ridderbecks, Food Contact Technical Specialist
intertek
Total Quality. Assured.

Sponsored by:
Verisk 3E
Intelligent compliance. Sustainable progress. A safer world.

Media supporter:
CHEMLINKED

AMI

Book your place at www.ami.ltd/attend-reg

Grow your business at the Conductive Plastics Conference

Conductive Plastics

1 - 2 December 2020
The Marriott Hotel
Munich, Germany

Developing technologies and applications for electrically and thermally conductive plastics

This conference is the place to learn about fast-developing technologies.

Focusing on the latest developments in formulation, processing and application of electrically and thermally conductive thermoplastics.

Join OEM engineers, product designers, processors, compounders and additive producers.

Five good reasons to attend:

- Learn about the latest conductive additive technologies
- Develop strategies for managing conductive projects
- Connect with key players in the conductive plastics arena
- Explore new and emerging market opportunities
- Discover the challenges in formation and processing

Book your place at
www.ami.ltd/attend-conductive

Media supporters:

Compounding WORLD

Injection WORLD

AMI Bringing the plastics industry together.

CONTACT US

Anna Kislingbury

T +44 (0) 117 314 8111
E anna.kislingbury@ami.international

PPA

Ultramid polyphthalamide grade can be extruded into stock shapes

BASF has developed a grade of polyphthalamide (PPA) that can be extruded into semi-finished parts.

The new grade, Ultramid Advanced N5H UN, a polyphthalamide (PPA), offers high mechanical properties at elevated temperatures due to its semi-aromatic chemical structure. It has good resistance to chemicals and hydrolysis, and good sliding friction properties – all at temperatures above 100°C. Its low water uptake helps to maintain its mechanical properties over a wide temperature range -- even in humid environments.

Plastics company Gehr, based in Mannheim in Germany, is using the material to make extruded stock shapes with diameters of 50mm.

These shapes are machined into parts for applications in, for example, the automotive industry. During

machining, the behaviour of the semi-finished products lies between a polyamide and a polyoxymethylene copolymer – with steady and consistent chip formation and removal.

"Gehr is the first company to successfully use a PPA for extrusion. With its expertise in extrusion, it has developed stock shapes that can be produced without any voids," said Philipp Wenz, group head in sales of BASF's Performance Materials division.

He says that, while BASF is not certain this is the first use of PPA for semi-finished parts, the material is not typically used in this type of application.

"One reason for this might be that usual PPAs cannot be extruded very well," he said.

Bernhard Grosskinsky, head of application technology at Gehr, added: "The material is far easier to process compared to other PPAs on the market. It gives us a wide processing window with a high melt stability. Another advantage of the material is that it is easy to produce finished components – from the semi-finished products – by post-processing."

› **www.basf.com**

ACRYLICS

Capstock compounds for dark colours

Teknor Apex has developed a series of acrylic compounds for highly weatherable, dark-coloured capstock layers in PVC exterior products such as windows and sidings.

Its entire range of capstocks is now branded as Weatherguard.

After 10,000 hours in QUV accelerated weathering tests, Weatherguard WG-8000 compounds exhibited a colour change of less than 1 Delta E for black, a significant improvement over an industry standard acrylic grade with comparable physical properties. This accelerated weathering performance is coupled with a high resistance to a phenomenon called 'water whitening' – a weathering defect caused by high humidity and rapid temperature changes that is most notable in dark colours.

This combination is ideal for applications where high aesthetics are required, according to John Macaluso, industry manager for building and construction in the vinyl division of Teknor Apex.

"These compounds exhibit similar or improved impact-resistance in comparison with acrylics commonly used in capstock applications today," he said. "We can modify the base technology to meet specific gloss targets, and customise processing properties, making it unnecessary for building product manufacturers to retool. This is particularly valuable in the case of complex profiles such as window and door profiles."

› **www.teknorapex.com**

JOINING

Fusing 10,000ft of pipe in Honolulu done in six days

Contractors have installed 10,000 feet of HDPE pipe in a canal in Hawaii in just six days, using a range of equipment from McElroy.

The contractor, Pacific Pump and Power, used two TracStar fusion machines, two DataLogger 6s units, several pipe rollers – and two McElroy technicians. The team fitted the 8in pipe at an average of 21 fusions a day, per machine, said the company.

"My crews work hard to be efficient when we are fusing so we can get a lot done in as minimal time as possible without skimping on any of the standards," said Paul Leonard, general manager with Pacific Pump and Power. "Everything was logged and uploaded to the Vault so you can see exactly what they did and their timelines."

The fusion machines were situated on top of barges on the Ala Wai Canal in Honolulu, where there was constant up-and-down movement. However, they were able to fuse in the same location as the growing string of fused pipe was pulled upstream.

The canal lies next to the Waikiki tourist district and was created as a primary drainage corridor. The temporary HDPE pipeline was built to carry away dredged material from the canal.

Fusion operator Reid Merck said that they use PolyHorses on all their jobs. "It keeps our pipe level and makes it easier to move around the jobsite," he said. "They're good for fusing long runs."

He added that DataLoggers are also a regular feature of installations. "We don't fuse without it. Sometimes they ask for logs on our joints. If anything happens, it's backup assurance," he said.

› **www.mcelroy.com**

PIPE EXTRUSION

Fifth line sold to Cambodia

Amut of Italy recently sold a fifth pipe extrusion line to Cambodia's Chip Mong Group – which it says is a further step in its growth in Asia.

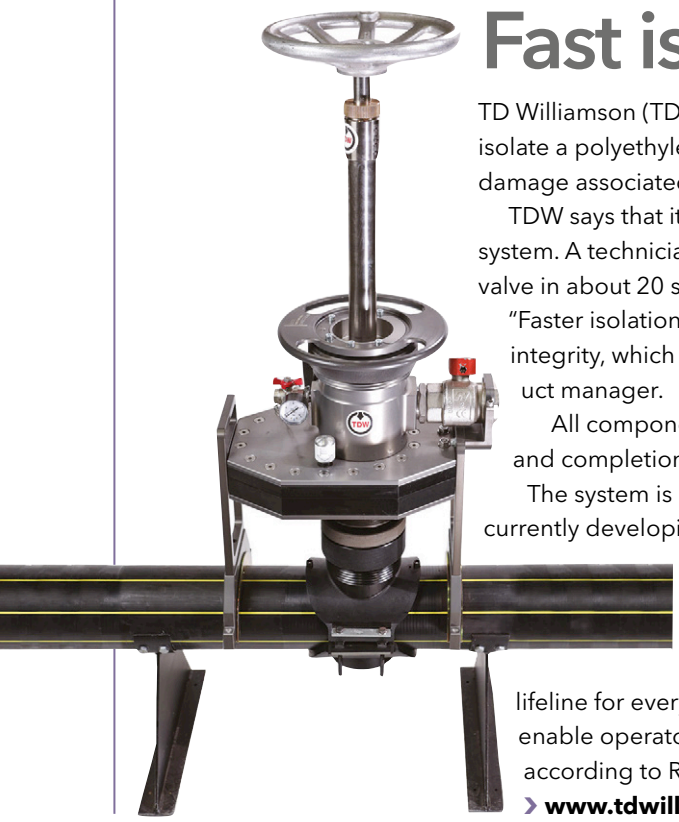
Chip Mong's existing four Amut lines are used to extrude a number of products, including PVC pipe for electrical and sewage applications, and flexible and corrugated pipe in both HDPE and PVC.

The new line is designed to produce PVC pipe in diameters from 63 to 250mm, at outputs of 600 kg/h.

› **www.amutgroup.com**

INSTALLATION

Fast isolation of PE pipelines



TD Williamson (TDW) says that its Polystopp quick connect system allows operators to isolate a polyethylene (PE) gas pipeline twice as fast as other methods – while preventing damage associated with squeezing.

TDW says that it takes less than 10 minutes to tap and isolate a pipeline using this system. A technician can install the tapping, plugging and completion machines onto the valve in about 20 seconds each, and removal is just as fast.

"Faster isolation decreases job time and increases efficiency while preserving pipeline integrity, which maximises value to the operator," said Ryan Ragsdale, HT&P senior product manager.

All components are made of aluminium, including the valve and tapping, plugging and completion machines. That makes it light enough for one person to lift.

The system is available worldwide for 4-8in pipelines up to 10 bar (150 psi). TDW is currently developing technology for 12in pipelines.

Earlier this year, TDW introduced its ProStopp DS isolation tool, which it says is the only low-pressure double block and bleed technology specifically designed for the gas distribution market.

"Because we understand that the gas distribution industry is truly a lifeline for everyday citizens, TDW is constantly looking to develop technology that will enable operators to enhance pipeline integrity and do it faster, easier and more safely," according to Ragsdale.

› **www.tdwilliamson.com**

Download these new product brochures

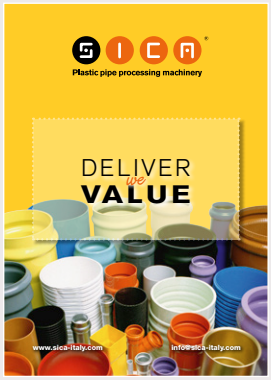
Simply click on the brochure cover or link to download a PDF to your PC or smartphone

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.

› CLICK HERE TO DOWNLOAD

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.

› CLICK HERE TO DOWNLOAD

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.

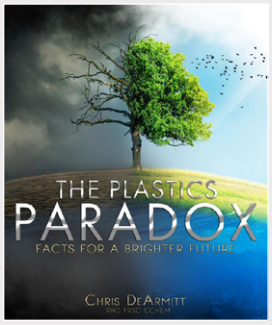
› CLICK HERE TO DOWNLOAD

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.

› CLICK HERE TO DOWNLOAD

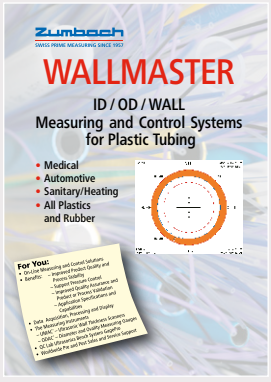
FREE READING: PLASTICS PARADOX



Plastics consultant Chris DeArmitt examined more than 400 peer-reviewed scientific articles to present this interesting perspective on plastics and the environment. *Compounding World* subscribers can read the entire book for free.

› CLICK HERE TO DOWNLOAD

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.

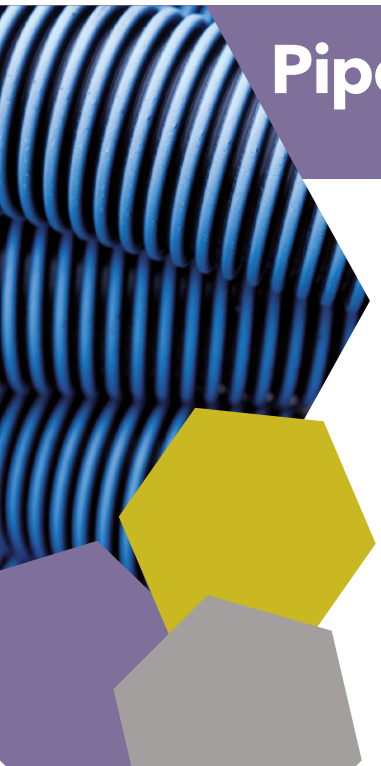
› CLICK HERE TO DOWNLOAD

If you would like your brochure to be included on this page, please contact Claire Bishop claire.bishop@ami.international. Tel: +44 (0)1732 682948

Profine

Head office:	Troisdorf, Germany
CEO:	Peter Mrosik
Founded:	2003
Ownership:	Private
Sales (2019):	Around €700m
Employees:	Around 3,500
Profile:	PVC profiles manufacturer Profine was founded in 2003 – though this was a reorganisation of the existing HT Troplast business under a single roof. The history of some of its subsidiary brands – including Kommerling, Trocal and KBE – stretches back much further: Kommerling was founded in 1897, while KBE began life in 1980. Profine now supplies its products to 89 countries.
Product lines:	The company makes and sells its products under its three brand names. KBE is focused on window profiles, offering 70, 76 and 88mm systems. Its most recent, the KBE 70, includes a double seal. Kommerling recently developed its Unity product, which combines PVC and aluminium cladding. The product can be modularly designed and is based on the company's 76 centre seal system. Trocal is also a global brand, selling sliding systems, shutters and ancillaries in addition to its window and door systems.
Factory locations:	The company has a total of 29 sites in 22 countries. As well as having two production sites in Germany, it has others in China, France, India, Italy, Spain, Russia, Ukraine and USA. Its total output is around 450,000 tonnes of profiles per year. Profine recently acquired UK-based Aperture – giving it a manufacturing base in the country for the first time.

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:

September 2020	**October 2020**
Window profile developments	PVC-O pipe
Downstream equipment	Pipe inspection
Large diameter pipes	Materials handling
PEWE Essen preview	PEWE USA preview

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

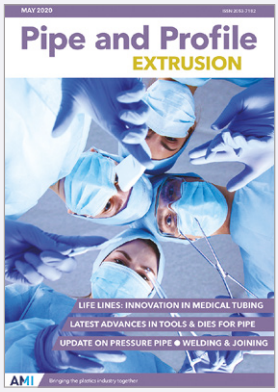
For information on advertising in these issues, please contact:
Claire Bishop: claire.bishop@ami.international Tel: +44 (0)1732 682948
Levent Tounjer: levent.tounjer@ami.international Tel: +44 (0)117 314 8183

Keep informed: read our latest editions

AMI publishes five process-specific FREE plastics industry magazines. Simply click on the cover below to read each magazine. Or download the issue in the relevant Apple or Android app

Pipe and Profile
June 2020
The June 2020 edition of Pipe and Profile Extrusion looks at how the rise in digital operations is influencing the way that profile dies are being designed and operated. Plus features on corrugated pipe, PEX pipe and PVC recycling.

› CLICK HERE TO VIEW

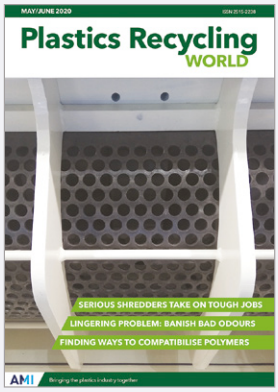


Pipe and Profile
May 2020
The May edition of Pipe and Profile Extrusion magazine examines some of the latest developments in the medical tubing sector. It also looks at innovations in pressure pipes, pipe dies and pipe joining technology.

› CLICK HERE TO VIEW

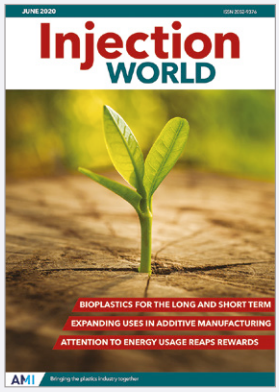
Compounding World
July 2020
The July edition of Compounding World magazine finds out what the Covid-19 pandemic has meant for the antimicrobials sector. It also looks at developments in colour measurement, liquid feeding and melt filtration.

› CLICK HERE TO VIEW



Plastics Recycling World
May/June 2020
The May/June edition of Plastics Recycling World looks at the industry's lingering problem of bad odours. It also reviews the latest developments in high performance shredders and explores the world of polymer compatibilisers.

› CLICK HERE TO VIEW



Injection World
June 2020
The June issue of Injection World has features on the diversification of uses for bio-sourced polymers, new developments in 3D printing and the benefits of good energy management, plus news on the industry impact of Covid-19.

› CLICK HERE TO VIEW

Film and Sheet
June 2020
The June edition of Film and Sheet Extrusion magazine takes a look at some of the latest developments in printing systems. It also explores new ideas in pouch packaging, blown film control technology and downstream equipment.

› CLICK HERE TO VIEW

Take out your own FREE subscriptions to any of the magazines. Click on the logos below to simply register on-line.

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

GLOBAL EXHIBITION GUIDE

2020	**9-13 September**	Taipei Plas, Tapei, Taiwan **POSTPONED**	www.taipeiplas.com.tw
	10-12 September	Plasti & Pack, Lahore, Pakistan	https://plastipacpakistan.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
	29-31 October	MECSPE, Parma, Italy	www.mecspe.com
	4-5 November	Plastics Extrusion World Expo USA, Cleveland, USA	www.extrusion-expo.com/na/
	10-13 November	Plastimagen, Mexico City, Mexico **POSTPONED**	www.plastimagen.com.mx
	24-27 November	Argenplas, Buenos Aires, Argentina	www.argenplas.com.ar
	1-5 December	Equiplast, Barcelona, Spain **POSTPONED**	www.equiplast.com
	14-17 December	Interplas Thailand, Bangkok, Thailand	www.interplasthailand.com
2021	**9-11 March**	JEC World, Paris, France	www.jec-world.events
	1-4 April	Plastics, Printing & Packaging, Dar-es-Salaam, Tanzania **NEW DATE**	www.expogr.com/tanzania/pppexpo
	13-16 April	Chinaplas, Shenzhen, China	www.chinaplasonline.com
	4-7 May	Plast 2021, Milan, Italy	www.plastonline.org/en
	17-21 May	NPE 2021	www.npe.org
	15-18 June	FIP, Lyon, France	www.f-i-p.com
	22-25 June	Colombiaplast, Bogota, Colombia **NEW DATE**	www.colombiaplast.org
	29 June – 1 July	Interplas, Birmingham, UK **NEW DATE**	www.interplasuk.com

AMI CONFERENCES

27-28 October 2020	Plastic Pipes in Infrastructure, Hamburg, Germany
2-3 November 2020	Profiles North America, Cleveland, OH, USA
2-4 November 2020	Plastics Regulations Europe, Cologne, Germany
3 November 2020	Plastics Regulations North America, Cleveland, OH, USA
3-4 November 2020	Chemical Recycling Europe, Hamburg, Germany
1-2 December 2020	Conductive Plastics Europe, Munich Germany
2-3 February 2021	Polymers in Cables North America, Charlotte, NC, USA

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

www.ami.international

PLASTICS RECYCLING WORLD EXPO
POLYMER TESTING WORLD EXPO
PLASTICS EXTRUSION WORLD EXPO
COMPOUNDING WORLD EXPO

7- 8 October, 2020
ESSEN, GERMANY

4 - 5 November, 2020
CLEVELAND, OHIO

www.ami.international/exhibitions

Brought to you by: AMI

Proudly supported by: Compounding WORLD | Film and Sheet EXTRUSION | Pipe and Profile EXTRUSION | Plastics Recycling WORLD