

The European GRP Market in 2016

In 2016, the volume of glass fibre reinforced plastics (GRP) manufactured in the European countries considered in this report will grow by 2.5%. Growth will thus continue at the same rate as in 2015. Total production is forecast to reach 1.096 million tonnes. Growth has therefore stabilised in this largest segment of the fibre reinforced plastics and composites industry. The composites market is very heterogeneous and there are wide regional differences.

Markets considered in the report

As in previous years, the European GRP Market Report 2016 is based on a survey of those European countries, for which production figures can be recorded and validated. Turkey is also included but the data are stated separately. The report aims to provide a consistent view of the market. In the following, the term GRP therefore refers to all glass fibre reinforced plastics with a thermoset matrix as well as glass mat reinforced thermoplastics (GMT) and long fibre reinforced thermoplastics (LFT). Data on European production of short fibre reinforced thermoplastics are only available as an overall quantity and therefore stated separately. Carbon fibre reinforced plastics (CRP) are dealt with separately in the second section of this market report.

Overall trend for GRP in 2016

Production volume of GRP has been growing continuously during 2016. As in 2015, the first six months of the year correlated closely with the forecasts and expectations of most market participants. The second half of the year is slightly weaker than expected. As in 2015, the European GRP market is expected to grow by 2.5% to an estimated total of 1.096 million tonnes (see Fig. 1). The overall percentage growth rate in the GRP market thus continues to outpace that of the

European economy as a whole.

GRP market trend in Europe (in '000 tonnes)

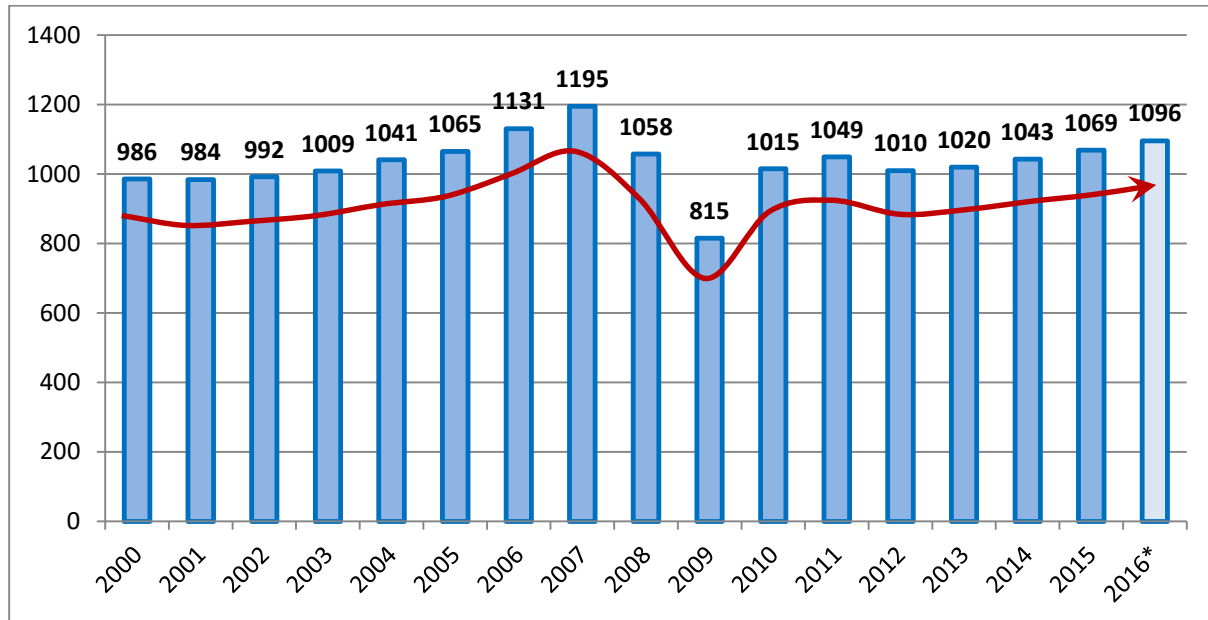


Fig. 1: GRP production by volume in Europe since 2000 (in '000 tonnes) (2016* = estimate)

The largest buyers of GRP components are to be found in the transport and construction sectors. These each consume around one-third of total production and play a major role in national economies. The long-term trend for GRP production therefore tends to follow the growth of the economy as a whole. Nevertheless, no rapid expansion of production (similar to that seen in the CRP segment) is to be expected in the near future. This is partly due to the very considerable level of existing production and also the fact that fluctuations in one industry are usually “smoothed out” by other applications.

Europe’s share of global composites production continues to decline – despite the absolute growth in total production over recent years. Processing of commodities (standard products), in particular, has clearly shifted over this period towards Asia and America. In short, GRP production in Europe continues to grow but will probably lag behind the global trend.

Trends in the development of processes/components

	2013 Kt	2014 Kt	2015 Kt	2016* Kt
SMC	184	190	191	198
BMC	71	74	74	76
Σ SMC/BMC	255	264	265	274
Hand lay-up	142	138	139	140
Spray-up	90	94	96	97
Σ Open mould	232	232	235	237
RTM	126	132	137	141
Sheets	84	84	86	89
Pultrusion	47	48	49	50
Σ Continuous processing	131	132	135	139
Filament winding	78	79	80	80
Centrifugal casting	66	66	68	68
Σ Pipes and Tanks	144	145	148	148
GMT/LFT	114	121	132	140
Others	18	17	17	17
Sum:	1,020	1,043	1,069	1,096

Fig. 2: GRP production volumes in Europe according to processes/components (Kt = kilotonnes, 2016* = estimate)

Thermosetting materials

SMC/BMC:

Large scale series manufacturing processes have been a reality for SMC (sheet moulding compound) and BMC (bulk moulding compound) components for many years. SMC and BMC semi-finished products are turned into components and primarily used in the electro/electronics sectors and the automotive industry. The SMC/BMC segment is outperforming all other thermosetting materials with growth of over 3 %. Over one quarter of all GRP produced in Europe is manufactured from SMC or BMC.

Open mould / Open processes:

“Open processes” – hand lay-up and spray-up – are a segment with a greater emphasis on manual skills and craftsmanship. It is still the second largest segment in the European GRP market with total production of 237,000 tonnes. The business is characterised by a large number of small companies with a relatively low level of automation. Typical products include, e.g. housings for wind turbines, swimming pools, boat hulls or attachments and add-on components for special vehicles.

RTM:

Growth in the production of RTM (resin transfer moulding) components continues to be slightly stronger than the average (nearly 3%). European production in the segment totals 141,000 tonnes. As in previous years, this category includes all components manufactured using a closed mould. Applications include vehicle construction, housings for wind turbines, boat and ship building as well as the sport and leisure sector.

Continuous Processing:

The consistently strong trend of recent years continues in the continuous processing segment. In 2016, European production has risen by 3% to 139,000 tonnes. Panels have been manufactured for use in vehicles for many years. These are supplemented by applications in the facade sector. The most significant applications for GRP pultrusion profiles are in the construction sector and plant construction. They are also used in the consumer/private sector.

Pipes and tanks:

GRP pipes and tanks are manufactured either using the centrifugal casting or filament winding process. The market is dominated by a few major manufacturers which each use relatively large quantities of material. This segment processed a total of 148,000 tonnes of GRP in Europe in 2016. However, it has stagnated since last year with zero growth – albeit at a relatively high level of production. GRP pipes and tanks are principally used in plant construction, pipelines and the oil/gas and chemicals industries.

Thermoplastic materials

GMT/LFT:

Glass mat reinforced thermoplastics (GMT) and long fibre reinforced thermoplastics (LFT) are by far the fastest growing segment of the GRP market with growth of over 6 %. The total production of 140,000 tonnes is split between LFT and GMT in a ratio of around 2:1. The main drivers of growth for all thermoplastic materials are projects in the automotive industry.

Short fibre reinforced thermoplastics:

At approx. 1.3 million tonnes, the European market for thermoplastic, glass fibre reinforced compounds in 2015 (*Source: AMAX*) was somewhat larger than GRP market (thermosetting materials plus GMT/LFT). However, when GRP components manufactured using the infusion process – not included in the GRP figures – are added to the total, the markets for thermosetting and thermoplastic

composites are roughly equal in size. In 2015, the market for glass fibre reinforced compounds continued to grow at an above average rate of 4.5 % (*Source: AMAC*). The majority of applications are to be found in the transport sector as well as the electro/electronic and sport/leisure segments.

Application industries at a glance

Despite the different trends in the markets for the various manufacturing processes, the proportions of GRP used by the major application industries in Europe remain the same as last year. The transport and construction sectors each consume one third of total production. Other application industries include the electro/electronics sector and the sport and leisure segment (see Fig. 3).

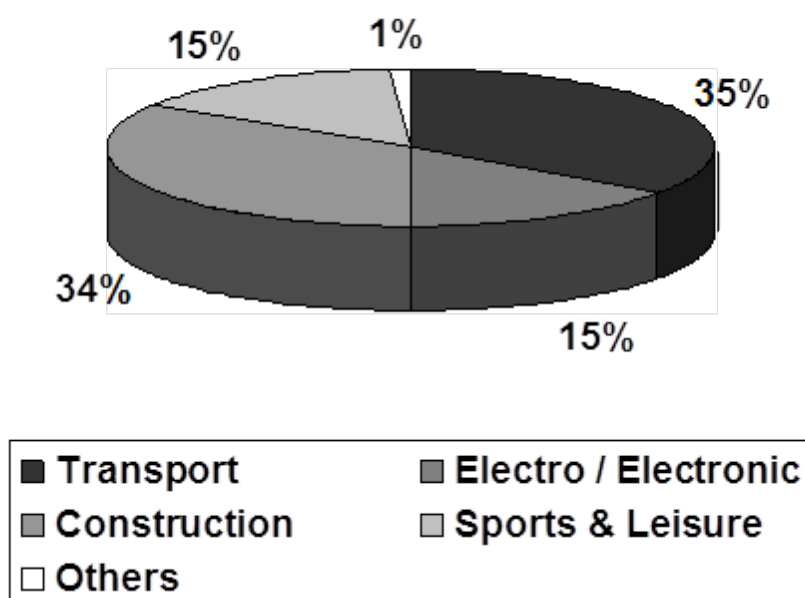


Fig. 3: GRP production in Europe by application industry (year: 2016)

GRP production in 2016 by country

The strongly divergent trends observed in European countries over recent years have moderated to some extent. Growth is being recorded for every country/region apart from Austria/Switzerland. The strongest growth continues to be found in Germany (3.8 %) and Eastern Europe (3.6 %). According to the Turkish composites Association TCMA, the sector is expected to grow by 5% in 2016.

	2013 Kt	2014 Kt	2015 Kt	2016* Kt

UK / Ireland	140	146	150	152
Belgium / Netherlands / Luxembourg	42	43	44	45
Finland / Norway / Sweden / Denmark	44	42	39	40
Spain / Portugal	152	154	156	158
Italy	146	148	150	154
France	112	108	108	110
Germany	192	200	212	220
Austria / Switzerland	17	18	18	18
Eastern Europe**	175	184	192	199
Sum:	1,020	1,043	1,043	1,096
Turkey***	214	245	245	257

Fig. 4: GRP production volumes in Europe – and Turkey – itemised by country/group of countries (Kt = kilotonnes / 2016* = estimated / Eastern Europe** = Poland, Czech Republic, Hungary, Romania, Serbia, Croatia, Macedonia, Latvia, Lithuania, Slovakia and Slovenia / Turkey*** = Source: TCMA)

Other composite materials

GRP remains by far the largest group of materials in the composites industry.

Glass fibres are used for reinforcement in over 95% of the total volume of composites (short and long fibres, rovings, mats ...). Of the 8.8 million tonnes of composites manufactured globally in 2014 (*Source: JEC Composites*), 2.3 million tonnes were glass fibre reinforced plastics produced in Europe. Of these, the GRP market accounted for 1.04 million tonnes and short fibre reinforced thermoplastics for the remaining 1.25 million tonnes in 2014. Worldwide demand for carbon fibre reinforced plastics (CRP) is estimated at 100,000 tonnes in 2016 (see the second section of this market report).

Outlook

Often classified as lightweight materials used primarily in the automotive and aerospace industries, existing applications for GRP are frequently overlooked. Yet these “materials of the future” serve real, existing markets and many of them have been used in a broad range of established applications for decades. Naturally, research projects into further series applications are very welcome indeed.

However, it is important not to overlook the potential and opportunities in other new and existing markets. Not only are we observing improvements in materials but above all the adoption of new processing methods. “Established” processes are also continuously being refined and adapted. The ongoing optimisation of RTM processes and meeting the future challenges of integrated production technologies continue to be important themes. Automation thus continues to be one of the most important issues.

The trend towards creating and refining multi-material systems and the use of hybrid components will remain one of the key challenges. Hybrid and corresponding multi-material systems are the future of lightweight design. Other factors will determine whether or how composites will be adopted in further sectors. For example, standards and regulations are often the keys to opening or closing doors of opportunity in the construction/infrastructure sector.

Composites are not only a reliable partner but a hope for the future in the area of materials. In combination with other materials, they often open up completely new horizons.