

wet molding. In the HP-RTM process, reactive epoxy and polyurethane systems of low viscosity are injected into the cavity in order to wet each individual fiber without air voids. The C-RTM process is based on introducing the matrix into the slightly open mold. Subsequently, the mixture is pressed through the preform with one compression stroke so that it is completely saturated. The surface resin transfer molding process enables cost-effective manufacturing of paintable fiber-reinforced visible components for vehicle manufacturing for series applications. In the wet molding process, recycled fibers can be used, as they are generated when cutting fiber mats, for example. A mixing head applies the matrix, usually epoxy resin, in lines to the semi-finished fiber product, which is spread out on a level surface and introduced

into the mold and compressed into form only after.

2018: iPul – More speed in pultrusion

In 2017, KraussMaffei demonstrated the new iPul pultrusion system, the first complete system for continuous pultrusion, which allows for more than double the production speeds compared to conventional tub processes (fig. 10). An important component of the new machine is the metering technology which has been optimized especially for the pultrusion process. It injects the matrix material directly and continuously into the injection chamber. This means the matrix systems can work with a higher reactivity,

which in turn can be specifically coordinated to the property patterns of the end product. There is a great potential for applications in wind power and construction, for example.

Pioneering spirit goes forward into the future

50 years of Reaction Process Machinery at KraussMaffei have left their significant mark on the development of polyurethane processing and advanced it globally. Also in the future, KraussMaffei will use the continually changing requirements as an incentive for the development of new technologies and innovations and for making them come true – as technology pioneers do. ■

Digitalisation – opportunities for the flexible foam industry

From the Europur and Euro-Moulders conference 2018

Over 300 participants including representatives from over 45 foam manufacturers attended the Europur and Euro-Moulders annual conference. The event took place on 12 and 13 April 2018 in Krakow, Poland, and focused this year on digitalisation as well as other topics critical to the flexible foam industry.

The official programme with presentations of about 25 speakers was opened by **Bart ten Brink**, President of Europur, who welcomed all participants to the annual meeting. He announced **Eric Van Lancker** (Recticel Automotive) as new President of Euro-Moulders and that five new companies joined the association: Repsol, Mol, BASF, Recticel and MCNS (joint venture of Mitsui Chemicals and SKC Polyurethanes). Ten Brink further noted that this autumn Euro-Moulders will be celebrating its 20th anniversary in Brussels. So far Europur welcomed also six new members in 2018: flexible PU foam producers Yatas from Turkey and Lusocolchao from Portugal, as well as suppliers to the industry Mol Group, Lonza, Schill and Seilacher (Struktol) and Chemfoam.

Digitalisation

The session on Thursday was mainly dedicated to digitalisation with presentations by **Jean-Charles Cointot**, IBM, “The big data revolution: How it transforms enterprises”, **Simon Robinson**, Urethane Technology International, “Digitalisation – Opportunities for the flexible foam industry”, **Jakub Piekarz**, Dendro Poland, “Software integration along the supply chain – the foam producers’ perspective”. Some of the bottom lines were, e.g., how the switch to digitalisation will lead to a change in personnel, as more IT experts are needed, how the process may offer a possibility to find new business opportunities.

The afternoon started with a practical insight into how digitalisation can transform the flex-

ible foam industry. **Francisco Pineda**, Pikolin, and **Jan Henrik Leisse**, Albrecht Bäumer, jointly presented “Best case: Digital transformation of Pikolin” and showed how digitalisation can streamline the processes of a mattress manufacturer: cycle times could be reduced by up to 40 %, cut waste by 17 %, and personnel by 50 %, while at the same time customers are able to place online a mattress order and the customised product arrives at their doorsteps after only three days. The presentation was followed by **Karsten Malsch**, Covestro, who spoke on “Digital customer experience” and how it should focus on a multitude of areas such as the supply of product information, and ease of ordering etc.

Flexible polyurethane foam market and regulation updates

In the afternoon **Angela Austin**, Labyrinth Research & Markets, gave a summary of her highly anticipated “European flexible foam market report” (a short version of the report will be published in the next issue of PU Magazine International). According to data collected and combined by Labyrinth Research & Markets and Europur the total production of flexible polyurethane foam in the 28 EU Member States, Norway, Switzerland, Alba-

nia, Belarus, Bosnia, Kazakhstan, Kosovo, Serbia, Macedonia, Ukraine, Russia and Turkey reached nearly 1.8 million t in 2017. Overall, slabstock production in 2017 grew by 3.9 % across the entire region, although production growth in the EU28 countries was lower at 1.8 % compared to the previous year. Data was gathered directly from foam producers in early 2018.

Russ Batson, Polyurethane Foam Association, and **Michael Crowell**, CertiPUR-US Program of the Alliance for Flexible Polyurethane Foam (AFPF), gave a joint presentation on “The US flexible foam market and CertiPUR-US updates”. Batson outlined among others the trends in US foam production that grew overall by nearly 11 % in 2017, but also shows a continuous increase in imports from China. Crowell summarised recent updates of the CertiPUR-US programme. Over the last ten years the program grew steadily and includes now 141 certified foam families and 49 participating foam producers. Also over 780 bedding and upholstery furniture manufacturer, distributors and retailers currently participate. Crowell also outlined some changes in the revised version of the technical guidelines for slabstock foam, as e.g. the stricter timeframes for the re-certification submittal.

Digital future

As a guest speaker, futurist **Ben Hammersley** gave the interesting and thought provoking presentation “The digital future for manufacturing industries”. How to live day to day the constant legacy-free reinvention pro-

cess in order to develop innovations was one of the topics that were eagerly discussed during the following networking event. Hammersley proposed to ask oneself when observing a certain product “If I were to develop this product again with today’s technology, is this how I would do it?”

Networking event at salt mines of Wieliczka

The conference dinner and excellent opportunity for networking took place at the impressive Unesco World Heritage Site of the salt mines of Wieliczka, 135 m under ground level, and was sponsored by PCC Rokita.

Automotive and slabstock sessions

Two morning sessions on the second day were held in parallel. The automotive session was opened by **Hamdy Khalil**, Woodbridge Group, who gave a “Report from the moulded foam industry panel” and also chaired the session. **Dieter Holtkamp**, Holtkamp Air Quality Improvement, spoke about “Odour and vehicle indoor air quality”, **Steven Chu**, Wansheng Co. Ltd., outlined “Odour Control and Reduction Practices” and **Stephan Wendel**, Evonik, described “Odour Control from the point of view of the additive producer”.

The slabstock session was chaired by **Michel Baumgartner**, Europur. The presentations were given by **Thomas Elssner**, Bruker Daltonik, who talked about “Air moni-

toring of diisocyanates”, **Kamil Marjanek**, Foamax, on “Fire Protection in PU Warehouses – High expansion foam systems”, **José Miguel Palao**, Interplasp, outlining “Advantages of variable pressure foaming – the foam producers’ perspective”, and **Adam Pajonk**, **Dorothee Clasen** and **Sascha Praet**, University of Applied Sciences in Münster, speaking on “In-foam printing – 3D printing in flex foam”.

Regulatory updates

The final session focussed on regulatory updates. **Adri Aerts** (Vita Technical Foams), Chair of the Product Stewardship Working Group of Europur, presented “EU Regulatory update – reports from products stewardship and plant and workers issues WGs”. **Silvia Freni Sterrantino**, Regulatory Affairs Officer at Europur, talked about “The review of European waste legislation – anticipated consequences for the mattress and furniture industries”. **Dirk-Endres Hein** (F.S. Fehrer Automotive), Chair of the Technical committee of Euro-Moulders, presented a report on the committee’s recent activities, and **Jörg Palmersheim**, Secretary General of Isopa, and **Michel Baumgartner**, Secretary General, Europur & Euro-Moulders, jointly presented and update on the “REACH restriction for diisocyanates”.

The next Europur and Euro-Moulders’ Annual Conference will be held 12 and 13 June 2019 in Lisbon, Portugal.

Networking dinner in the salt mines of Wieliczka



Source: Indira Gupta

The high number of visitors made participants move a little closer



Source: Isabella Kappner