



### Germany moves to build its lead in composites manufacturing

From its industry leaders to its politicians, Germany has grasped the importance of carbon fibre-reinforced composites to the future of manufacturing and is taking steps to secure its position in global markets. Adrian Wilson reports.

**P**resident of Berlin-based Composites Germany Michael Effing is a recent addition to the programme for the forthcoming *Nonwovens for High-performance Applications* conference. At the event in Prague, Czech Republic, to be held 7–8 March 2017, Effing's keynote presentation will address existing and potential opportunities for nonwovens and textile reinforcements in the rapidly evolving European composites industry.

Founded in 2013, Composites Germany is now the umbrella organization for four German groups:

- the Federation of Reinforced Plastics (AVK) from Frankfurt, the oldest association for the German plastics industry, promotes all composites, especially glass fibre-reinforced materials;
- Augsburg-based Carbon Composites, which is primarily concerned with high-performance carbon composites;
- CFKValley in Stade, another group with a focus on carbon-based materials;
- The Working Group for Hybrid Lightweight Technologies, which is part of the country's mechanical engineering federation, the Munich-based Verband Deutscher Maschinen- und Anlagenbau (VDMA).

As a result, Composites Germany now represents 821 companies and research institutes, having attracted 50 new members in the last 12 months.

Speaking at the *2<sup>nd</sup> International Composites Congress* held alongside the *Composites Europe* exhibition in Düsseldorf, Germany, on 28–29 November 2016, Effing explained that these organizations were now uniting as a single voice in the key areas of: lobbying government; standards and standardization; sustainability and recycling; education and training. This is critical, he believes, in what he described as a highly fragmented industry, with diverse areas of know-how.

"The composites industry is a key field for Germany and our aim is to build-up representation of interests, to develop new markets and new value-creation chains, as well as to

*Parliamentary Secretary of State at Germany's Ministry of Economic Affairs and Energy, Iris Gleicke, who declared that the drive to increase the use of lightweight materials is a key element of the country's philosophy towards supporting the current trend towards automation and the exploitation of data exchange in manufacturing technologies (so-called "Industry 4.0").*



drive forward education development and training," he reported. "Each of the four member organizations will take on priority tasks. Since these topics are of mutual and general interest and importance, the potential of using composites is now being represented in a more efficient way."

He hopes that this move will be beneficial to the entire industry when it comes to decisions concerning what materials are chosen for new and established industrial applications. In terms of lobbying – and especially with regards to the future-oriented themes of high-performance composites and automated mass-production technology – the influence of the 750 member companies will be combined. Composite Germany's headquarters are in Berlin, in close proximity to the country's key political activities, allowing for closer contact with political decision-makers."

#### Lightweight materials

The German government's views were shared in a keynote address at the Düsseldorf conference given by Parliamentary Secretary of State at Germany's Ministry of Economic Affairs and Energy, Iris Gleicke, who declared that the drive to increase the use of lightweight



*Berlin-based Composites Germany is now the umbrella organization for four German groups: the Federation of Reinforced Plastics (AVK); Augsburg-based Carbon Composites; CFK Valley in Stade; The Working Group for Hybrid Lightweight Technologies, itself a part of the country's mechanical engineering federation, the Munich-based Verband Deutscher Maschinen- und Anlagenbau (VDMA). President of Composites Germany Michael Effing explained that these organizations were now uniting as a single voice. He will give further details on the German industry, in particular the role of textiles and nonwovens at the forthcoming Nonwovens for High-performance Applications in Prague, Czech Republic, on 7-8 March 2017 (see also, page 18).*

materials is a key element of the country's philosophy towards supporting the current trend towards automation and the exploitation of data exchange in manufacturing technologies (so-called "Industry 4.0").

The future of manufacturing technology concerns the fusion of the mechanical and virtual worlds, she said. With respect to the use of lightweight materials, there is great potential for developing a lot of new processes that will be important. Here the big driver is ecology. There is a need to encourage the use of lightweight materials wherever possible as a lever for new efficiencies, she told the conference: "We will do what we can to promote the sharing of know-how and expertise in this area."

As part of its efforts, the German government has established a department (BMW i) that will be active for the next four years with the sole concern of encouraging the use of lightweight materials. Initially, it will establish a database to link together all of the companies in Germany involved, including those concerned with



"They are an important part of Germany keeping ahead of the field in the automotive, aerospace, construction and industrial manufacturing sectors."

## Carbon and glass composites

Another speaker at the conference was AVK's Managing Director Elmar Witten who noted that growth in composites production in Germany (expected to be close to 4% in 2016) is faster than the average across all of Europe (2.5%). In addition, Germany's share of the 2.85 Mt of composites that will be produced in Europe in 2016 will be more than 20%, compared with 16.4% in 2011.

Production is also increasing in some east European countries, he added, and Turkey's production (230 kt a year) is now even bigger than that of Germany. However, Turkish production is involved in quite different applications, with more than half of it used for pipes and tanks. Speaking specifically about the production of glass fibre-based plastics (GFRP), Witten predicted that 1.09 Mt would be made in Europe in 2016, completely dwarfing that for carbon fibre composites.

Considering carbon fibre composites in greater detail, Marketing Manager at Carbon Composite Michael Kühnel said that the influence of the car programme<sup>(1)</sup> (i-Series) from BMW of Munich, Germany, had not yet been as influential as expected. Nevertheless, with the adoption of carbon materials in the chassis of BMW's new 7-series<sup>(2)</sup>, 64 kt of carbon composites are expected to be consumed by

*AVK's Managing Director Elmar Witten: "Glass fibre remains the basis for the majority of composites."*



the automotive sector in 2016, compared with just 24 kt in 2014, the first full year after BMW launched the i3 model.

In value terms, carbon composites are still achieving much higher prices in aerospace applications, with the average value per kilo processed estimated to be worth US\$310, compared with US\$86 in automotive. Obstacles for carbon composites in the automotive sector remain the high cost of fibre production and the lack of rapid processing routes for mass production. However, he concluded that these are areas where progress is continuous.

### References

<sup>(1)</sup>*Technical Textiles International*, July 2015, *Carbon fibre and carbon composites set for steady growth*, page 11; <http://www.technical-textiles.net/node/71326>

<sup>(2)</sup>*Technical Textiles International*, February 2016, *Hexcel prepregs to feature in BMW's 7 series*, page 8; <http://www.technical-textiles.net/node/72091>

### Further information

Adrian Wilson is also the Chair for the Nonwovens for High-performance Applications conference; see also, page 18.

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