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## COMPOSITES

**Europe is slowly emerging from its trough / Strong increase in Germany / Thermoplastic processing techniques, like GMRT and LFRT, on the rise / SMC and BMC processing stagnant / "Composites Europe" fair presents a mixed bag**

European production of glass fibre-reinforced plastics (GRP) will increase just slightly this year, growing at about 2.5%, predicts Germany's **Federation of Reinforced Plastics (AVK, Frankfurt; [www.avk-tv.de](http://www.avk-tv.de))**. That would translate into a volume of 1,069m t – about the same as in 2005. These figures show that the sector is only slowly starting to emerge from the low point it hit during the 2008/09 economic crisis and remains still quite some way off its previous record high of close to 1.2m t.

The two most important processing techniques SMC/BMC and "open processes" have hardly advanced this year. The only techniques that saw gains were GMRT/LFRT (up 9%) and RTM (up 3.7%). The overall market structure remained essentially the same – with the transportation and construction segments accounting for one third, and the E&E and leisure sectors also each for about 15%.



Hall 5 at "Composites Europe" in Stuttgart was particularly crowded (Photo: PIE)

"The market development follows the overall European economic trend. Our expectations were met in H1 2015 and the forecasts for the second half of the year are also positive," AVK managing director *Elmar Witten* said during the recent "Composites Europe" fair ([www.composites-europe.com](http://www.composites-europe.com)), held in Stuttgart / Germany from 22-24 September. Some 450 exhibitors showcased their products at the event – a rise of 12% over the 2014 edition. Final visitor numbers were not yet available but the organisers expected about 11,000 – compared to 10,200 that attended the previous event.

### We need to think beyond a material's barriers, says Witten

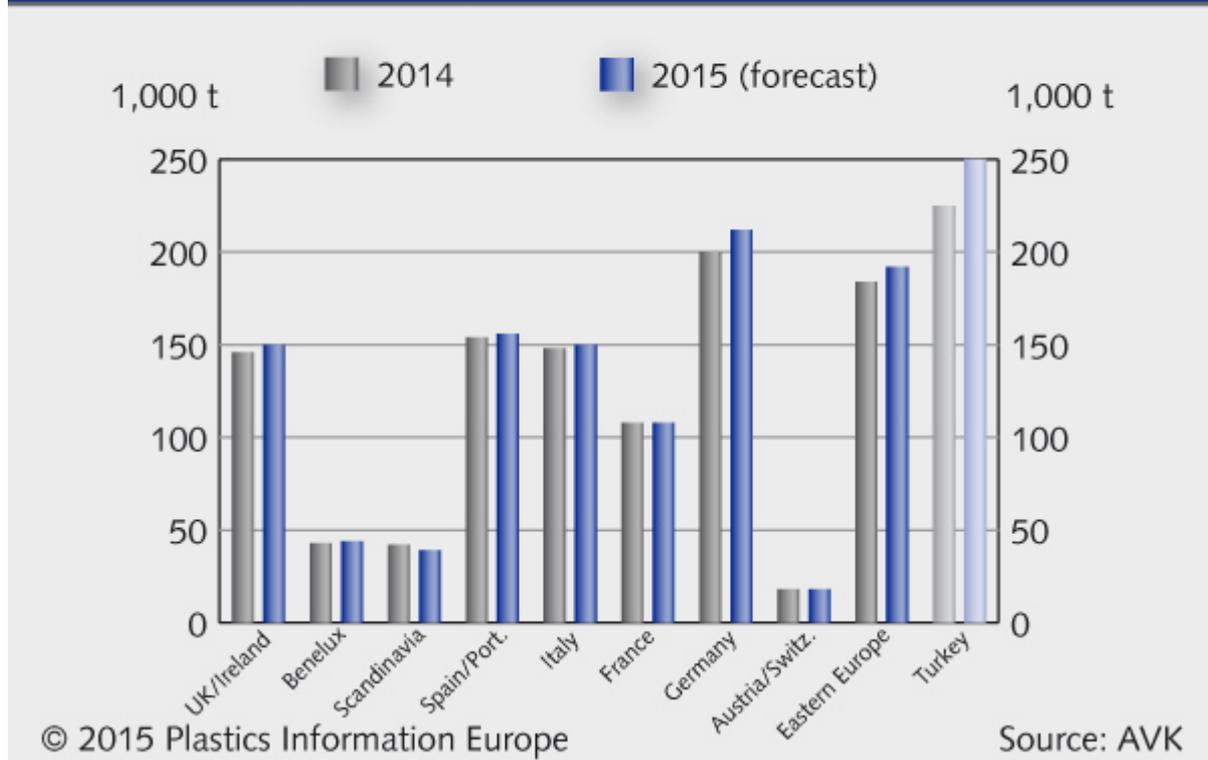
One cannot escape the impression, however, that after the massive development boom in material, processing techniques and machinery that occurred in the last few years, the composites segment is currently taking a breather. A similar picture presented itself at the recent "IAA" automotive fair in Frankfurt / Germany (see [PIEWeb](http://PIEWeb.com) of [21.09.2015](http://21.09.2015)). Many suppliers have returned their GRP projects into the drawer or have downsized their previously highly ambitious plans. In the automotive segment, at least, the euphoria of the last couple of years has given way to a more sober approach, which is taking a neutral look at the technical possibilities for realisation, the speed at which OEMs rethink their design processes and last but not least also costs.

Nevertheless, GRP use in several large-scale applications, like vehicle rear lids and doors, is continuing to rise. "In these cases, it is essential that all players work together and think beyond the respective material's barriers to continue driving market expansion," says Witten, at the same time calling for a "performance-related (re)construction" of products. As opposed to this type of holistic approach, current practice in the automotive segment especially tends to be limited to replacing steel parts. The fact remains that without the support of automotive players – who are still in the midst of reorganising their materials usage – construction of structural parts will not change. This makes any type of prediction for 2016 quite difficult.

### Turkey's growth slows

In regional terms, the growth in the composites market is quite heterogeneous. With an increase of 6% to 212,000 t, it comes as no surprise that the German market saw the largest gains within Europe, followed by eastern Europe (up 4%) and the UK (up 3%). For the first time in many years, Turkey's market growth has slowed. Reports from the country's composites association **TCMA** (Istanbul / Turkey; [www.kompozit.org.tr/en](http://www.kompozit.org.tr/en)) indicate that the increase came to only 2%. Once important players in the field, output in both Italy and Spain rose just slightly, while France's market has stagnated. The only European region to post a loss was Scandinavia, where output fell by 7% in volume terms.

## Europe: GRP Production 2014/2015, by country

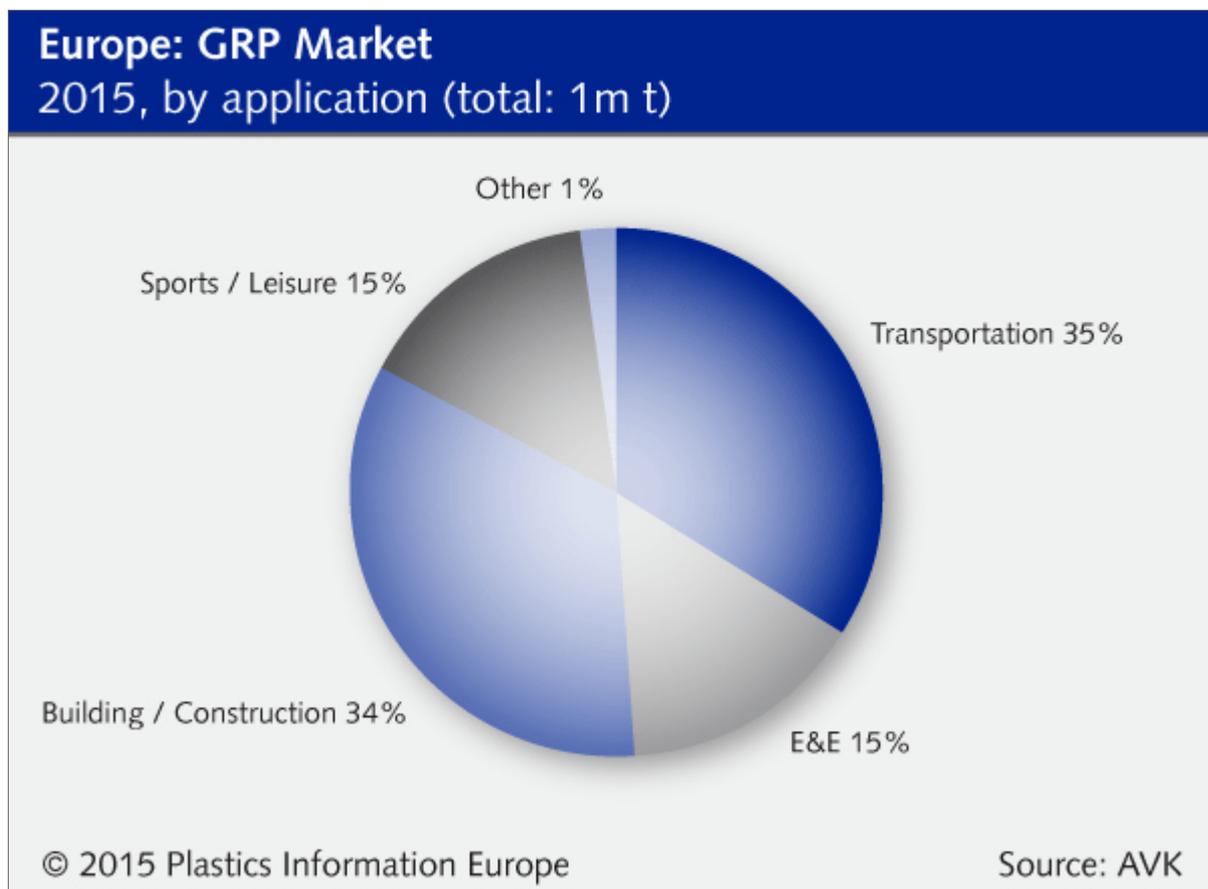


Mirroring the overall global economic trend, however, European output of GRPs is also pointing down. Production of standard products continues to shift towards Asia and the Americas, mostly at the expense of several setbacks experienced by the emerging economies of Brazil, Russia, India and China.

About one-fourth of European output consists of SMC and BMC parts. Although this constitutes the largest market share, this particular field is also cause for a lot of worry. After growth rates had already slowed in 2014, they fell even further this year, meaning the current situation can at best be described as stable. Both materials are predominantly used in the automotive and E&E segments.

Although they are increasingly leaning towards closed processes like RTM, open processes – referring to hand lay-up and spray lay-up – also posted a slight 1.3% gain. Infusion and injection techniques (summarised under the RTM category) grew by 3.7%, outperforming the sector's average. In the latter case, the influence of the automotive industry, a key driver for the development of these processes, played a large role.

Growth in highly automated continual processes for the manufacture of sheet and prepregs as well as pultruded profiles fell slightly short of the industry average at 2.2% to about 135,000 t in finished products. Both carbon fibre reinforced-plastics (CRP) and GRP can be used in one of the most recent developments in this field. In order to



lower the relatively high investment costs required for woven and non-crimp fabric preforms, materials supplier **Cytec** has combined a winding process with a two-stage hardening epoxy resins system and a subsequent compression moulding into the final part – including for instance an interior CRP door hull. The GRP pipes and tanks produced by winding and centrifugal processes saw a similar rise, of about 2%.

The most impressive gains in 2015 are expected for materials with a thermoplastic matrix. Glass matt-reinforced thermoplastics (GMRT) and long fibre-reinforced thermoplastics (LFRT) rose by more than 9% to 132,000 t. While LFRT make up about two-thirds of this, GMRT accounts for the remainder. Double-digit growth impulses are expected mostly from LFRT products, and predominantly from the automotive segment.

The growth rates for products made of injection moulded short fibre-reinforced thermoplastics are similar, AVK says. The market for compounds made of these materials was slightly larger in 2014, reaching about 1.24m t, and is expected to grow by about 7% this year, *Michael Effing*, head of **Composites Germany** (Berlin / Germany; [www.composites-germany.org](http://www.composites-germany.org)) predicts – see also interview with Effing at PIEWeb of [28.09.2015](http://pieweb.com). In the final tally, about 2.3m t of GRP was produced in Europe in 2014. By comparison global composites output – including products based on other reinforcements, like carbon and basalt fibres – reached 8.8m t.

GRP Production in Europe (in 1,000 t)					
	2011	2012	2013	2014	2015*
SMC/BMC	267	258	255	264	265
Open processes	258	235	232	232	235
RTM	120	120	126	132	137
Continuous processes	128	125	131	132	135
Tanks and pipes	155	147	144	145	148
GMRT/LFRT	105	108	114	121	132
Others	16	17	18	17	17
<b>Total</b>	<b>1,049</b>	<b>1,019</b>	<b>1,020</b>	<b>1,043</b>	<b>1,069</b>

Source: AVK

\*estimate

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