JULY/AUGUST 2021

ISSN 2053-7182

Pipe and Profile EXTRUSION

EUROPE SETS NEW TARGETS IN PVC RECYCLING

ADDING VALUE: INNOVATION IN PVC STABILISERS

TECHNOLOGY UPDATE: EXTRUDER DEVELOPMENTS

AMI

Bringing the plastics industry together

GET THE APP...

Pipe and Profile EXTRUSION

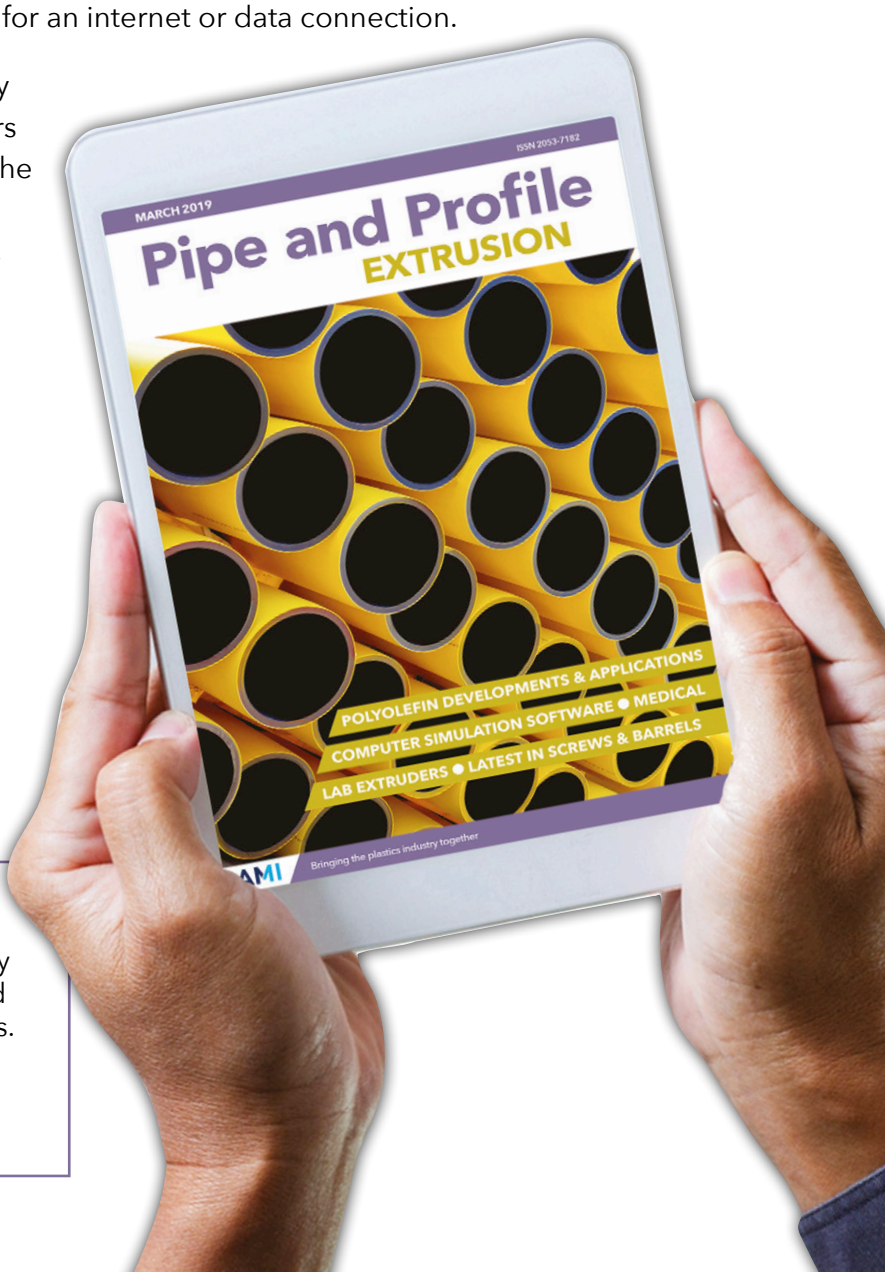
Pipe and Profile Extrusion magazine is available free-of-charge on iPads, iPhones and a huge range of Android-based tablets and smartphones.

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

COMING NEXT ISSUE

› Window profile developments › Downstream equipment › Large diameter pipe › PEX

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.amiplastics.com
www.twitter.com/plasticsworld
Registered in England No: 2140318

EDITORIAL

Editor-in-Chief: Chris Smith
cs@amiplastics.com

Editor: Lou Reade
lou@pipeandprofile.com

Events and Magazines Director: Andy Beevers
abe@amiplastics.com

DOWNLOAD MEDIA DATA

ADVERTISING

Advertisement Manager: Claire Bishop
cb@amiplastics.com T/ +44 (0)7905 848744

Sales & Commercial Manager: Levent Tounjer
lt@amiplastics.com T/ +44 (0)7718 578559

Exhibition & Advertising Sales Manager: Jessica Szuts-Naranjo
jna@amiplastics.com T/ +44 (0) 117 314 8173

Advertising Sales (China/Hong Kong): Maggie Liu
maggieliu@ringiertrade.com T/ +86 13602785446

Advertising Sales (Taiwan): Ms Sydney Lai
sydneylai@ringier.com.hk T/ +886-913625628

PLASTICS EXTRUSION WORLD EXPO

29-30 September 2021

MESSE ESSEN, GERMANY

Get your free ticket now!

Listen to industry leaders at the free conference sessions, including:

Zoran Davidovski
Head of R&D and Sustainability

Morten Augestad
Business Director

Dr. Jan Hendrik Petermann
Product Manager

Angelo Paganizza
Area Sales Manager

Christian Apel
International Projects Manager

Johannes Lorenz
Key Account Manager

REGISTER FOR FREE

View the full programme online, featuring technical presentations, seminars and industry debates

Brought to you by: AMI

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

Proudly supported by: Pipe and Profile EXTRUSION

North American machine sales make progress in first quarter

Sales of primary plastics machinery in North America reached almost US$335 million in the first quarter of this year.

This was a 32% rise compared to the same period in 2020, but an 11% dip compared to the final quarter of the year.

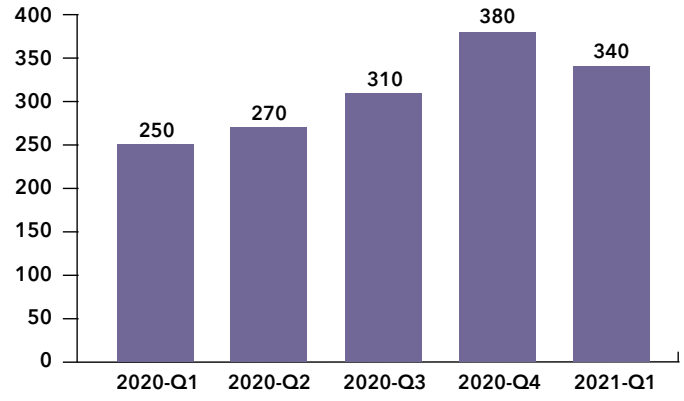
"Plastics machinery shipments usually start slow every first quarter, so it was not surprising to see the data came in lower," said Perc Pineda, chief economist of the Plastics Industry Association.

The rise was in step with overall economic activity, he said.

"With the economy staying in a recovery cycle, plastics machinery shipments can be expected to increase this year," he added. "However, supply chain issues in plastics end-markets could slow growth in plastics equipment demand.

Q1 sales of single-screw extruders fell by 29% compared to Q1 2020, and by nearly 38% compared to Q4 2020. Sales of twin-screw extruders, however, rose 18% compared to Q1 2020, and by 42% compared to Q4 2020. For comparison, sales of injection moulding equipment rose nearly 40% compared to Q1 2020 but fell by 11% compared to Q4 2020.

Sales dipped compared to Q4 2020, but rose compared to Q1 2020



Source: Plastics Industry Association 2021

Total exports in Q1 2021 rose by 9% to US$395 (compared to Q4 2020). Imports fell 3.5% to US$845m, resulting in a US$450m trade deficit, which was nearly 13% lower than in Q4 2020.

The organisation also runs a quarterly survey of its members. In the next quarter, almost 90% expect conditions to improve or hold steady compared to a year ago. This is lower than the 96% who felt this way in the previous quarter. For the next 12 months, 93% expect market conditions to be steady-to-better – higher than the 90% who voted this way in the Q4 2020 survey.

"The equipment sector of the plastics industry came out of 2020 strongly," said Pineda. "The improved trade outlook will be a positive for plastics equipment suppliers, on top of what can be expected as another good year for plastics equipment demand."

› **www.plasticsindustry.org**

Canadian plastics firms to fight 'toxic' listing

A coalition of Canadian plastics companies is to challenge its government's decision to categorise all plastics as 'toxic'.

In May, the Canadian government added "all plastics manufactured items" to the toxic substances (Schedule 1) list in the Canadian Environmental Protection Act (CEPA) – the country's main piece of legislation covering human health and environmental protection.

The Responsible Plastic Use Coalition (RPUC) has filed a notice of application in the Federal Court of Canada challenging the decision. It argues it is scientifically unjustifiable and points out that plastics comply with federal regulations in place to ensure safe use.

Substances can be added to the CEPA Schedule 1 list if they are considered to be harmful to environment and biodiversity and/or human health. The RPUC described the inclusion of "all plastics" as "a significant over-reach by the federal government" and said the move presents an obstacle to the creation of a circular economy.

IMAGE: SHUTTERSTOCK

"The challenge we face is not that plastic is toxic, but that of post-consumer plastic in the environment resulting from human behaviour and systemic waste management and recycling shortfalls," the coalition said.

› **https://rpuc.ca/**

Uponor revises its 2021 guidance

Swedish pipe manufacturer Uponor says that increased demand for its products has led it to revise its guidance for the 2021 financial year.

The company now expects to increase both net sales and profits by at least 2.5% by the end of this year – excluding the impact of currency fluctuations. Back in April, Uponor was predicting a 2.5% increase in sales – but flat profits – in 2021.

"The activity in residential construction markets on both sides of the Atlantic has stayed on a high level – and based on current market forecasts we expect that trend to continue," said Jyri Luomakoski, president and CEO of Uponor.

He said that increased volumes have helped to grow both net sales and operating profit at the company.

Earlier this year, the company committed to making savings of €20 million (US$30m) by the end of this year, and €25m (US$24m) by the middle of 2022. It will do this partly by improving efficiency – by reducing complexity and overlapping tasks – and by "harmonising processes", said Uponor.

In February, Luomakoski announced that he will leave Uponor in August. His successor has now been appointed. Michael Rauterkus – formerly CEO of German sanitary technology manufacturer Grohe – becomes president and CEO of Uponor on 21 August, the day after Luomakoski's departure.

› **www.uponorgroup.com**

Teppfa ups recycling in Europe

Teppfa, which represents European pipes and fittings manufacturers, says its members are using more recycled materials in their products.

A survey of members shows that 218,000 tonnes of recycled plastics were used in new piping systems in 2020 – a "significant increase" compared to previous years, in spite of difficult trading conditions and low virgin material costs.

› **www.teppfa.eu**

Pipe projects win awards

IMAGE: PPI

Loops of 'snow melting' PEX pipe were built into a pedestrian bridge in the USA

An ice-melting project, pipework for a US military base and a drainage installation in Haiti are among the project winners at this year's Plastic Pipe Institute (PPI) awards.

The ice-melting project involved installing around 35,000 ft of PEX tubing – in 'snow melting' loops – into the concrete pathway of a new pedestrian bridge. At an army base in Texas, more than 60,000 ft of PP-RCT pipe was used to move water around the campus effectively. And, in Haiti, around 1,500 ft of corrugated HDPE pipe – in diameters of 6-36in – was used to drain water from a sports field owned by a charitable organisation.

Other winners were two saltwater disposal systems – one of which used more than 88,000 ft of PE-RT HDPE – a 7.5-mile sewage installation made using HDD, and a 13,000 ft 'cable in conduit' system that allowed overhead conductors to be moved underground for safety purposes.

› **www.plasticpipe.org**

South African workers lose redundancy appeal

Former staff at a South African plastics pipe factory – who were fired after their human resources manager was assaulted – have lost an appeal to be reinstated.

Video footage showed 12 employees of Marley Pipe Systems in Pretoria pushing their HR manager through a window, then assaulting him. It led to 148 staff being fired – as they had "associated themselves with the assault", according to a report in the *Sunday Times* of South Africa.

A labour court supported the firings and ordered the ex-employees to pay compensation to Marley. Afterwards, 41 of them took their case to a labour appeal court to be reinstated. However, the court supported the original decision.

"The labour court cannot be faulted for finding that the appellant employees committed the misconduct for which they had been dismissed," said acting judge of appeal Kate Savage, in the *Sunday Times* report.

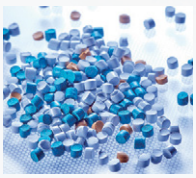
"Given the seriousness of such misconduct, dismissal was an appropriate sanction."

› **www.marleypipesystems.co.za**

MIXACO®
MASCHINENBAU

NEW HM+KMH
The solution of Excellence for every PVC mixing need.

Heating and Horizontal Cooling Mixer







MIXACO World leader, since 1965, in the conception and realization of customized plants for industrial mixing.

Our goal is to go beyond your expectations with systems designed to specific needs, able to optimize energy costs and production performance.

From small to large systems, MIXACO deploys its highly specialized team that will follow you step by step, from the first consultation through to installation and after-sales service.

With MIXACO you have the luxury of having no worries.

The advantages you will achieve:

- Minimizing Batch Times
- Automating your Processes
- Digitalization of Processes
- Increasing Output
- Optimizing Resources
- Increasing Quality of Final Products
- Maximizing Production Times and Profits

MIXACO
Dr. Herfeld GmbH & Co. KG
Niederheide 2 - 58809 Neuenrade - Germany
Tel. +49 2392 9644-0 - Fax +49 2392 62013
info@mixaco.de

MIXACO USA LLC
1784 Poplar Drive
Greer, SC 29651 - USA
Tel. +1 864 331 23 20 - Fax +1 864 331 23 21
info@mixaco.com

MIXACO.COM

made in germany

VDMA: sales on the rise in early 2021

German plastics machinery manufacturers have seen a positive start to 2021, with orders almost doubling in the first four months of the year.

VDMA, which represents machinery manufacturers, says order intake rose by 92% in the period, while sales rose by around 8%. It forecasts a sales increase of at least 10% in 2021.

"Economically, the industry is currently doing very well again," said Thorsten Kühmann, managing director of VDMA's plastics machinery segment.

However, he said that a shortage in plastic materials may affect the ability of manufacturers to invest.

"This could lead to the paradoxical situation of machine manufacturers having to curb production despite full order books," he said.

Although exports fell by 11% in 2020, deliveries to the USA rose 8%, making it the top export market for German machinery.

› **www.vdma.org/plastics-rubber-machinery**

ECHA withdraws lead pigment restrictions

In May, the European Chemicals Agency (ECHA) withdrew its twice-delayed intention to restrict certain lead chromate pigments (CI Pigment Yellow 34 and CI Pigment Red 104) saying it is unable to complete the required REACH Annex XV restriction dossier until the European Commission has determined a decision-making route on proposed restrictions on the use of lead stabilisers in PVC.

The Commission had put forward a proposal – based on a 2016 ECHA Annex XV **restriction report** – that set lead limits in recycled PVC above virgin norms to allow legacy products containing higher levels of lead stabilisers, to be reprocessed at end-of-life. That proposal, however, was voted down in the European Parliament in February of 2020.

ECHA said that while its pigment restriction has a wider scope it is interlinked with the Commission's PVC stabiliser proposal as both consider use of lead in plastics and both identify release at end-of-life as the main potential source of emissions. "Therefore, policy discussions on lead in PVC are expected to have an impact on the underpinning analysis presented in the lead chromates dossier," according to a spokesperson.

IMAGE: SHUTTERSTOCK

Pigment decision impacted by European Parliament rejection of recycled PVC stabiliser limits

ECHA said the pigment restriction proposal could be further affected by a **ruling** in the European Court of Justice in February of this year against a Swedish challenge to the Commission's 2016 decision to authorise use of the same pigments in certain safety-critical applications where alternatives were not deemed to be available.

"The deliberations following this case may also have an impact on the restriction as it was made under Article 69(2) of REACH and is therefore complementary to the authorisations," the spokesperson said.

The Commission has yet to determine a way to address the Parliament decision on lead stabilisers. An official said it intends to "find the right balance" between minimising substances that pose potential health and environmental problems in recycled materials while meeting its circular economy and carbon neutrality ambitions.

› **www.echa.europa.eu**

Expanding in medical tubing production

US-based Eldon James, which makes tubing for the medical and beverage industries, is to further extend its facility in Fort Collins, Colorado.

A new 106,000 sq ft building will be constructed next to its existing 93,000 sq ft WilMarc facility, which makes medical devices.

The new building will include several cleanrooms to make tubing and connectors to meet the needs of pharmaceutical, medical and laboratory customers. This new capacity complements a large cleanroom at its Denver facility, it says.

The company says that its business has grown substantially in the last year due to demand for components – such as its TPE-based tubing – used by vaccine manufacturers, pharmaceutical and medical device companies, laboratory, industrial and automotive manufacturers.

› **www.eldonjames.com**

Pandemic causes 5% decline in European plastics resin output

Plastics production in Europe fell in 2020 as a result of the pandemic.

Plastics Europe, which represents European resin producers, said its production fell to 55 million tonnes in 2020 – a decline of around 5%. This took Europe's overall market share from 16% to 15%. At the same time, China's production rose (so that it now accounts for 32% of production), and North America's remained stable at 19% of global production. Worldwide plastics production reached about 367m tonnes, a decrease of 0.3% compared to 2019.

Plastics Europe added that European demand fell to 48m tonnes – a dip of 5%, and the lowest figure since 2014. The lower demand was driven by a decline in packaging and automotive production. The amount of plastic used in packaging fell by 2.5% (around 0.5m tonnes), due mainly to the decline in commercial and industrial packaging. Consumer packaging remained stable in 2020.

Early estimates of the building and construction sector show that the plastic demand here remained stable.

› **www.plasticseurope.org**

IMAGE: SHUTTERSTOCK

Demand for plastics in building and construction remained stable in 2020

Medical Tubing & Catheters

Improving polymeric medical tubing and catheters, from design, materials and production to applications

5-6 October 2021
Pullman Cologne
Cologne, Germany

BOOK YOUR PLACE

Join your industry in Germany this October

Be part of this dynamic forum addressing the latest tubing and catheter developments for a wide range of medical requirements.

- Discover recent advancements in plastics, catheter and tubing design and processing
- Understand how leading medical device manufacturers make important decisions (including materials selection)
- Benefit from in-depth advice on technical developments and direct interaction with speakers on key topics like regulatory changes
- Build your network by connecting with key players from throughout the medical tubing and catheter supply chain
- Get up close to well-connected leading industry experts and ask your questions

Find out more at
www.ami.ltd/attend-tubing

Contact us:
Lorna Grey
Senior Conference Organiser
E/ lorna.grey@ami.international
T/ +44 (0)117 314 8111

Headline sponsor:

GIMAC

Also sponsored by:

GRAHAM ENGINEERING

Media supporters:

Pipe and Profile EXTRUSION

Compounding WORLD

IMAGE: REHAU

Europe fell short of its 2020 target on PVC recycling, but has set a new goal: to recycle 1 million tonnes of PVC each year by 2030. ***Lou Reade*** *reports*

Europe sets new PVC recycling target for 2030

For the best part of the last 20 years, Europe has been steadily increasing the amount of PVC it recycles. Guided by **VinylPlus** – an ongoing voluntary commitment by the PVC industry – recovery of the material fell just short of its stated target: to recycle 800,000 tonnes/year of the material by the end of 2020.

The organisation said that the impact of the Coronavirus pandemic on the European recycling sector was the reason for missing its goal.

"The Covid-19 pandemic provoked severe market disruption during the first half of 2020," said Brigitte Dero, managing director of VinylPlus. "Recycling operations decreased in Europe, as many companies were forced into lockdown."

Although the situation improved in the second part of the year, "a complete recovery from the first wave of Covid-19 was not possible", she said.

"In view of these circumstances, PVC waste recycling within the VinylPlus framework still reached 731,461 tonnes – above 91% of the programme's 2020 target," said Dero.

VinylPlus almost reached its target by the end of 2019 by recycling around 771,000 tonnes of PVC. However, the shutdown of recycling plants caused by the pandemic led to a 5% fall in PVC recovery – and a final figure of around 730,000 tonnes.

The organisation's annual report shows that window profiles account for around half of all recycled PVC in Europe. However, recycling volumes here fell by 3% (equivalent to around 10,000 tonnes) last year. Similarly, cable recycling volumes were down by around 20% (around 20,000 tonnes). In contrast, recycling of flexible PVC and film was almost unaffected between 2019 and 2020.

New targets

VinylPlus has now set two new targets: to recycle 900,000 tonnes/year of PVC by 2025, and 1 million tonnes/year by 2030.

"These targets are still realistic – but there are some legal uncertainties that might affect the results," said Dero.

As an example, she points to the implications of the Basel Convention amendments – which "pose significant challenges for the movement of PVC into and out of the UK". Another example is the restriction of lead in recycled PVC: the EU Commission has still not decided on a way forward, which is

Main image: Profiles account for half of all recycled PVC in Europe

IMAGE: VINYLPLUS

Above: Dero: "The pandemic provoked severe market disruption during the first half of 2020"

causing ongoing uncertainty.

On a positive note, VinylPlus says that the recycling network is now largely back to normal levels of operation, with recyclers of both flexible and rigid PVC "optimistic".

When VinylPlus set its original goal to recycle 800,000 tonnes/year of PVC, it also committed to find ways to recycle 100,000 tonnes/year of 'difficult to recycle' plastics – but soon dropped the target. However, it says that new technologies may help it to make progress here – such as with its Oreade and Thermovinyl processes.

"The scale-up of chemical recycling technologies still requires a good deal of innovation and solid R&D work," said Dero. "The progress in all these technologies in the next decade will certainly enable recycling of more 'difficult' PVC waste."

In June, VinylPlus ran its annual conference – with mainly virtual participants – where several speakers spoke about increasing the recycling of PVC.

Forward path

As part of its 2030 commitment, VinylPlus laid out three 'pathways' to follow: circularity; carbon neutrality and lowering the footprint; and building partnerships.

In a session on how to scale up circularity, Petra Weisshaupt, policy officer at the **German Environment Agency** (UBA), said that her organisation had carried out a study into recycling of plastics in the construction industry. Of the 2.6 million tonnes used each year, about 806,000 tonnes were taken up by pipes and around 569,000 tonnes by profiles. At the same time, PVC accounted for around 785,000 tonnes (nearly one-third).

One important point she made was that unplasticised PVC – such as that used in pipes and profiles – was generally recyclable and with a "low concentration of harmful substances".

"Window profiles typically have a recycled content of 60%," she said.

However, plasticised PVC – such as that used in floor and roof coverings – was harder to recycle as it was difficult to grind. In addition, it was likely to contain substances such as plasticisers. The technical readiness for recycling these products is also lower, she said.

"We could only find a few of these types of products with recycled content, such as some roof coverings and films," she said.

Stretching targets

Jason Leadbitter, chairman of the VinylPlus controlled loop committee, said that targets set in the 2025 and 2030 commitments would be revisited as time went on.

"The previous commitment saw a threefold increase in recycling volumes – but we know it will become progressively more challenging in the years ahead," he said. "If we can go further, then we will."

He said that in 2024 VinylPlus will review its position and set additional 'stretch' targets. The organisation also has three specific technology targets. The first is to confirm – by 2024 – the feasibility of using the thermal treatment process to recover the chlorine molecule from PVC. The second, by 2025, is to develop a valid sorting technology for PVC composite materials. The third, also by 2025, is to set up a consortium to build chemical recycling for plastic waste containing PVC.

INDUSTRY 4.0
Enabled

REAL-TIME SYSTEM STATUS

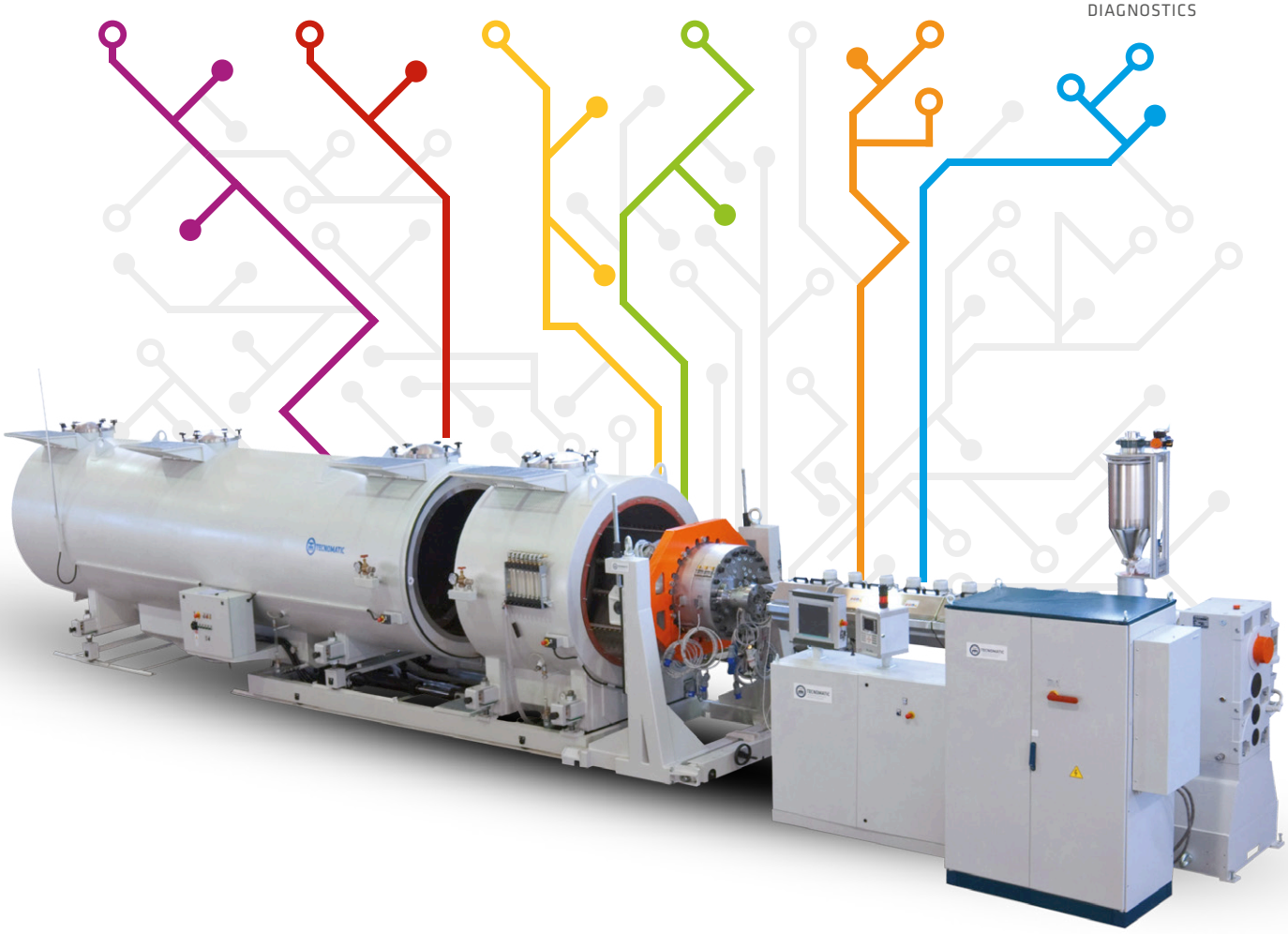
ETHERNET CONNECTIVITY

REMOTE MONITORING

SMART FACTORY COMPATIBILITY

SENSORS SYSTEM PERFORMANCE

PREVENTIVE MAINTENANCE DIAGNOSTICS



Enhance the concept of **pipe extrusion.**

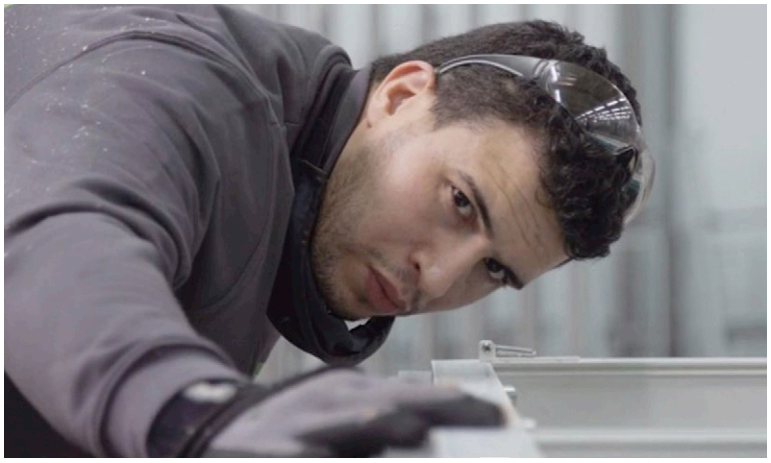
The investment in INDUSTRY 4.0 brings about an increased productivity and quality of the processes, and as a consequence a reduction of the overhead costs. Tecnomatic's PIPE 4.0 is the most up-to-date and state-of-the-art dedicated software in the market. INDUSTRY 4.0 allows preventive maintenance procedures and the recording of the efficiency of the machines themselves, but in particular it monitors all production activities, providing precise and timely data on order management, production phases and estimates and calculates production costs.

TECNOMATIC

TECHNOLOGIES FOR PLASTIC PIPES PROCESSING

Tecnomatic Srl - Bergamo (Italy)
tel. +39 035 310375 - tecnomaticsrl.net

IMAGE: PROFINE



Above: Profine's ReFrame window profiles, made completely from recycled PVC, have the same properties as conventional windows

Referring to an earlier conference speaker, he said: "It's reassuring to hear the European Commission talk about how chemical recycling is complementary to mechanical recycling."

However, he said that chemical recycling was unlikely to improve recycling of 'difficult' items such as plasticised PVC in the short term.

"This is still in the early stages. We'd like to improve that in the next five years and see how it would launch into some type of deployment," according to Leadbitter.

Second path

The 'second pathway' involves reducing carbon footprint. Helle Simon Elbro, a consultant for the **Danish Environmental Protection Agency**, explained a partnership between the PVC industry and Danish government to deal with "problematic chemicals in PVC".

She said the main focus was on chemicals such as lead stabilisers and a variety of plasticisers. One key matter of interest is on PVC products coming from China, which she says is now the world's largest producer.

"Some the producers there have million-tonne capacities," she said. "Chinese exports of PVC will significantly increase in future."

While some Chinese standards on PVC additives are equivalent to those in Europe – such as levels of lead stabilisers of plasticisers in toys – she said that others were inferior. For example, standards on lead stabilisers were different in general – and "complicated to enforce", she said.

The difficulty in enforcing standards has led to concerns over imports of materials that contain "unwanted additives".

She says that the partnership will begin a

dialogue with China – focused on consumer protection – by initial contact with the China Plastics Processing Industry Association (CPPIA).

"We know that CPPIA has a close connection to the Chinese government," she said.

Recycled windows

Away from the conference, PVC recycling continues to happen – in everything from window profiles to medical products. For instance, **Profine** recently supplied window frames – made completely from recycled PVC – for a building project in Germany.

The ReFrame windows have been supplied for a children's day-care centre in Moenchengladbach, with its project partner Rolladen Müllers.

"ReFrame windows – part of our Kommerling brand – are the first to be made entirely of recycled PVC and have the same functional properties as conventional PVC windows," said Friedhelm van den Berg, area sales manager for Germany at Profine. "They have a UV-resistant surface, good technical properties and a high thermal insulation value."

Müllers has manufactured 57 ReFrame windows and doors of the Kommerling 76 double seal system and will install them in the day-care centre.

IMAGE: REHAU

Above: Rehau has invested in a new window profile recycling facility in the UK

Construction of the centre should be complete in the summer.

A second building project – an apartment building with a daycare centre on the ground floor – will also be equipped with ReFrame window profiles.

ReFrame windows are finished with Profine's ProCoverTec surface technology to give them a high-quality appearance. ProCoverTec also improves technical properties such as UV resistance and IR reflection, says Profine.

Top 5 end markets for recycled PVC, USA & Canada, 2014-2020

Ranking	2014	2017	2020
1	PVC resin	Custom extrusion	Custom extrusion
2	PVC compounding	PVC resin	PVC compounding
3	Custom extrusion	PVC compounding	Lawn & garden
4	PVC siding	Lawn & garden	PVC siding
5	Windows	Building trim	Large diameter pipe (>4in)

Source: Tarnell

Boosting UK recycling

Window profile manufacturer **Rehau** has invested £10 million (US$14m) in its PVCR recycling subsidiary in the UK – setting up a new facility in Runcorn in the north of England.

PVCR claims to be the largest U-PVC recycler in the region, collecting and processing 1,000 tonnes/month of post-consumer polymer windows and doors.

The company aims to recycle 24,000 tonnes/year of old PVC window frames by 2024 – which is twice the amount it currently handles.

"The UK public is becoming more familiar with the benefits of PVC windows, but more work needs to be done to raise awareness of recyclability beyond single-use plastic," said Martin Hitchin, CEO of Rehau in the UK.

Cables into PVC

A pan-European research project aims to recycle PVC electrical cables into rPVC that can then be used to make new construction products.

The project, **PVC Upcycling**, is led by Redel of Italy in collaboration with the University of Calabria and ENEA.

Two different applications were investigated: urban tiles; and cement-based mortars reinforced with PVC from the recycled cables. For both applications, experimental investigations were carried out to verify mechanical strength and durability.

Making the PVC tiles consisted in a standard-mix design made of 90% of PVC powder and 10% polyurethane resin. The mortars were made by volumetric substitution of sand with different amounts of plastic waste, ranging from 10% to 50%. Plastic for the mortar samples came from grinding PVC/copper cables and separating the two materials.

North America increase

Although Europe leads the way on vinyl recovery, PVC recycling in the USA and Canada increased by nearly 7% in the three years to 2019.

The **Vinyl Institute**, which represents the PVC industry in the USA and Canada, says the amount of PVC recycled between 2016 and 2019 rose by 70 million lbs (32,000 tonnes), to reach 1.1 billion pounds (500,000 tonnes).

The survey, conducted by Tarnell, found that 958m lbs (435,000 tonnes) of this material was pre-consumer and 142m lbs (64,000 tonnes) was post-consumer.

"The majority of PVC goes into durable products, like PVC pipe, which is in service for decades," said Ned Monroe, president and CEO of the Vinyl Institute.

"For this reason, there's often less material readily available to be recycled, and less that goes to landfill."

In the study, Tarnell contacted 277 companies to confirm their PVC recycling behaviour. Of these, 134 were confirmed as current PVC recyclers, brokers or end product manufacturers. Compared with the previous research – in 2017 – custom extrusion remained the top end market for recycled PVC, with vinyl compounding in second place. However, vinyl resin – which had been second in 2017 – disappeared from the latest list. One end-use application that joined the list was large diameter pipe (greater than 4in in diameter).

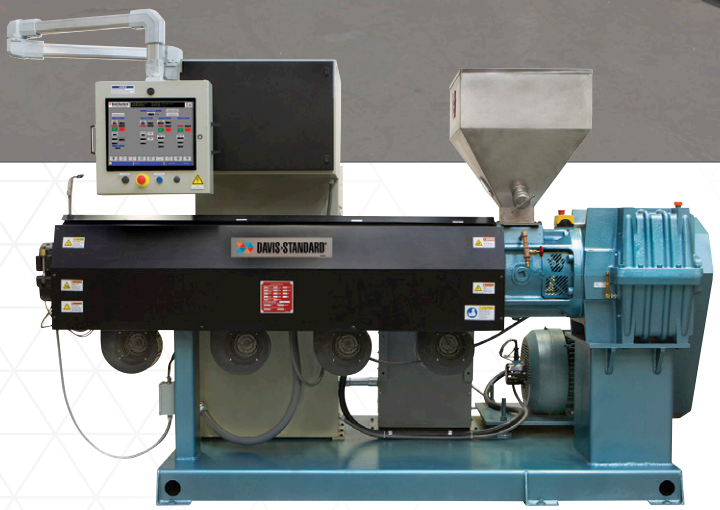
The **Vinyl Sustainability Council** (VSC) has set a goal of a 10% increase in post-consumer recycling by 2025 (compared to 2016). This would mean recycling around 160m lbs (73,000 tonnes) of post-consumer PVC – requiring US$20m-30m in capital investments, said VSC.

Jay Thomas, executive director of VSC, said: "While challenging, we're confident this is achievable through collaboration across the industry."

CLICK ON THE LINKS FOR MORE INFORMATION:

- **www.vinylplus.eu**
- **www.umweltbundesamt.de/en (UBA)**
- **https://eng.mst.dk (Danish EPA)**
- **www.profine-group.com**
- **www.pvcr.co.uk**
- **www.vinylinfo.org**
- **www.pvc4cables.org (PVC Upcycling)**
- **www.vinylinfo.org**
- **https://vantagevinyl.com**

Your success is our priority.



Your products impact the world. That's our motivation for engineering tailored pipe and profile extrusion equipment for your process. When you succeed, your customers succeed. **And together, we win.**

Call +1 860-650-4270 today to discover the difference!

DAVIS-STANDARD®

Where your ideas take shape.

davis-standard.com

PLASTICS EXTRUSION WORLD EXPO

NORTH AMERICA

November 3-4, 2021

CLEVELAND, OHIO, USA

Registration is now open!

Join us at the leading exhibition for the North American plastics extrusion industry.

- Source new materials, technologies and solutions
- Network with other stakeholders within the industry
- Increase your technical knowledge through training seminars, business debates and industry panels
- Put your questions to the experts in a face-to-face environment
- Stay up-to-date with new challenges and opportunities within the plastics extrusion industry

REGISTER FOR YOUR FREE TICKET

200+ EXHIBITORS
4 EXHIBITIONS
5 CONFERENCE THEATERS
1 FREE TICKET

Exhibition booths are filling up fast. Secure your perfect space today!

exhibition_sales@ami.international
+1 216 452 2491

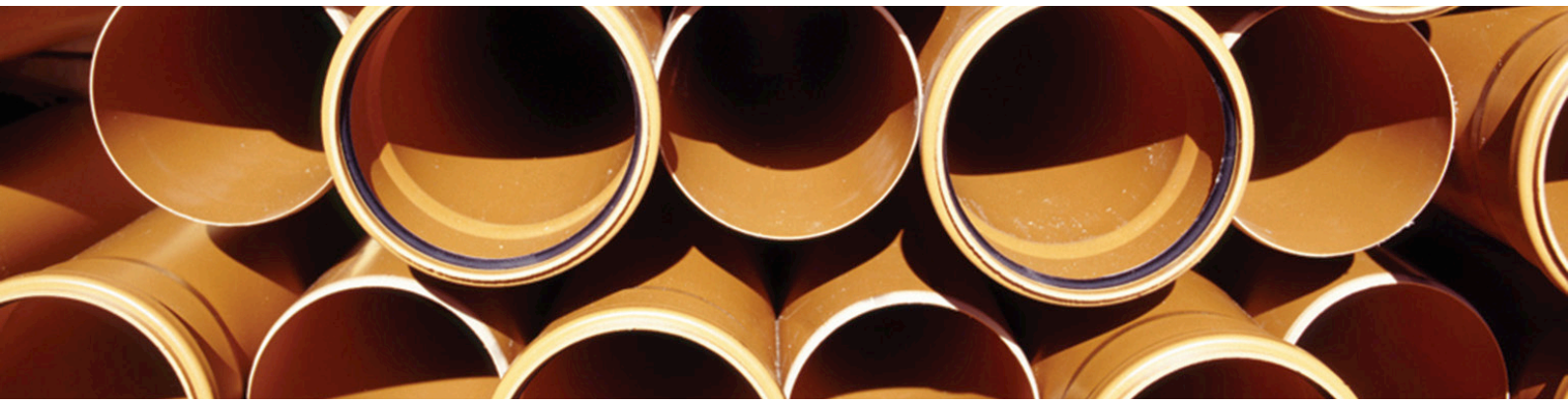
Brought to you by: AMI

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

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

IMAGE: SHUTTERSTOCK

Bouncing back in PVC



As we edge towards pandemic recovery, producers of PVC additives are dealing with supply chain issues while pushing ahead with product developments, writes Peter Mapleston

The Covid-19 pandemic has hit the world on many levels, from the personal through to business, and it is still some way from being over. After dealing with the challenges of restrictions on movement and factory operation and huge shifts in product demand, manufacturers across various sectors are now having to cope with supply chain disruptions. When it comes to various types of additives for PVC, for example, producers and users alike have had to work out ways to handle sourcing issues as well as pushing forward with other product and application developments.

Swiss company **Sanitized** supplies material protection and hygiene additives. "Like major parts of the industry, this sector was – depending on the region and country – more or less heavily affected by lockdowns and other restrictions resulting from the pandemic. Now that these difficulties have rather disappeared in the last quarter of the past year, a major part of the PVC industry is now struggling with significant problems in procuring the necessary raw materials," said Michael Lüthi, head of polymer additives at the company.

"We know of major development divisions that deal almost exclusively with reformulations of products with substitute raw materials. This shortage of raw materials is also problematic because in many cases, it is difficult to pass on the resulting hefty price increases in this industry to customers," he said.

However, Lüthi says that many of the company's customers have been fortunate enough to have weathered these turbulent times relatively well financially. "Safety equipment and high demand for items for craftsmen and handymen have provided great business opportunities that we seized in many areas," he said.

Main image: The impact of the Covid-19 pandemic on global supply chains is one of the challenges facing the PVC additives sector

Post-Covid

The post-Covid period has seen the biocide additive component in PVC formulations undergo a major shift in importance. "Whereas [the] biocide's main task used to be material protection – protecting end products from microbe infestations and all the undesired consequences – integrated hygiene function in PVC is also in very high demand today," he said.

"By choosing and using a suitable biocide additive, it is possible to enhance the final product with an integrated hygiene function such as anti-bacterial or anti-viral surface protection," said Lüthi. ❯

Tackling shortages

Brenda Hollo, business director, stabilizers, at **Valtris Specialty Chemicals**, also highlights the difficult conditions brought on by the pandemic. "2021 has also been an unprecedented year for raw material shortages, which has affected almost every industry, including PVC," she said. As one example, she says that a shortage of the preferred tin stabilisers in North America has led to an increased interest in calcium/zinc (Ca/Zn) technology. "Valtris has worked with its customers to develop creative solutions to keep production lines up and running. Ca/Zn based stabilisers are an offset to tin stabilisers in both pipe and substrate formulations." Performance of one example system is shown in Figure 1.

Valtris offers a complete line of non-toxic and heavy-metal-free stabilisers for PVC, with a strong focus on stabilisers for the flooring industry, including luxury vinyl tiles (LVTs). Hollo says they are designed to meet ever-changing regulatory needs, helping customers to satisfy indoor air quality certifications and produce products that are SVHC-free while meeting performance targets. Grades include Ca/Zn powders and liquids free of barium, which can be formulated to be ultra-low and phenol-free.

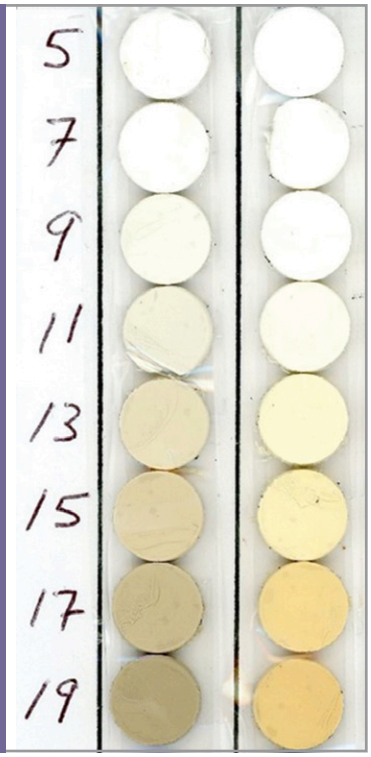


Figure 1: Brabender chips for a Therm-Chek Ca/Zn organic based stabiliser developed as a tin offset for substrate formulations. The Ca/Zn powder system (right) shows the early colour that tin stabilisers are known for along with improved mid-term colour and no loss of processability. Left column shows time in minutes

Source: Valtris

Tin alternatives

Japan's **Adeka** says that many PVC materials – such as flooring, film, wire & cable, and profiles – are required to meet increasingly challenging sustainability demands, which it has been addressing in its development of its ADK Stab RX and RUP Series Ca-Zn stabilisers.

The company says its ADK Stab RX-400 Series grades are intended as alternatives to tin stabilisers for rigid applications. They are said to provide transparency, colour stability and heat stability comparable to tin-based systems. Meanwhile, its ADK Stab RUP series products, which are intended for wire & cable compounds, "provide excellent heat stability, colour stability, heat aging characteristics and offer superior mechanical properties compared to lead-based stabiliser systems."

IMAGE: SONGWON/IISTOCK

Right: Songwon offers a variety of tin and Ca/Zn stabilizer systems for PVC pipe fitting production

Liquid options

Demand is growing for stabilisers that comply with FDA regulations and contain no substances of very high concern (SVHC) such as tris(nonylphenyl) phosphite, TNPP, according to **Songwon**. It has introduced several new additions to its Songstab product line formulated for different applications.

Songstab CZ-LF420 is a liquid calcium-zinc (Ca-Zn) stabiliser for PVC food-wrap applications that is said to impart high heat stability and transparency along with good processability. For PVC flexible films offering very high transparency, Songwon recommends Songstab BZ-L155, a powerful liquid barium-zinc (Ba-Zn) stabiliser that also offers good heat stability and lubricity.

Songwon already supplies a wide range of additives for PVC fittings. It says that liquid tin stabilisers are a robust solution where liquid products are suitable, but they may influence softening point. It describes its Songstab CZ-SF400 series as a "well-balanced" range of solid one-pack tin stabilisers that improve Vicat softening point. Solid one-pack Ca-Zn grades from the Songstab CZ-SF300 series are said to provide good processability and impart lubricity and high heat stability. Songstab CZ-SF600 solid Ca-Zn stabilisers include tin boosters and are designed for pipe fittings, especially large-diameter systems.

›

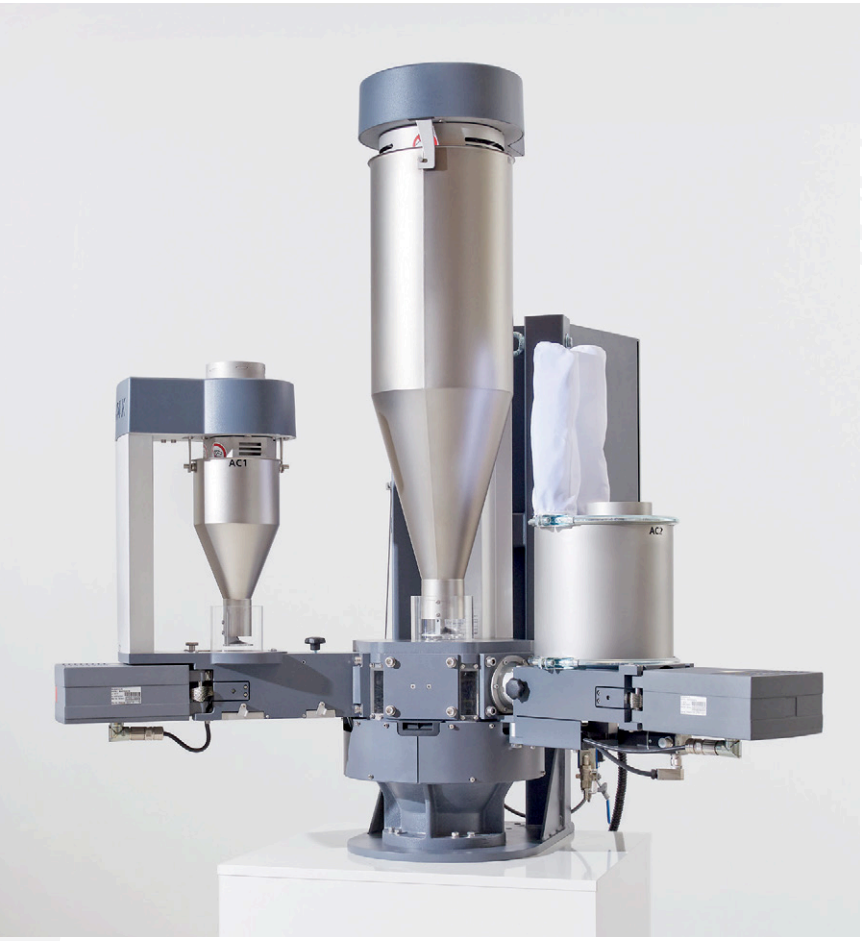
SAVEOMAT HF

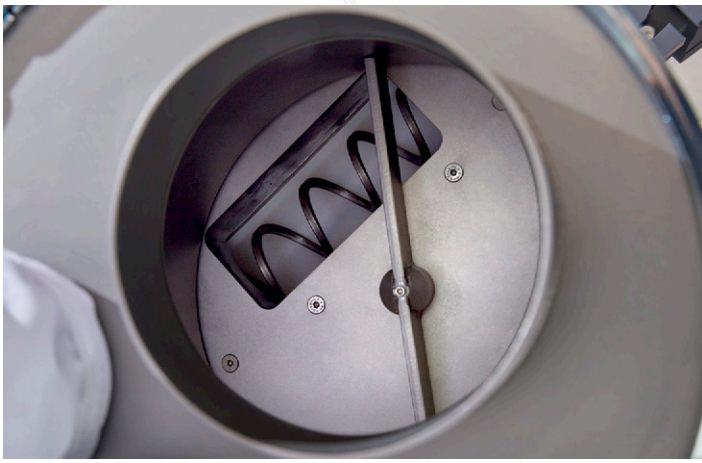
GRAVIMETRIC POWDER DOSING SYSTEM

Automation 35 YEARS in extrusion

Terahertz 10 YEARS in the field

MADE IN GERMANY



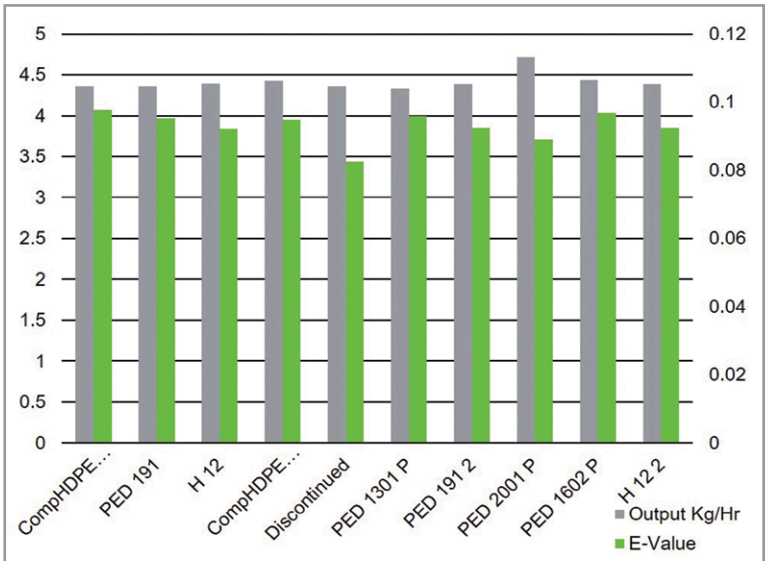


- Blockage-free dosing of material with up to 100% CaCO3
- Available with twin screw or spiral
- No bridging and blocking of material in funnel due to rotation of agitator
- Specially developed for powder, flakes, chips and recycled material
- Control either integrated into extruder control or by SAVEOMAT terminal
- Stable and reproducible processes

FOR PVC-MIXTURES WITH A CHALK PROPORTION OF UP TO 100 %

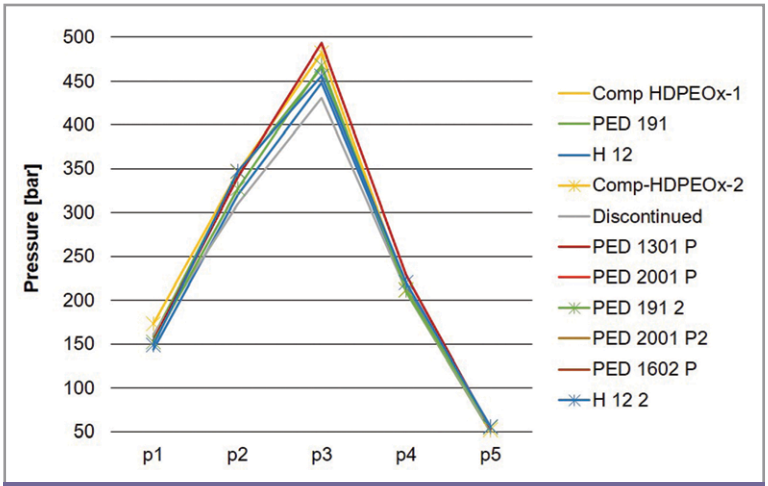
www.inoex.de

INOEX
THE FUTURE OF EXTRUSION



Comparison of output (left axis) against energy consumption when processing a PVC compound containing the new Licolub PED 1301 and PED 2001 grades compared to a typical competitive offering and other Clariant PEOx waxes (compounded on a Collin E30M laboratory compounder with an additive level 0.5%)

Source: Clariant



Pressure levels at five zones in an extruder processing PVC compounds containing Licolub PED 1301 and PED 2001 waxes compared to a typical competitive offering and other Clariant PEOx waxes. The results indicate few or no process changes required

Source: Clariant

Performance waxes

The latest developments from **Clariant** include wax products designed to lift production performance in high-output scenarios. "Successful processing of PVC is a balance of internal and external lubrication, wetting out and dispersion of high amounts of fillers and additives, and maintenance of colour standards and physical integrity of the finished product, while achieving maximum output with the least amount of energy consumption and machine wear possible," said Frank W Neuber III, regional segment technical manager for the Americas in the company's additives BU, BL-Advanced Surface Solutions.

Among the new products are two oxidised HDPE waxes (HDPEOx) with improved performance. These may be incorporated into PVC compounds as internal lubricants in place of existing HDPEOx waxes to enable higher outputs, or used as a secondary wax source. The Licolub PED 1301 and Licolub PED 2001 products are designed with drop points and viscosities that keep extruder pressure, gelation and fusion consistent with current typical offerings while increasing the amount of output with less energy consumption, the company says.

The new PED waxes are available in powder form, which Neuber says makes them easier to incorporate and distribute into powdered compounds than granulated versions.

Clariant has provided various PE and PP copolymer waxes for PVC compounds for many years. However, according to Neuber, "recent requests for improved performance and viable alternatives to the diminished wax supply currently available to customers has prompted experimentation into the benefits of other Clariant wax products – Licocene PE 4201 and Licocene PP 6102 – and their subsequent adoption by PVC compounders." Barrel pressure and output-per-kWh energy comparisons of external lubricants in PVC, where only the external lubricant was changed at a dosage of 0.2 phr, have shown the two products to be able to

PVC Formulation

16-18 November 2021
NH Collection Cologne
Mediapark
Cologne, Germany

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

JOIN US IN NOVEMBER

The only international, annual conference that covers global trends in PVC trade, advances in recipes and compounding and technical developments in a wide range of PVC additives.

- Learn how to optimise formulations for rigid and flexible PVC compounds
- Discover how regulatory changes and industry-driven sustainability campaigns impact on your business
- Meet with international PVC chemists representing the entire PVC supply chain
- Quiz industry experts during an engaging plasticiser session
- Exchange tips and tricks on formulation practice

Book your place today

Opportunities available:

Sponsor: Promote your company and get more visibility as a sponsor

Exhibit: Get your products and services in front of key decision makers

Attend as a delegate: Network with key stakeholders and hear from industry experts

CONTACT US

Emily Nicholson
Conference Organiser

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

AMI

Sponsored by:

LANXESS Energizing Chemistry

EVONIK POWER TO CREATE

Media supporter:

Compounding WORLD

IKA is planning for stabiliser growth

German stabiliser producer IKA Group was acquired by a consortium in October last year and the buy-in management of CEO Alexander Hofer and CTO Timo Seibel say they are working with existing managers Swetlana Fischer and Thomas Hillen on what they describe as an ambitious international growth strategy.

IKA produces EuroStab calcium-based and GreenStab heavy metal-free stabilisers for window profiles, foamed profiles, technical profiles, sheets, pipes and fittings in rigid PVC, as well as for cable insulation and other applications in flexible PVC. The stabilisers can be supplied in product forms from powder to low dusting compacted granules, as well as the company's non-dusting "S" granules, which can be delivered in bulk and stored in silo. Its portfolio is complet-

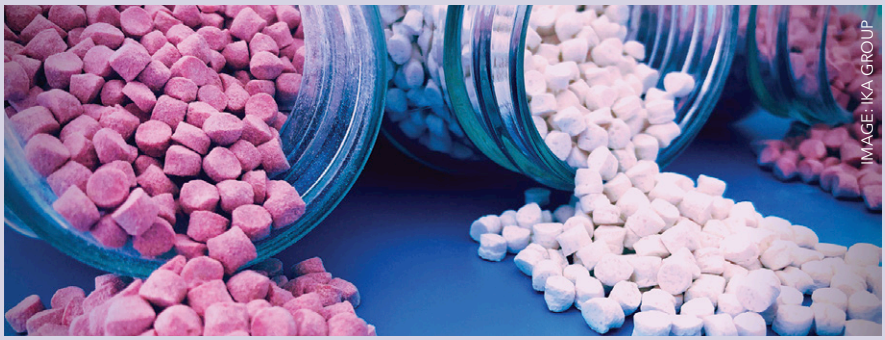


IMAGE: IKA GROUP

IKA is expanding capacity for it "S" granule stabiliser format

ed by distributed products such as impact modifiers and processing aids.

"The ongoing trend in the stabiliser industry goes clearly towards innovative solutions and implementation of customer requirements through comprehensive technical service, all that surrounded by quality and reliability of supply" said Hofer. Seibel, meanwhile, emphasises the importance of innovative and solution-oriented stabiliser systems that provide users with a wider processing window.

"Especially IKA´s well proven granulation process of non-dusting "S" granules, with its patented production technology via extrusion and under-water granulation is a success story" said managing director Hillen.

› **www.ika-wolfen.de**

reduce surface drag and improve wetting of fillers.

Clariant's Licolub CE-2, which is a highly modified polar copolymer wax designed for easy emulsification, has recently found use in liquid carriers for PVC colorant and additive systems used in both rigid and flexible PVC formulations.

"Customers have reported that it goes into solution and suspensions easily, with excellent final performance as a dispersant of organic pigments and as an external lubricant when extruding films and tubes," said Neuber.

Castor alternatives

Another commonly used lubricant for PVC is 12-hydroxystearic acid (12-HSA) and the only large-scale source for that is castor oil. "Security of supply can be quite a challenge since approximately 90% of the world's castor seed is sourced from just one country: India," claims **Emery Oleochemicals**. "Having adequate alternatives to 12-HSA is necessary due to the ongoing scarcity of cargo space combined with dramatically increased shipping costs. Uncertain delivery times caused by the recent issue at the Suez Canal further exacerbate the situation."

IMAGE: EMERY OLEOCHEMICALS

Right: Most PVC additives supplied by the GPA business unit of Emery Oleochemicals are produced from bio-based materials

To become more independent of castor-based PVC lubricants, Emery's Green Polymer Additives (GPA) business unit has developed another bio-based product – Loxiol G 19 – which it claims offers near identical processing characteristics in PVC.

Loxiol G 19 is a combination lubricant suitable for various rigid PVC applications. Highly compatible with PVC, it reduces stickiness and provides good anti-plate-out properties. The lubricant has already been extensively tested to ensure that it meets user requirements.

CLICK ON THE LINKS FOR MORE INFORMATION:

› **www.sanitized.com**
› **www.valtris.com**
› **www.adeka.co.jp/en**
› **www.songwon.com**
› **www.clariant.com**
› **www.emeryoleo.com**

Cables

SECURE YOUR PLACE

14-16 September 2021
Maritim Hotel
Cologne, Germany

Identifying opportunities for polymeric materials in wire and cable in Europe

The Cables conference returns to Germany for its 21st edition!

- **Discover the latest information** on new developments and innovations and find out about the latest material, technology and business trends
- **Identify new opportunities** from the face to face discussions with industry experts
- **Network with key stakeholders** from the entire supply chain
- **Broaden your wire and cable knowledge** to become an important partner in this industry
- **Understand your company performance** compared to other leading players

Industry-leading speakers include:

Benjamin Ferlay
Central Eastern Europe
R&D Director
PRYSMIAN GROUP

Carsten Wolff
Vice President HV Projects
NKT

Michael Heinz
Process Development Supervisor
CORNING OPTICAL COMMUNICATIONS

Dipl.-Ing. Detlef Wald
CEO
EIFELKABEL

Dr. Silvia Sentimenti
Key Account Manager
MIXER S.p.A.

Dr. Roland Dongping Zhang
Asset Manager Cables
Chair of German,CIGRE SC B1
TENNET TSO

Headline sponsor:

HUBER | MARTINSWERK

Also sponsored by:

Nabaltec · MIXER COMPOUNDS DETAILS MATTER · melos · DELTATECNIC

Media supporters:

Compounding WORLD · Wire & Cable Technology International · Wire & Cable ASIA 线缆 · CUTE wire · wiredIn USA

AMI

Book your place today www.ami.ltd/attend-cables

Plastics Recycling Technology

20-21 October 2021
Austria Trend Hotel Savoyen
Vienna, Austria

Exploring the future of plastics recycling - new ways to boost productivity, quality and profitability

Book your place today

Sponsored by:

CMG GRANULATORI
Starlinger
AQUAFIL ENGINEERING
SONGWON
EREMA PLASTIC RECYCLING SYSTEMS

Media supporters:

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

Organised by:

AMI

Industry speakers include:

Paul Niedl
Commercial Head
Starlinger & Co.

Adrian Griffiths
CEO
Recycling Technologies

Silke Einschuetz
Consultant – Recycling & Sustainability
AMI

Giorgio Santella
General Manager
CMG Granulators

Lucy van Keulen
Commercial Director
Umincorp

Thomas Baldt
Sales Representative DACH
ZenRobotics

Save €200* if you book before 23rd July 2021 - use code EB1137

*May be subject to VAT. Discount cannot be retrospectively applied.

Extrusion line investments maintain production output

Extruders of pipes and profiles are continuing to invest in new extrusion lines – or at least have existing lines rebuilt – in order to maintain production demands

IMAGE: BAUSANO

Main image: Bausano says that its Smart Energy system can reduce consumption by around 35%

Despite the ongoing problems caused by the pandemic, extrusion companies are still investing in new equipment – including full lines to make pipes and profiles.

For instance, Australian Plastic Profiles (APP) – a family-run producer of pipes and profiles based in Sydney – recently invested in new extrusion lines from **Bausano** of Italy.

The companies have been working together for more than 20 years. APP processes more than 100 tonnes of PVC tubes and profiles per day, for applications such as hydraulic, electrical, and civil engineering.

"The new extrusion lines fully satisfy our needs, thanks to the innovative systems at the core of Bausano's solutions," said Peter Chivers, manufacturing manager at APP. "

These systems include Multidrive, Smart Energy and Digital Extruder Control 4.0 technologies.

Multidrive is a transmission system that reduces stress on motor shafts, gears and screws thanks to the tightening torque strain being distributed on two pairs of motors. This results in higher power on screws, equal to the power delivered, with a positive impact in terms of both precision and energy savings. Compared to traditional systems, the distribution of motion also reduces the likelihood of faults due to excessive stress on mechanical components, which ensures a longer average service life of the machine, says Bausano.

The company's Smart Energy system allows contactless cylinder heating through an alternating electromagnetic field, resulting in a significant wear reduction – and energy savings up to 35%. Finally, the Digital Extruder Control 4.0 performs continuous screening of the entire system by processing reports and graphs in real time. This allows extrusion parameters and consumption at each stage of the production cycle to be analysed easily and precisely.

Retrofit service

Bausano has also launched a retrofit programme, to further extend the service life of its previous-generation extruders by increasing their efficiency and performance.

The programme mainly addresses extrusion lines sold between 2005 and 2010. However, it is also available for more recent models that are not yet equipped with the latest electronic control and safety technologies.

"The aim is to adapt the systems to the new concept of a data-driven company," said Fabrizio Rampone, after sales manager at Bausano. "Here, machines are connected to each other and can collect and process data – from which we can extract useful information to assess production processes."

The retrofit targets the operator panel, which has a shorter service life than mechanical parts such as screws. In the event of a breakdown – several years after commissioning – it is not always possible to

IMAGE: DAVIS-STANDARD

Right: Poly Vinyl president Mark Schnettler with the recent rebuild of a 3.5in (90mm) Davis-Standard extruder

find original spare parts, says the company.

Bausano offers two types of intervention. In one, it will replace the VEDO ML/Digistar electronic control panel with a Digital Extruder Control 4.0, with 15in or 21in capacitive multi-touch screen – a system that checks and records the main process parameters. Alternatively, for even more advanced integration, Bausano proposes installing Orquestra – its IIoT Data Manager that allows all onsite machines to be connected together – allowing continuous monitoring for intelligent diagnosis and predictive maintenance.

"One of the main benefits of this is to renew your extruder at a fraction of the cost of a new machine," said Rampone. "Another is to increase production capacity."

In this way, he says, the retrofit pays for itself and extends the return on the original investment.

"Implementing retrofit programmes means improving machine safety and reducing the reaction time of the control system while enhancing the ability to collect and store process data," he said.

Rebuilt for action

Davis-Standard has recently rebuilt a number of machines for a long-standing customer.

US-based **Poly Vinyl** is a custom extruder that makes products including profiles, seals and pipes for industries including appliances, building products and transport. The company uses standard, co-extrusion and tri-extrusion processes to make its products. As well as having bought a number of new Davis-Standard machines – stretching back more than 40 years – it has also used the company's upgrade and rebuild services to enhance processing options and extruder performance.

"Matching products and profiles to the right extruder has always been a point of pride for us," said Mark Schnettler, president of Poly Vinyl. "It's nice to buy brand new machines, but that isn't always necessary."

He says this is true of Davis-Standard extruders because their gearcases are designed to run thousands of hours.

"If the gearing is set up properly and the right feedscrews are used, you're going to have positive long-term results," he said.

Poly Vinyl runs several Davis-Standard co-extruders for its dual-durometer processes ranging from 1.25 to 1.5in (32-38mm), as well as 28 main extrusion lines. All are equipped with Davis-Standard extruders and feedscrews. The extruders range from 2in (50mm) 24:1 single screw models to GC-65 conical twin-screw designs and are engineered to process polyethylene (PE), polypropylene (PP), PVC, polycarbonate and ABS, plus other materials.

In the past 10 years, Davis-Standard has carried out five major rebuilds to boost processing capabilities. These include conical twin-screw extruder upgrades and a recent rebuild of a 3.5in (90mm) Davis-Standard extruder – purchased via the used market – that was completed within 12 weeks.

"Davis-Standard has really helped us with our extruder knowledge, maintenance procedures, and in getting the most out of our machines," said Schnettler.

Below: Battenfeld-Cincinnati's new line allows Policonductos to make pipes up to 1,600mm in diameter

IMAGE: BATTENFELD-CINCINNATI

Higher pipe production

Battenfeld-Cincinnati has supplied a new extrusion line to Mexican pipe extruder **Policonductos** – allowing it to make pipes up to 1,600mm in diameter.

"We are enthusiastic about the range of options offered by this new line," said Homero Garza, general manager at Policonductos. "We have been able to expand our product range to include

Polyolefin Additives

Conference
EUROPE

www.ami.ltd/attend-PO-additives

26-28 October 2021
Mercure Hotel MOA Berlin
Berlin, Germany

Exploring the international polyolefin market to optimise performance through compounding, blending and additives

JOIN US IN BERLIN

Get your annual update on the global polyolefin additives industry at AMI's highly regarded Polyolefin Additives conference.

The conference is the established forum to discover and discuss innovative additives and compounds to expand the use of polyethylene and polypropylene.

- Gain insight into market trends and potential for new markets for business
- Refresh your knowledge on polyolefin formulations for high-end performance
- Learn and debate the impact of the sustainable circular economy
- Develop relationships with stakeholders across the plastics value chain
- Understand and ensure compliance with changing regulations

BOOK YOUR PLACE

Find out more at www.ami.ltd/attend-PO-additives

CONTACT US

Louella Osano
Conference Organiser

T +44 (0) 117 314 8111
E louella.osano@ami.international

AMI Bringing the plastic industry together.

Media supporter:
Compounding WORLD

IMAGE: KRAUSSMAFFEI

Above: The new KM extrusion location at Laatzen, near Hanover in Germany

large-diameter pipes, and can now also produce pipe dimensions to individual customer specifications without any problems."

The line includes a SolEx 120 NG extruder, as well as all upstream and downstream components such as gravimetric metering, EAC internal pipe cooling, vacuum tanks, spray cooling baths, haul-off and cutting saw. Policonductos reaches an output of up to 2 tonnes/hour on the line. It makes HDPE pipes with a colour stripe for fresh water supply, sewage disposal and mining applications, with dimensions ranging from 406 x 12.5mm to 1.651 x 97.1mm.

The new line expands the range of Battenfeld-Cincinnati's fast dimension change (FDC) systems. Before, they could produce pipe in three size ranges, with the largest being 400-630mm. With the new pipe die, the first step has now been taken towards a completely new dimension for pipes up to 1,600 mm in diameter.

Another key feature of the line is a pipe die, which comes with "the largest adjustable melt gap ever produced". Battenfeld-Cincinnati says this enables the production of pipes in a wide range of different diameters without conversion. For large pipes, such as those produced by Policonductos, a die change would be necessary on a conventional line. The adjustable die saves cost and time – while also enhancing safety, says Battenfeld-Cincinnati.

Expanded partnership

In addition, the company says it continues to expand its partnership with Molecor of Spain. The main part of this is jointly selling extrusion lines to make PVC-O pipe. Here, it has sold around 15 lines, for customers in countries including India, Malaysia and Australia.

"We supply our customers with a plug and play solution tht is immediately ready for use," said Gernot Dorn, sales manager for PVC at Battenfeld-Cincinnati in Austria.

In addition to making machinery, Molecor itself produces PVC-O pipe. To do this, it uses seven Battenfeld- Cincinnati lines at its main production plant in Madrid, making pipe with external diameters of DN90 to DN1,200 mm. Molecor manufactures parts of the line for the second process step, which include a heating station, blowing station and cooling unit.

Single location

KraussMaffei is to merge all of its extrusion operations into a single location at Laatzen on the outskirts of Hanover in Germany.

Currently, its extrusion activities are spread across sites in Hanover and Munich. The division will begin relocation to the new site – where it is currently building a new R&D centre – in the first half of 2022. By Q3 of that year, around 700 employees will be based at the 67,000 sq m facility. The site will bring pipe and profile, film and sheet, and rubber and foam extrusion technologies together at a single location.

"Against the background of our growth plans, bundling the extrusion activities at one location is the right strategic response to current and future challenges in our industry," said Volker Nilles, executive vice president for new machinery at KraussMaffei.

The move is part of the largest investment programme in KraussMaffei's 180-year history, which includes a new 250,000 sq m facility for its injection moulding, automation and PU systems activities at Parsdorf near Munich. The extrusion R&D centre will occupy a floor area of 10,000 sq m and have 26 extrusion lines available for trials. The lines will be installed in production scale and include all downstream equipment.

As well as adopting a new sales structure, KraussMaffei says it will expand its team of pipe and profile experts.

The company, which was acquired by ChemChina in 2016, said that bundling its extrusion activities will result in "substantial product benefits for customers, valuable synergy effects for the company and new opportunities and fields of research for the future".

Five-layer extrusion

Tecnomatic of Italy has delivered a multi-purpose extrusion line to a European producer of five-layer PE-RT and PEX pipe.

The line – which has a working range from 8 to 32mm – runs at up to 60 m/min for the five-layer PEX or PE-RT, and uses an updated version of the company's Athena die head. The line can also work with PE pipes in two layers up to 63mm, by means of an additional Venus Multi 2 die-head.

The line configuration consists of an Atlas 60.30 Evo as the main extruder. This is part of the revised series of extruder in 30 L/D which has been further optimised for higher output, melt homogeneity and energy consumption. The line's co-extruders – Mizar and Atlas 30 – are used for adhesive, EVOH and external layers. All the extruders work in synchronisation mode and are integrated and fed by a gravimetric system for a total of eight dosing components.

An ultrasonic wall thickness station continuously controls pipe parameters such as eccentricity, thickness, diameter and ovality during production. To manage the high-speed coiling, the line includes a fully automatic coiler from FB Balzanelli, which is designed to process both PE-RT, PEX and PE coils.

In addition, Tecnomatic has supplied an extrusion line to Authentic Production, a pipe extruder in Myanmar. The company makes multi-layer pipes up to 630mm in diameter. It has previously used Tecnomatic lines to make pipe up to 1200mm diameter. The latest product uses BorSafe HE3494-LS-H PE100 high stress crack resistant (HSCR) material in the outer layer to withstand point loads and surface damage that may occur during installation. The pipe has two layers, equal to 10% and 90% of the total thickness. The outer layer is made from HSCR PE100 material, the core from standard PE100.

IMAGE: TECNOMATIC

Above: A European pipe producer is using an extrusion lines from Tecnomatic to make five-layer PE-RT and PEX pipe

Extra features can be added to the pipe, such as a peelable outer skin. This peelable layer, often made from modified polypropylene, protects the pipe surface against potential notches and cracks during installation. It is typically 0.6-0.7mm thick and is added by a crosshead positioned before the final cooling bath.

CLICK ON THE LINKS FOR MORE INFORMATION:

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

PLASTICS EXTRUSION WORLD EXPO

PLASTICS RECYCLING WORLD EXPO

POLYMER TESTING WORLD EXPO

COMPOUNDING WORLD EXPO

REGISTER FOR FREE 29-30 September 2021, **Essen, Germany**

These are just some of the 200+ exhibitors who will be in Essen:

AMUT GROUP
ALL YOU NEED IS poex
AUSER POLIMERI
BANDERA EXTRUSION INTELLIGENCE
BRITAS FILTRATION SYSTEMS
AQUAFIL ENGINEERING
COLORS & EFFECTS BASF We create chemistry
AZO
CLARIANT
MITSUI & CO.
brabender TECHNOLOGIE
MONTELLO Recovery and Recycling Industry Plastic - Fertilizers - Energy - Biomethane
Vecoplan
INOEX THE FUTURE OF EXTRUSION
binova COMPOUNDING & RECYCLING
FEDDEM
coperion confidence through partnership
Dynisco
Brabender
PELLENC ST WE CAN SORT IT
CABOT
WACKER
NGR PLASTIC RECYCLING TECHNOLOGIES
motan colortronic
EREMA PLASTIC RECYCLING SYSTEMS
EVONIK POWER TO CREATE
ExxonMobil
MPI chemie
norner The Polymer Explorers
plasmec Excellence in Mixing
FRONTIER LAB www.frontier-lab.com
soremā PLASTICS RECYCLING SYSTEMS
ICMA SAN GIORGIO Advanced Compounding and Extrusion Systems
VEOLIA
GAMMA MECCANICA RECYCLING LINES FOR PLASTIC MATERIALS
IMERYS
JSW THE JAPAN STEEL WORKS, LTD.
JWELL
Krauss Maffei Pioneering Plastics
PALLMANN TOP PERFORMANCE IN SIZE REDUCTION
Leistritz
EURO CHILLER INTERNATIONAL COOLING
VEMA SHREDDING + COMPACTING
MARIS Technological Company
Sanitized Swiss antimicrobial expertise since 1935
KUHNE GROUP
RODEPA PLASTICS
SIKORA Technology To Perfection
van werven
sogapol
SOLVAY asking more from chemistry®

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

REGISTER FOR FREE

November 3-4, 2021, **Cleveland, Ohio**

These are just some of the 200+ exhibitors who will be in Cleveland:

ABS Advanced Blending Solutions LLC
Addex Experience Addex
AdvanSix
Dynisco
Baerlocher
Aditya Birla Carbon
B&P Littleford
Brenntag Specialties
Budenheim
Buss excellence in compounding
BYK
CDS
CPM Extrusion Group Local Service Global Reach
cumberland
aec
Davis-Standard Where your ideas take shape.
Dover Chemical Corporation
gncuß
Heritage Plastics
Greenmantra Technologies
Entek
Geon Performance Solutions
Greiner Extrusion Group
MTI the mixing company
intertek Total Quality. Assured.
Kaneka
Konica Minolta Sensing Americas, Inc.
MAAG Group
Macro Advanced Extrusion Systems
Maguire Syncro
Matsui
Herbold Meckesheim USA
Mixaco Maschinenbau
Polystar
Netzsch Proven Excellence.
NFM
Nordson
Omya
orion Engineered Carbons Focused. Innovative. Responsive.
FB Balzanelli
Q-Lab
schenck process
SI Group The Substance Inside
Steer America
struktol
PerkinElmer For the Better
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

Meet your industry face-to-face this October

Get updated on the latest developments in polymeric materials for the oil and gas industry at AMI's sixth annual Oil & Gas Non-Metallics conference.

This high-level international event is established as the leading learning and networking forum for suppliers of polymer-based products and solutions for the oil & gas supply chain.

Oil & Gas Non-Metallics

26-27 October 2021
London, UK

Identifying and exploiting opportunities for polymer materials in onshore and offshore oil and gas engineering

Why attend:

- Identify opportunities for composites in sub-sea environments
- Learn how advances in polymeric materials are being applied in oil & gas
- Explore new material developments to optimise performance
- Debate new approaches for the industry including 3D-printing
- Network with industry experts and build professional contacts in a face-to-face environment

BOOK YOUR PLACE

"It was a really great event and we got a lot from it in terms of networking, exposure and new leads."

Market Manager Oil & Gas,
Solvay Specialty Polymers

Organised by: AMI

Headline sponsor: TEIJIN

Also sponsored by: element, DUPONT, suprem Thermoplastic Composite Materials, NIC non-metallic innovation centre, Baker Hughes

Media supporter: Pipe and Profile EXTRUSION

IMAGE: BOREALIS

Recent patents in pipe materials include several attempts to boost the strength of pipe grades – using either new polymerisation technology or even by adding nanomaterials

Patenting new ways to boost pipe performance

Extruders of plastic pipe are always trying to improve product performance. One element of this is in the form of the resins they use. Here, material suppliers are constantly looking to develop resins that allow the manufacture of pipes with superior properties.

Some recent patent applications – some of which have been granted – show a number of approaches to developing superior pipe grade materials.

Multi-modal advantage

Thai Polyethylene (part of **SCG Chemicals** of Thailand) has been granted a patent for a multi-modal grade of polyethylene for pipe applications.

The companies say that the material could be used to make 'PE125' pipe – which has a minimum required strength (MRS) of 12.5MPa for 50 years at 20°C.

"In order to improve hydrostatic pressure resistance from the PE100 to the PE125 performance, either an increased intercept or a decreased slope of the ductility is required,"

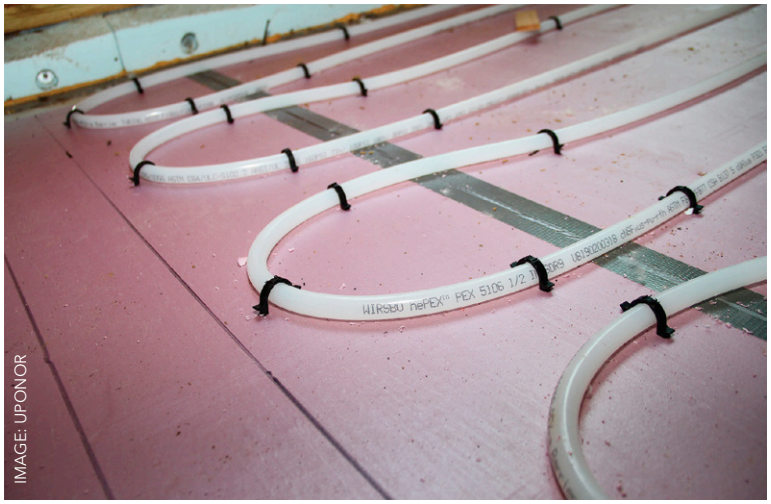
One way of doing this is to incorporate around 10% of ultra-high molecular weight (UHMW) material into the HDPE blend. However, this typically several extrusion passes for full dispersion, said SCG.

In the new technique, the UHMWPE is produced within the matrix during polymerisation, with no need for multiple extrusions. One advantage is that the resultant grade produces pipe with greater sagging resistance during extrusion.

During polymerisation, one innovation is a hydrogen removal unit between the first and second reactors. This helps to maximise the molecular weight – any physical properties – of the final product.

Pipe produced with the resin showed higher pressure resistance than comparative grades, said the inventors. ›

Main image: Borealis says it filed a record number of patent applications in 2020, including a number for pipe materials



Above: Uponor says PEX – which is commonly used in underfloor heating – could also be used in local heat distribution

In a separate application, SCG has developed a bimodal HDPE for making pressure pipe. They claim that it balances the homopolymer and the copolymers of ethylene with comonomers in the correct proportions to improve both pressure and slow crack growth (SCG) resistance.

"By selecting a particular polymer design, it is possible to obtain resins with excellent stress crack resistance and SCG for more than 3,500 hours," said the application.

Better PP for pipe

Borealis has applied for a US patent on a new formulation of polypropylene (PP) for making pipe – made in a two-step process using metallocene catalysts.

"For providing polyolefin compositions applicable for pipe applications, it is necessary that the catalyst enables the production of relatively high molecular weight – as otherwise the required mechanical properties cannot be met," said the patent application document.

Borealis said this is generally a problem for single-site catalysts (SSCs). Pipe grades need to have melt flow rates below 0.5g/10 mins, it said.

"The majority of SSCs suitable for PP do not allow this," it said.

Using higher alpha-olefins, such as 1-hexene, as a co-monomer tend to increase melt flow, making the problem more challenging.

The application details an SSC system – and sequential process – that produces a material with low melt flow rate and high co-monomer incorporation.

"It is further based on the surprising finding that pipes made from these compositions have excellent pressure test stabilities," said Borealis.

Part of the innovation is to stream both propylene and 1-hexene into a first reactor, with a feed rate of 2-4 mol/kmol of propylene – plus the use of an innovative zirconium- or hafnium-based catalyst. The final material has a melting point of 135-140°C and an MFR2 of 0.15-0.5g/10 min.

The company has also applied for a patent on a process to use recycled polyethylene (PE) to make jacketing materials for cables.

One typical problem here is that recycled PE materials have variations in environmental stress crack resistance (ESCR) properties. The patent application proposes to overcome this by using specific grades of virgin PE to 'upgrade' the properties of recyclate. The final blend can have a loading of up to 85% recycled material.

The company says it filed a record number of patent applications in 2020.

Flexible insulated pipe

Uponor of Sweden has been granted a European patent for a vacuum-insulated pipe used in applications such as local heat distribution.

"Modern solutions for local heat distribution need to meet the strictest requirements with regard to safety, reliability, robustness, and efficiency," said the patent document. "Until now vacuum-insulated pipes were used for primary heat distribution comprising a metallic inner pipe – thus being inflexible."

Uponor's invention provides an insulated pipe with very low thermal conductivity that is compact and flexible enough to be coiled up. In addition, the pipe has good ageing properties despite being coiled.

In a typical design, one or more inner pipes are reinforced – and so comprise a reinforcement material and a plastic. In another, one or more inner pipes are multi-layered pipes – preferably comprising one or more diffusion barrier layers such as an aluminium layer.

The materials used can include non-crosslinked polymers such as PE-RT, and crosslinked polymers such as PEX.

"PEX is the preferred material for one or more inner pipes due to its material properties – in particular flexibility and high-temperature resistance," said Uponor.

Multi-modal PE

Norwegian research organisation **Norner** has applied for a patent on a process to make new multi-modal PE grades for pipes. In its application, it says polymerisation of the material is done in two stages – both of which use a metallocene catalyst.

"Currently, metallocene catalysts are exploited to a much lesser extent commercially for the production of PE for pipe production than Ziegler-Natta catalysts," according to the patent application.

The technique involves polymerising ethylene and (optionally) an alpha-olefin comonomer in the first stage, to produce an ethylene polymer. In a second stage, the process is repeated – in the presence of the polymer produced in the first stage, and a metallocene catalyst. Each polymerisation stage produces at least 5% wt of the multi- modal PE.

The application also covers a process for making pipes using the material, and the pipe itself.

Nanoparticle boost

Qenos of Australia has received a European patent for a PE100 plastic pipe formulation that incorporates carbon nanoparticles.

Attempts to improve the minimum required strength (MRS) of pipe materials can lead to a reduction in other properties, such as toughness, processability and slow crack growth resistance. In some cases, adding mineral fillers to improve strength and load bearing performance can cause a reduction in toughness and ductility, said Qenos.

"Incorporating planar carbon nanoparticles into a PE pipe resin significantly increases resistance to internal pressure without unduly compromising the minimum requirements for properties such as toughness, processability and slow crack growth," said the inventors of the new formulation.

The formulation has an MRS of at least 10MPa and consists of a base PE resin and 0.1-20% by weight of carbon nanocomposite dispersed in the PE matrix.

The base resin alone typically has an MRS of at least 8.MPa when evaluated according to ISO 9080 statistical procedures.

"In general, much of the work done in preparing PE nanocomposite with a range of nanoparticle types has used a base PE resin of high melt flow index," said the inventors. "This has been found in many instances to be required to provide effective dispersion of nanoparticles in PE. We have found that a low melt flow index is particularly advantageous in preparing the high MRS resin composite compositions of the invention."

CLICK ON THE LINKS FOR MORE INFORMATION:

- **www.scgchemicals.com**
- **www.borealisgroup.com**
- **www.uponor.com**
- **www.norner.no**
- **www.qenos.com**

Polymer Sourcing & Distribution

Book Now

4-6 October 2021
Hotel Grand Elysee
Hamburg, Germany

Disruptive forces, challenges and opportunities in global polymer sourcing & distribution

What to look forward to:

- 2 days | 15+ Speakers | 5+ Sessions
- Networking opportunities including a cocktail reception, coffee breaks and dinner at a local restaurant
- Meeting in person in a safe environment
- Delegate pack including all presentations

Speakers include:

Dr. Eike Jahnke
Head of Product Management Standard ABS EMEA
Ineos Styrolution Switzerland S.A

Manfred Zulauf
MD Business Unit Dry-Bulk
Bertschi AG

Fabian Herter
Marketing Manager
Elix Polymers

Ricardo Levy
Director Head of Europe
Vinmar International B.V

Elena Mozzato
Senior Research Analyst
AMI Consulting

BOOK YOUR PLACE TODAY

Organised by: AMI

Headline Sponsor: Biesterfeld — Competence in Solutions

Also sponsored by: PLASTICFINDER — The number one online plastics marketplace

Media supporter: Compounding WORLD

TESTING

Updated materials testing software applied to wide range of plastics

US-based Lloyd Instruments – part of Ametek – has updated its materials testing software.

NexygenPlus 4.1 – when combined with the company's LS or LD series of materials testing machines – allows testing of a wide range of plastic products, including pipes and films.

The Windows-based software holds a library of pre-defined test set-ups for a wide range of applications. These include tension, compression, three- and four-point bend, and shear tests. Pre-defined test setups make the software quick and easy to operate. The user can also create custom, multi-stage tests for more complex or unique requirements. Whole tests can be videoed and synchronised with the stress/strain data and replayed for detailed post-test analysis. An optional security and audit trail module provides full traceability and the software provides full capacity for automatic testing.

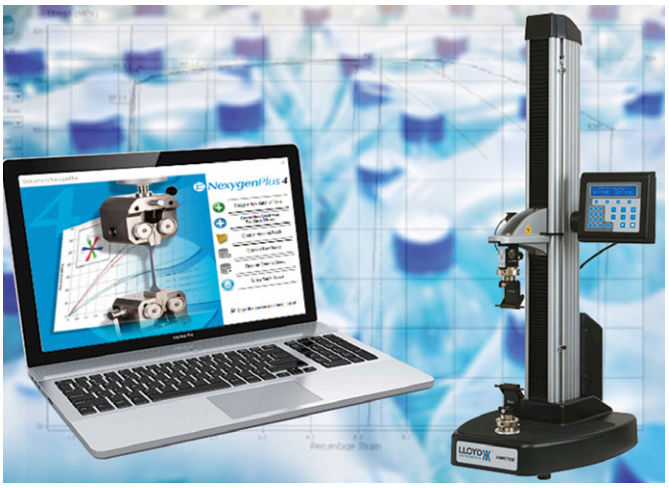


IMAGE: LLOYD INSTRUMENTS

One new feature of the software is the intuitive user interface, which resembles that of Microsoft Office. This gives the users a familiarity when first using the software.

In addition, navigation has been simplified while maintaining the original advanced functionality.

NexygenPlus 4.1 interacts with Excel and Word and alllows automatic transfer of test results directly to an organisation's own templates without user intervention. Live graphs are available during testing, SPC data is continuously monitored, and built-in export utilities assist direct connection to LIMS systems.

The software can be purchased as an upgrade to older NexygenPlus versions, or as part of a complete solution including IQ/OQ and result calculation verification. Batch files used with previous versions of the software can be imported to NexygenPlus 4.1 so existing customers can easily transition to the new version.

› **www.ametektest.com**

CONTROL

Control platform for ancillaries aims to deliver consistent experience for users

Conair says it is implementing a common control platform for all its ancillary equipment in order to deliver a consistent user experience.

The company says that the new platform and HMI have already been implemented in the company's new SmartFLX material handling control, truck-fill line-proofing system, blenders and temperature-control units. It is scheduled to be released on dryers in the third quarter of this year – while chillers and other equipment will follow later.

Other systems, such as Wave Conveying and Conair's RFID-proofed resin-selection system, are controlled through the SmartFLX Platform, says Conair.

The development took two years to complete, according to Matt Shope, director of engineering at Conair. Conair wanted a common control platform to reduce training time for its customers, he said, and it worked with a design firm on the HMI.

The controls are compatible with SmartServices, Conair's cloud-based Industry 4.0 solution for machine monitoring and data collection. The Machine Control portion of SmartServices mirrors the same control screen that an on-the-floor operator would see, said the company.

The latest version of SmartServices gives users expanded naming, grouping, and sub-grouping features, an increase from three to ten customisable KPIs for each machine type, and new resin usage features, according to the company.

› **www.conairgroup.com**

MIXING

Cooling mixer stops degradation

Promix Solutions says that its P1 cooling mixer prevents typical product degradation that is caused by long residence times. At the same time, it avoids deposits or temperature peaks during the temperature control process.

Forced guidance and constant product mixing leads to short residence times combined with a narrow residence time distribution, it says.

Static mixers such as the Promix SMB Plus can homogenise melts and liquids – which minimises temperature differences or temperature peaks. Also, variations in the material composition can be equalised.

› **www.promix-solutions.com**

DOSING

Dosing unit incorporates automatic cleaning device

Woywod of Germany has expanded the functionality of its Plasticolor 1500 dosing unit by adding an automatic cleaning device.

On command, the dosing unit is emptied via pneumatic slides and the use of compressed air. All components of the dosing unit are then cleaned using a control algorithm. After that, the dosing unit only has to be refilled.

The main advantage is that automatic discharging and cleaning of the dosing unit saves valuable time that would be required during a complex material change.

Using quick couplings for compressed air also allows fast and safe disconnection from the dosing unit. A double release ensures safety from sudden drops in pressure due to open hose ends. The latest generation of Plasticolor machines are configured for single volumetric dosing devices. The controller is available for different motors, and various operation modes can be set – based on requirements.

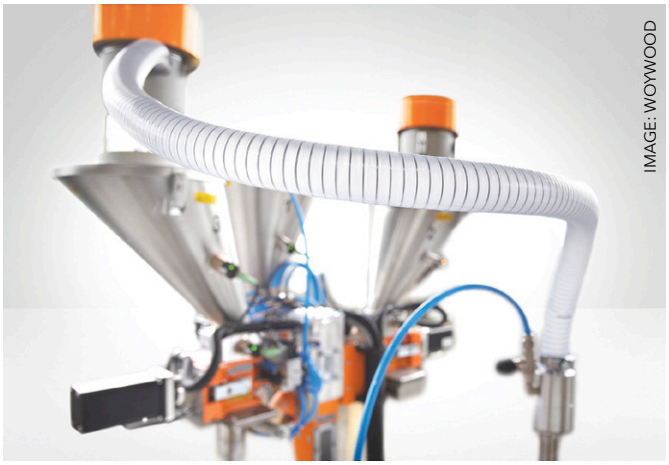


IMAGE: WOYWOOD

The conveyor is maintenance-free – except for the filter – and is particularly economic at smaller outputs (which is a maximum of 130 kg/h).

› **www.woywod.de/en**

COILERS

Automation speeds up pipe coiling

FB Balzanelli of Italy has modified its range of automatic coilers for larger pipe sizes.

The company says that installing pipe from a coil is simpler and faster for installers – because less welding is required. It says that its Excellence series of coilers – such as the TR3510PE and TR3515PE – add new features that add automation and make the equipment safer to operate.

The coilers can be upgraded in steps and include two main elements: a round pipe system; and automatic strapping.

IMAGE: FB BALZANELLI

The round pipe system features one haul-off on board that reduces ovalisation while optimising the coiling process. It adds several benefits during coiling, including: pipe control while securing to the reel; better control of ovalisation when coiling; and reducing the reel internal diameter, to give more compact coils that are easier to transport.

Automatic strapping systems – with one or two strapping heads – improve coiler performance, making it safer to operate. Strapping is performed automatically on large coils. Safer, faster strapping allows coiling stop time to be reduced. Where necessary, strapping time can be reduced by adding a second strapping head.

› **www.fb-balzanelli.it**

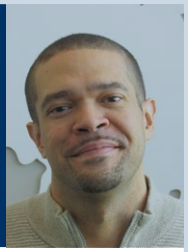
AMI Webinars

Free webinars available to view on-demand

Stay up to date: watch these free industry webinars

Click on a webinar to **watch in your own time**.

Simple solution for reliable permeation testing of flexible pouches
Mike Kragness
Permeation Application Scientist



AMETEK | mocon

Forecasting the impact of coronavirus on economies and plastics markets
David Buckby
Principal Global Resin Analyst

AMI

Developments in SEBS for TPE tubing applications
Ana García Henche
Technical assistance and development

Dynasol Group

Automatic melt filtration in plastics recycling
Michele Colombari
Regional Sales Manager

FIMIC ITALIAN MELT FILTER

Medical device materials, manufacturing, and design
Michael J. Wiggins
Senior Technology Manager

LUBRIZOL LIFE SCIENCE

Plastics and the Pandemic Virtual Forum Series
Analysing the impact of Covid-19 on the global plastics industry

VIRTUAL FORUM
Plastics and the Pandemic

AMI

Flexible Compounding With Kneading-block-free Screws
Klaus Hojer, Business Development

FEDDEM

Applications and solutions of plastics in the medical sector
Ing. Raquel Llorens-Chiralt
Senior Researcher – Health Group

AIMPLAS PLASTICS TECHNOLOGY CENTRE

Access the free Webinar Library Today

Register once to view all AMI library webinars

Chemical Recycling

27-28 September 2021
InterContinental Hotel
Düsseldorf, Germany

Exploring the potential of chemical or advanced recycling to turn waste plastics into new materials

Book your place

Sponsored by:

MURA

INEOS STYROLUTION

Organised by:

AMI

Media supporters:

RECOUP

Plastics Recycling WORLD

Injection WORLD

Pipe and Profile EXTRUSION

Compounding WORLD

Film and Sheet EXTRUSION

GET YOUR INDUSTRY UPDATE

Speakers include:

Henk Pool
Innovation Manager
CEFIC

Klaus Wohnig
CEO
APK

Mohammad Hayatifar
Secretary General
Chemical Recycling Europe

Adrian Griffiths
CEO
Recycling Technologies

Tim Stedman
CEO
Agilyx Corporation

Rajesh Mehta
Senior Consultant
Climate, Air & Sustainability
TNO

Download the programme

Download these new product brochures

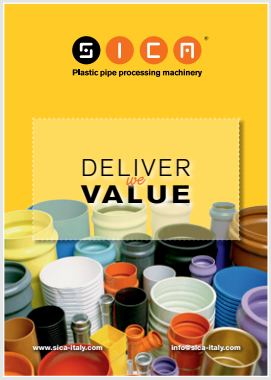
Simply click on the brochure cover or link to download a PDF to your PC or smartphone

STRUKTOL: INNOVATIVE ADDITIVES

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

❯ 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

MIXACO: MIXING TECHNOLOGY

Mixaco has been driving innovation in PVC mixing technology for more than 50 years and has 7,500+ machines installed worldwide. This brochure explains some of the details that make its HM and KMH heating cooling mixers stand out.

❯ 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.

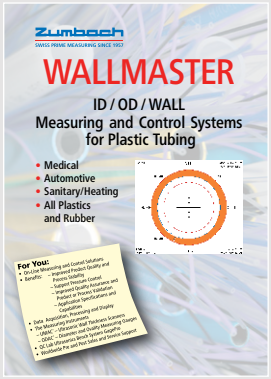
❯ CLICK HERE TO DOWNLOAD

NDC: PRECISION GAUGING

The Accuscan Pro series single-axis diameter gauges are the latest addition to the NDC Technologies precision on-line measurement product line. Learn more about performance and features in this four-page brochure.

❯ 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.

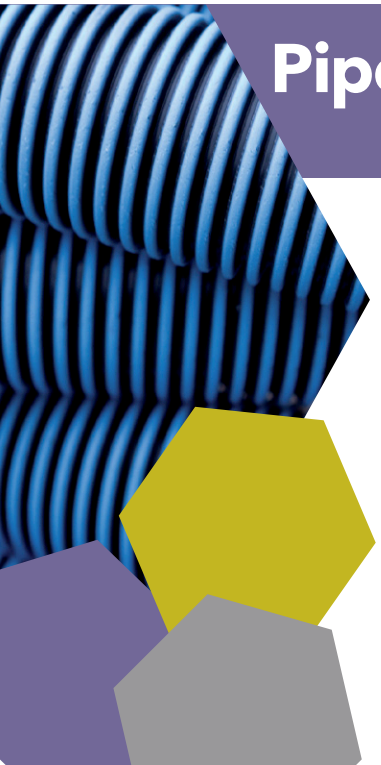
❯ CLICK HERE TO DOWNLOAD

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

Poly Vinyl Co

Head office:	Sheboygan Falls, Wisconsin, USA
President:	Mark Schnettler
Founded:	1962
Ownership:	Private
Employees:	Around 130
Profile:	Poly Vinyl Co, founded nearly 60 years ago, is a specialist in custom plastic extrusions for end markets such as appliances and medical. It works with a range of materials including polycarbonate, ABS, PBC and PP. The company uses multi-layer extrusion processes – and in-house expertise in toolmaking – to create a range of profiles up to 14in wide, and pipes up to 6in in diameter. In addition, it offers a range of secondary operations – such as punching, printing and assembly – to create finished products. Many of these operations can be performed in-line.
Product lines:	The company's main offering is custom profiles. These range from single-material products – such as transport industry covers – to multi-material, multi-layer products. An example of the latter is its range of co-extruded seals, including PP/TPE seals for the air handling industry. (These were a replacement for an earlier PVC seal.) Another recent offering was a co-extruded PVC panel for a large appliance. This was originally a metal part that required a number of secondary operations. The new plastic co-extrusion, produced at high volume, is far more cost-effective than the original part.
Factory location:	The company has a single manufacturing facility in Sheboygan Falls, where it has been based since 1967. In that time, the facility has grown from 7,200 to more than 100,000 sq ft. It runs a number of Davis-Standard extruders, including 28 main extrusion lines ranging from single-screw models to conical twin-screws.

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:

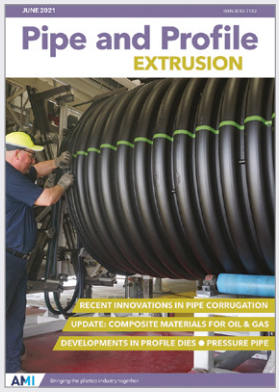
September 2021	**October 2021**
Window profile developments	PVC-O pipe
Downstream equipment	Pipe inspection
Large diameter pipe	Materials handling
PEX	PEWE N America preview

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

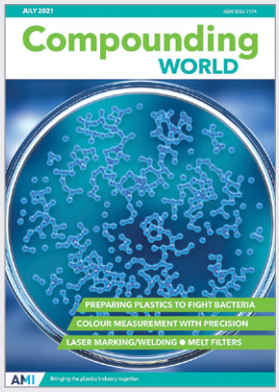


Pipe and Profile
June 2021
Features in the June issue of Pipe and Profile Extrusion cover recent innovations in corrugated pipe technology, plastic pipes in the oil and gas sector, pressurised pipe applications and profile extrusion dies. Plus a review of the Chinaplas 2021 exhibition.

› CLICK HERE TO VIEW

Pipe and Profile
May 2021
The May edition of Pipe and Profile Extrusion magazine takes a look at innovation in pipe die design. It also reviews some of the latest developments in medical tubing, pipe joining technology, standards and testing.

› CLICK HERE TO VIEW

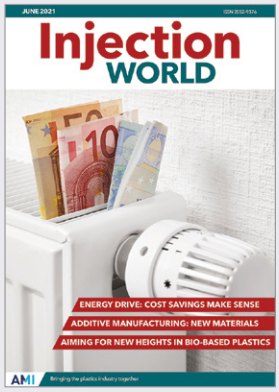


Compounding World
July 2021
The July edition of Compounding World explores how antimicrobial additives are being used to control bacterial growth on plastics surfaces. It also looks at the latest developments in digital colour measurement, laser marking and welding technology, and melt filters.

› CLICK HERE TO VIEW

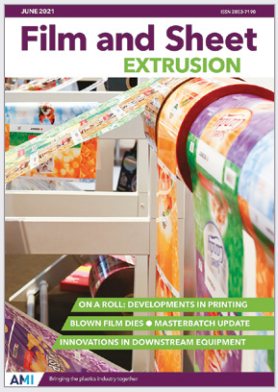
Plastics Recycling World
May/June 2021
The May/June edition of Plastics Recycling World looks at options for recycling in-house and post industrial waste plastics. It also explores developments in shredding technology and additives for improving polymer compatibility, as well as US recycling regulation.

› CLICK HERE TO VIEW



Injection World
June 2021
The June 2021 edition of Injection World magazine looks at how to save energy in the moulding plant, including the often overlooked financial drain of scrap granulation. It also explores the latest innovations in bio-based plastics and additive manufacturing technology.

› CLICK HERE TO VIEW



Film and Sheet
June 2021
The June 2021 edition of Film and Sheet Extrusion magazine looks at the latest innovations in film printing technology. It also explores developments in blown film cooling rings, additive and functional masterbatches, 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

2021	**14-18 September**	Equiplast, Barcelona, Spain	www.equiplast.com
	21-23 September	Plastics, Printing & Packaging, Dar-es-Salaam, Tanzania	www.expogr.com/tanzania/pppexpo
	29-30 September	Plastics Extrusion World Expo Europe, Essen, Germany	https://eu.extrusion-expo.com
	12-16 October	Fakuma, Friedrichshafen, Germany	www.fakuma-messe.de
	26-28 October	Plastic Print Pack Nigeria, Lagos, Nigeria	www.ppp-nigeria.com
	3-4 November	Plastics Extrusion World Expo North America, Cleveland, USA	https://na.extrusion-expo.com
	8-12 November	Plastico Brasil, Sao Paolo, Brazil	www.plasticobrasil.com.br
	15-18 November	Arabplast, Dubai, UAE	www.arabplast.info
	1-3 December	Plast Print Pack West Africa, Accra, Ghana	www.ppp-westafrica.com
2022	**25-28 January**	Interplastica, Moscow, Russia	www.interplastica.de
	17-21 February	PlastIndia, New Delhi, India	www.plastindia.org
	8-10 March	JEC World, Paris, France	www.jec-world.events
	8-11 March	Plastimagen, Mexico City, Mexico	www.plastimagen.com.mx
	5-8 April	FIP, Lyon, France	www.f-i-p.com
	26-30 September	Colombiaplast, Bogota, Colombia	www.colombiaplast.org
	3-7 October	Plastex, Brno, Czech Republic	www.bvv.cz/en/plastex
	1-3 December	Plastic Print Pack West Africa, Accra, Ghana	www.ppp-westafrica.com

AMI CONFERENCES

14-16 September 2021	Cables Europe, Cologne, Germany
5-6 October 2021	Medical Tubing & Catheters, Cologne, Germany
26-27 October 2021	Oil & Gas Non-Metallics, London, UK
26-28 October 2021	Polyolefin Additives Europe, Berlin, Germany
16-18 November 2021	PVC Formulation Europe, Cologne, Germany
1-2 March 2022	PVC Formulation North America, Cleveland, USA
19-20 July 2022	PVC Formulation Asia, Bangkok, Thailand

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

29 - 30 September, 2021

ESSEN, GERMANY

PLASTICS EXTRUSION WORLD EXPO

COMPOUNDING WORLD EXPO

3 - 4 November, 2021

CLEVELAND, OHIO

www.ami.international/exhibitions