INDUSTRIEVEREINIGUNG
VERSTÄRKTE KUNSTSTOFFE
FEDERATION OF REINFORCED PLASTICS

# The European market for Fiber-Reinforced Plastics / Composites 2023

## Market developments, Trends, challenges and prospects

Dr. Elmar Witten, Volker Mathes

February 2024

## Table of contents


**1 Notes on the changed database ..... 4**

**2 Summarizing introduction ..... 5**

**3 The market under review ..... 8**

**4 Overall development of the composites market ..... 8**

4.1 Development of the market for thermoset composites ..... 11

4.2 Development of the market for thermoplastic composites ..... 13

**5 Trend developments in processes/parts ..... 17**

5.1 SMC/BMC ..... 19

5.2 NCF - Non-Crimp Fabrics ..... 20

5.3 Open procedures ..... 22

5.4 RTM ..... 22

5.5 Continuous processes ..... 24

5.6 Pipes and tanks ..... 26

5.7 LFT/GMT/CFRTP ..... 27

5.8 Short glass fiber reinforced thermoplastics ..... 28

**6 Regional market development ..... 29**

**7 Other composites materials - CRP and NRP ..... 32**

**8 Outlook ..... 32**

# The European market for Fiber-Reinforced Plastics / Composites 2023


**The authors**

Dr. Elmar Witten is Managing Director of the AVK - Industrievereinigung Verstärkte Kunststoffe e.V.. Volker Mathes is responsible for market information at AVK.


The AVK is the German trade association for fiber-reinforced plastics/composites and represents the interests of producers and processors at national and European level.

The range of services includes specialist working groups, seminars and conferences as well as the provision of market-relevant information (www.avk-tv.de).

Nationally, the AVK is one of the four supporting associations of the GKV - Gesamtverband Kunststoffverarbeitende Industrie - and internationally a member of the European composites umbrella organization EuCIA - European Composites Industry Association.

AVK is a founding member of Composites Germany.

# 1 Notes on the changed database

The data basis of the AVK market report, which has been established for decades, is based on surveys whose systematics have been continued since 1999. Changes in the framework conditions last year led to the database being expanded and adapted in some segments.

Until the 2021 edition, the production volumes for fiber-reinforced plastics and composites for the current financial year were surveyed in the 4th quarter and the volumes were estimated from the survey period until the end of the year. This system has been fundamentally adjusted. The 2023 market report contains the actual figures for 2023 collected at the beginning of 2024, which can only be validly recorded after the end of the respective year, also due to the ever-increasing market dynamics.

As in the previous year, the two central market groups of thermosets and thermoplastics are considered separately in individual areas. The analyses of application areas and regional developments have also been adjusted. The expansion and adaptation of the database has resulted in an even more comprehensive picture of the current markets and their development.

# 2 Summarizing introduction

## Macroeconomic developments continue to weigh on the composites market

After a long phase of continuous growth, the composites market has been subject to strong fluctuations since 2018. The high dependency of the composites industry on macroeconomic influences is very evident here. The main areas of application for composites are in construction and infrastructure, the mobility sector and the electrical/electronics sector. These segments are all of great importance for the overall economy in Germany and Europe. Changes in market dynamics also have a direct impact on the composites market.

After Brexit, trade conflicts and protectionist efforts by individual countries led to a weakening of global trade in 2018, for example, the coronavirus pandemic that began in 2020 had an additional negative impact. It should not be overlooked that it was not individual events that led to the corresponding shifts, but that key challenges - such as structural changes in the transportation sector - were already apparent before the coronavirus pandemic.

There is currently a rather negative mood within the sector on the markets in Germany and Europe. There are many reasons for this. The main drivers are likely to be the persistently high energy and commodity prices. In addition, there are still problems in individual areas of the logistics chains, for example on individual trade/container routes, as well as a cautious consumer climate. A slowdown in global trade and uncertainties in the political arena are currently fueling the negative mood in the market. Despite rising registration figures, the automotive industry, the most important application area for composites, has not yet returned to its pre-2020 volume. The construction industry, the second key application area, is currently in crisis. Although the order books are still well filled, new orders are often failing to materialize. High interest rates and material costs coupled with the high cost of living are having a particularly negative impact on private construction. However, public construction is also currently unable to achieve the targets it has set itself. According to the ZDB (Zentralverband Deutsches Baugewerbe), the forecasts in this important sector remain gloomy:

The decline in the construction industry is continuing. Turnover will fall by 5.3% in real terms this year and we expect a further 3% drop next year. Residential construction remains responsible for the decline, which will slump by 11% in real terms this year and continue its downward trajectory at -13% in 2024.[1] At present, politicians do not seem to be able to create a more positive environment for the industry with appropriate measures.

The factors mentioned above have already caused the European composites production volume to slump significantly in recent years. In 2022, the European production volume fell by 9%. A further decline of 8% in the overall market for composites in Europe is now expected for 2023.

In contrast, the global market for composites developed positively last year and has a total volume of 13 million tons for 2023.[2] Overall, market momentum in Europe was therefore significantly lower than worldwide. Europe's share of the global market has therefore fallen to around 20%.

The market is currently experiencing increasingly rapid momentum amid many uncertainties. The very strong international interdependencies of the composites industry also mean that events outside the core markets can have a significant impact on market developments.

Developments varied over the course of 2023. While the first two quarters were still relatively stable for raw material producers, they were no longer able to sell their products in full as the year progressed. Manufacturers of composites components primarily reduced their inventories. In addition, imports of raw materials from non-European countries (especially Asia) increased significantly. The production volume for component manufacturers is therefore likely to be somewhat higher than the market figures for European raw material producers suggest.

[1] ZDB: https://www.zdb.de/meldungen/baukonjunktur-2023-2024-zwischen-fachkraeftemangel-und-kurzarbeit-1)

[2] JEC Composites Magazine - JEC Observer - Overview of the global composites market 2023-2028

The key application segments did not shift significantly in 2023, but the dynamics within the segments varied greatly. The transportation sector remains the most important area of application, followed by the electrical/electronics sector and applications in the construction/infrastructure sector. The market shares differed significantly depending on the material system.

In the area of thermoplastics, there is a high dependency on the transportation sector, which accounts for 65% of applications. The strongest area for thermosets, on the other hand, is the construction sector with a share of around 36%, which is several percentage points higher than the transportation sector (29%).

In regional terms, Germany, Spain/Portugal, Italy and the Eastern European countries maintained their strong positions in the European context. Germany remains the country with the highest market volume, with a share of over 19% of the total market. However, the overall production volume has also declined here. The four regions mentioned above together account for around two thirds of the European market volume.

Glass fiber-reinforced systems still account for over 95% of the overall market. Other material systems, such as CRP (carbon fiber-reinforced plastics) or NRP (natural fiber-reinforced plastics), however, remain specialties that continue to develop positively in the corresponding application segments. In contrast to the general trend, the processing volume of CRP in particular has developed very positively over the past year.

At -10%, the overall decline in thermoplastic composites was greater than in thermoset materials, which fell by 5.7%. The smallest declines in the area of thermoset, glass fiber-reinforced plastics were in the area of SMC/BMC materials.

## 3 The market under review

When considering glass fiber reinforced (GRP) materials, this analysis again includes all GRP with a thermoset matrix. NCF (non-crimp fabrics) are still shown separately. In the thermoplastics market, long fiber reinforced thermoplastics (LFT), glass mat reinforced thermoplastics (GMT) and continuous fiber reinforced thermoplastics (CFRTP) will continue to be included.

In addition, the European production volume for short glass fiber reinforced thermoplastics is shown separately. The production of carbon fiber reinforced plastics (CRP) completes the overall analysis.

On the application side, the figures are shown for the two relevant material systems thermoplastics and thermosets as well as in aggregated form. Regionally, the analysis of the GRP market includes all thermoset materials in the relevant countries in Europe whose production volumes can be validly recorded.

## 4 Overall development of the composites market

According to the latest figures from the JEC (www.jeccomposites.com), the volume of the global composites market totalled 13 million tons in 2023. Compared to 2022, with a volume of 12.3 million tons, growth was around 5% (see Fig. 1).

In comparison, the European composites production volume fell by 8% in 2023. The total European composites market thus comprises a volume of 2,559 kilotons (kt) after 2,781 kt in 2022 (see Fig. 2). The market is therefore declining and falling back to the level of 2014.

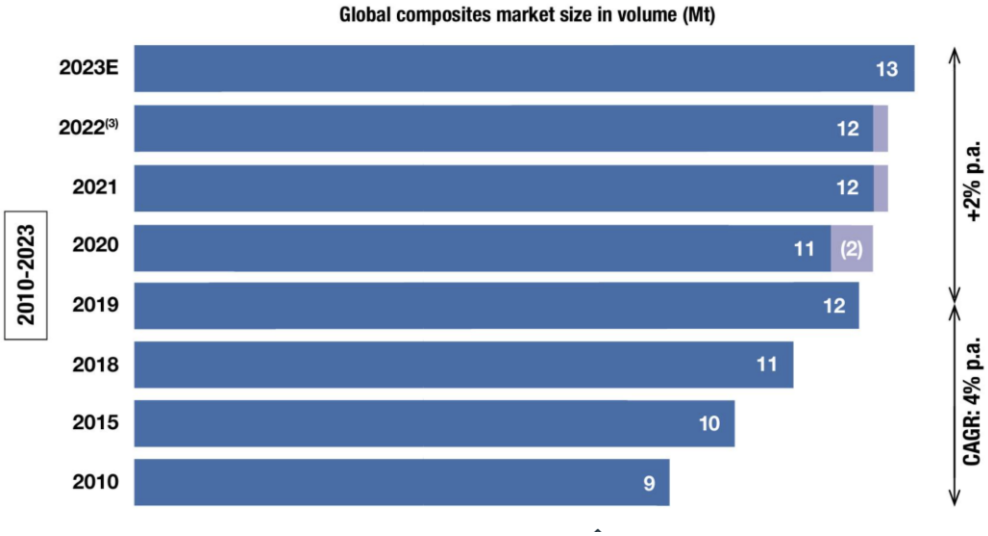


**Figure 1: Evolution of the composite materials market - 1960-2023E(1)[3] - Global - In volume (source JEC Observer 2024)**

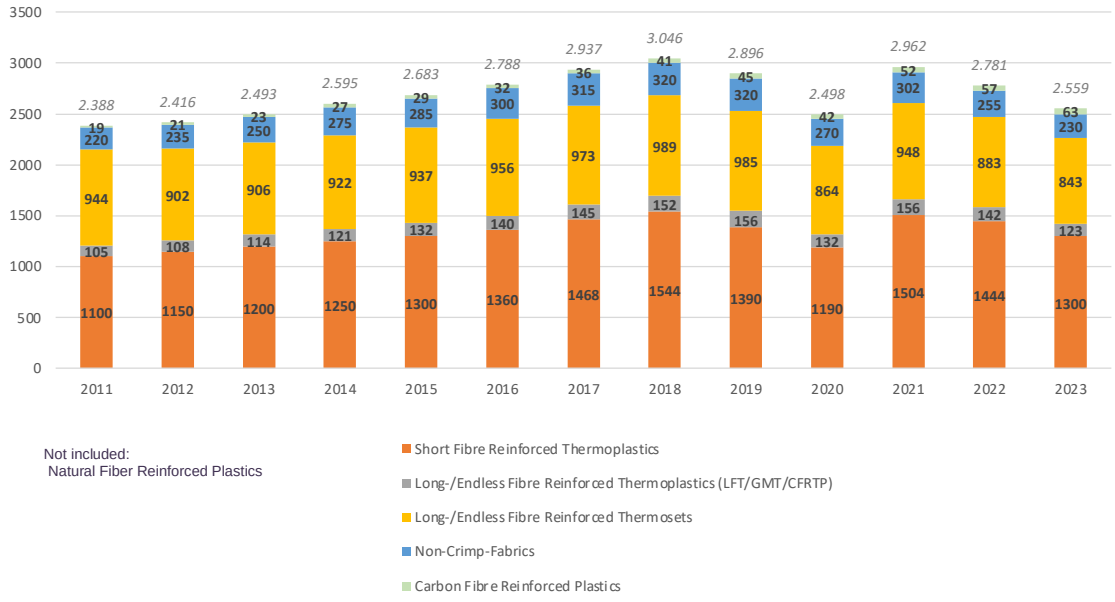


**Figure 2: Composites production volume in Europe since 2011 (in kt)**

[3] Notes: CAGR = Compound Annual Growth Rate; (1) Lost opportunity due to Covid-19; (2) 2023 Estimated value, subject to future revisions; (3) 2022 revised down by 0.3 Mt from last year's report. Sources: Lucintel, Compositesworld, Interviews, Estin & Co analyses and estimates.

Overall, market momentum in Europe was lower than in the global market. Europe's share of the global market is now around 20%. America's market share has risen slightly and currently stands at almost 30%. Asia now accounts for around 50 % of the global market.

As in previous years, development within Europe is not uniform. The differences are due to very different regional core markets, the high variability of the materials processed, a wide range of different manufacturing processes and widely differing areas of application. Accordingly, there are different regional trends, especially with regard to the individual processes, although there were declines in all regions and for almost all processes in 2023. Growth was only recorded for SMC/BMC and CRP materials. A detailed analysis of both the regional development and the development of different processes/systems follows in the next chapters.

In terms of volume, the largest share of total composites production goes to the transportation sector, which accounts for almost 50% of the market volume (see Fig. 3). The next two largest areas are the electrical/electronics sector and applications in construction and infrastructure. The transportation sector includes car production, but also commercial vehicles, aviation, public transport and many more. The construction/infrastructure sector includes pipelines, containers, tanks, profiles, etc. The electrical/electronics sector includes, for example, switches, housings, telecommunications equipment and control cabinets. This does not include CRP volumes, which only have a minor influence on this distribution with a share of around 2 to 3% of the total market.

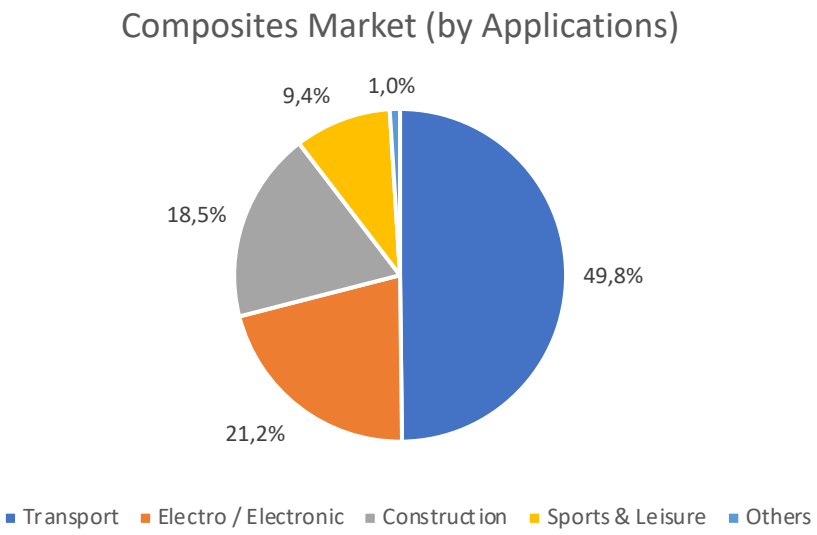


**Figure 3: Total composites market by application area 2023 (in %; without CRP)**

## 4.1 Development of the market for thermoset composites

The total production volume of thermoset composites (excluding CRP) amounted to 1,073 kilotons in 2023, compared to 1,138 kilotons in the previous year. This material group therefore accounted for 43% of the total market in Europe. Compared to the long-term trend, there was a slight increase in market share in contrast to thermoplastic systems (see Fig. 4).

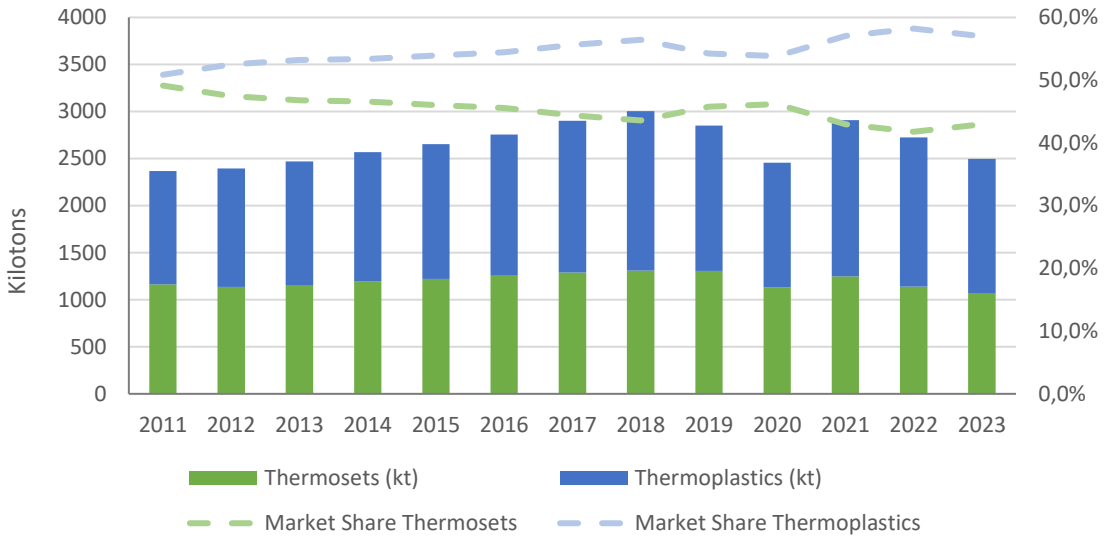


**Figure 4: The European composites market by material system (in % and kilotons; excluding CRP)**

The two main areas of application for thermoset composites remain the construction/infrastructure sector and the transportation sector (see Fig. 5).

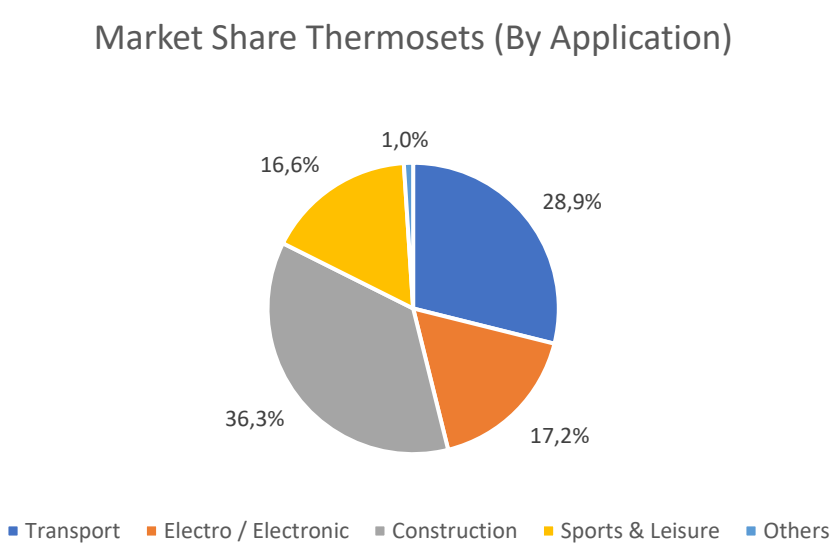


**Figure 5: Thermoset composites by application area 2023 (in %; without CRP)**

While the transport sector was still the largest application segment for the GRP industry (hereinafter referred to as all long and continuous fiber-reinforced thermoset and thermoplastic composites) until 2019, there has been a general shift towards the construction and infrastructure sector in recent years. However, both application segments are losing market share slightly in the current survey. In contrast, the thermoplastics

market has been dominated for many years by applications in the transportation sector, particularly in components for cars and commercial vehicles. The following chapter provides an overview of thermoplastic materials.

## 4.2 Development of the market for thermoplastic composites

The market for thermoplastic composites in Europe had a total volume of 1,423 kilotons (kt) in 2023, compared to 1,586 kt in the previous year (source: AMAC). This means that the market share of these systems in the overall European market will fall to 57% after 58.2% in 2022. Compared to the previous year, the market volume will fall by 10.3% and therefore more significantly than in the area of thermoset materials.

The largest material group within thermoplastic composites, but also in the overall market, are the so-called short glass fiber reinforced plastics. Here, the reinforcing fiber has a length of only a few millimeters. The reinforcing effect is therefore very different from long or continuous fiber systems. This is another reason why these materials are often not considered in the composites sector. In terms of materials, this material group is dominated by polyamide (PA). In the field of LFTs, where significantly longer fibers are used, the picture is different. Polypropylene (PP) is predominantly used here.

Overall, short glass fiber reinforced thermoplastics account for a volume of 1,300 kt after 1,444 kt in 2022. The decline is therefore 10%. The market share in the thermoplastic composites segment remains at over 90%. The share of the overall European composites market for this individual material group remains at over 50%.

The second largest group is LFT materials. These long-fiber-reinforced plastics accounted for a market volume of 105 kilotons in 2022, but had to contend with a sharp decline of 14.3%. The current market volume in Europe is 90 kilotons. The market for glass mat reinforced thermoplastics (GMT) is significantly smaller with a total volume of 23 kt and continuous fiber reinforced thermoplastics with a volume of 10 kt.

The main area of application for thermoplastic composites is the transportation sector, which accounts for almost two thirds of the market (see Fig. 5). Within this segment, the passenger car and commercial vehicle sectors dominate. Together with applications for electrical/electronic applications, this results in a market share of almost 90% by 2023.

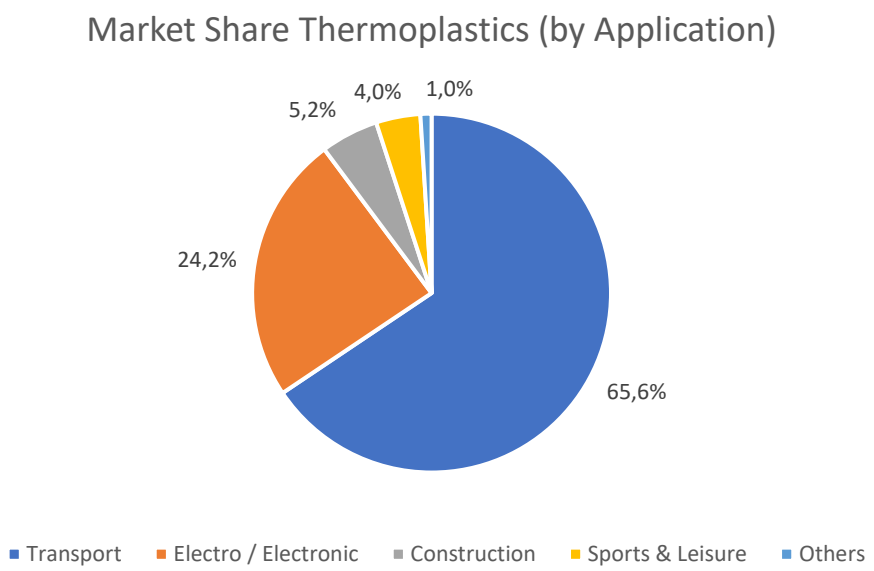


**Figure 6: Thermoplastic composites by application area 2023 (in %)**

The passenger car market is of key importance for thermoplastic composites. According to ACEA (European Automobile Manufacturers' Association), the overall volume is still well below the record years of 2018/2019, although the market has recovered slightly in contrast to the lows of previous years (see Fig. 7).

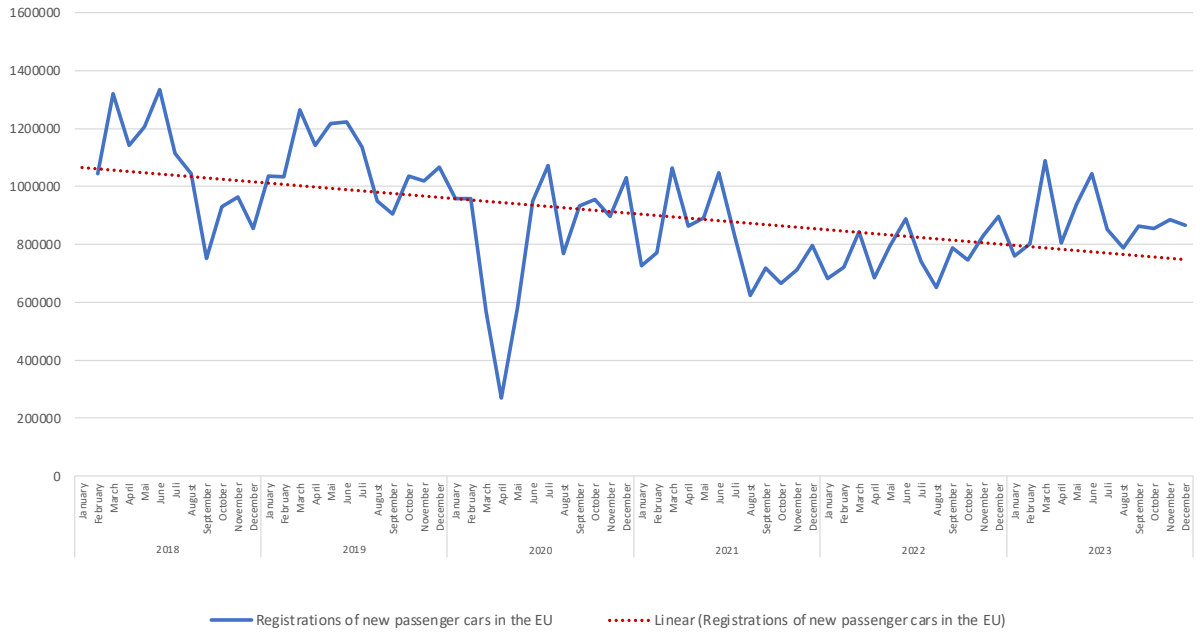


**Figure 7: New car registrations in the European Union (Own Figure; Source: ACEA - European Automobile Manufacturers' Association)**

The cumulative volume for 2023 is 10.5 million units after 9.3 million in the previous year. It should be noted that 2022 was the year with the lowest registration figures since 1993, when 9.2 million units were registered.[4] There is also a general trend on the part of European OEMs (original equipment manufacturers), which continues to depress sales figures. Production and therefore sales of high-volume models are often being cut back in favor of higher-priced, high-margin models. The profits of the OEMs are often lavish, with lower sales at the same time. According to an Ernest & Young study: "The world's largest car manufacturers remain on course for growth: the turnover of the top 16 car manufacturers climbed by 18 percent in the second quarter, reaching a new high. Total profit even rose by 31 percent to just under 40 billion US dollars - also a new record."[5]

A similar picture emerges for 2023 in the commercial vehicle sector. Here, too, new registrations increased significantly compared to 2022 to 1,846,580 units. For 2023,

[4] https://www.acea.auto/pc-registrations/passenger-car-registrations-4-6-in-2022-12-8-in-december/

[5] https://www.ey.com/de_de/news/2023/08/ey-automotive-bilanzen-q2-2023

the ACEA shows an increase for vans (light commercial vehicles) of 14.6 % for vans, 16.3 % for trucks and 19.4 % for buses.[6] However, the low level of registrations in 2022 must also be emphasized here. At 1,605,950 units, this was roughly on a par with 2015. By comparison, 2,087,162 units were registered within one year in 2019.[7]

Here, too, the causes are complex. The rising demand for vehicles is due to an increased need for freight/road transportation. In general, the availability of capacity is described as good. However, there are still bottlenecks in the area of drivers, for example, and the logistics chains at suppliers for the production of new vehicles do not always function smoothly. In addition, warehouse/warehouse traffic is currently increasing significantly. Companies have not expanded their capacities despite the coronavirus pandemic and the problems in the logistics chains. Changing consumption conditions among end customers and, in many cases, just-in-time options are increasing the pressure on the road and require new capacities.

The figures presented illustrate a recovery in the vehicle market, although this is not currently reflected in the European composites market. As the further analysis shows, the development is having a positive impact on the SMC/BMC industry in particular, whose components are also used to a large extent in the mobility sector. For thermoplastic material systems, on the other hand, the declining production of small and medium-sized cars appears to be having a negative impact. Another reason could be the import of corresponding components from abroad or production in other regions of the world.

[6] https://www.acea.auto/files/Press_release_commercial_vehicle_registrations_2023.pdf

[7] https://www.acea.auto/figure/new-commercial-vehicle-registrations-in-eu/

# 5 Trend developments in processes/parts

Table 1 shows the quantitative development of the main processes/parts for composites production in recent years. The naming of individual segments is not always entirely stringent or clear-cut. In addition to the processes mentioned, there are numerous other production processes/technologies that can essentially be assigned to one of the areas mentioned.

| | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|
| SMC (kt) | 205 | 174 | 197 | **190** | **202** |
| BMC (kt) | 82 | 70 | 81 | **78** | **79** |
| **SMC/BMC (kt)** | **287** | **244** | **278** | **268** | **281** |
| Hand lay-up (kt) | 139 | 121 | 135 | **120** | **107** |
| Spray-up (kt) | 98 | 88 | 97 | **85** | **79** |
| **Open mold (kt)** | **237** | **209** | **232** | **205** | **186** |
| **RTM (kt)** | **148** | **131** | **138** | **130** | **123** |
| Sheets (kt) | 94 | 85 | 92 | **84** | **76** |
| Pultrusion (kt) | 56 | 50 | 56 | **52** | **50** |
| **Continuous processing (kt)** | **150** | **135** | **148** | **136** | **126** |
| Filament winding (kt) | 78 | 70 | 72 | **68** | **60** |
| Centrifugal casting (kt) | 68 | 60 | 65 | **62** | **54** |
| **Pipes and Tanks (kt)** | **146** | **130** | **137** | **130** | **114** |
| **Non-Crimp-Fabrics (kt)** | **320** | **270** | **302** | **255** | **230** |
| **Others (kt)** | **17** | **15** | **15** | **14** | **13** |
| **Total Market Thermoset (kt)** | **1.305** | **1.134** | **1.250** | **1.138** | **1.073** |
| **GMT (kt)** | **36** | **29** | **27** | **25** | **23** |
| **LFT (kt)** | **111** | **93** | **119** | **105** | **90** |
| **CFRTP (kt)** | **9** | **10** | **10** | **12** | **10** |
| **Short fiber (kt)** | **1.390** | **1.190** | **1.504** | **1.444** | **1300** |
| **Total Market Thermoplastics (kt)** | **1.546** | **1.322** | **1.660** | **1.586** | **1423** |
| **CRP - Carbon Fiber Reinforced Plastics (kt)** | **45** | **42** | **52** | **57** | **63** |
| **Total Composites Market (kt)** | **2.896** | **2.498** | **2.962** | **2.781** | **2.559** |

**Table 1: Composites production volumes in Europe by process/parts (kt = kilotons)**

Figure 8 illustrates the long-term development of the various market segments. Short glass fiber reinforced plastics have been excluded from the analysis here. On the one hand, this serves to provide a better overview, and on the other hand, the differences between this material group and the GRP industry have already been pointed out above: The material properties of short glass fiber-reinforced materials to long and continuous fiber-reinforced systems differ significantly in some cases. The glass fibers contained are generally less than 2 mm in length. Nevertheless, they increase the property level compared to non-reinforced materials. In particular, there is a positive influence on the modulus of elasticity and the stiffness of the materials. With increasing fiber length, there is also an increase in strength and impact strength. In general, the materials are therefore differentiated in terms of their basic and sometimes significantly differing mechanical properties. The CRP figures were also taken into account here.

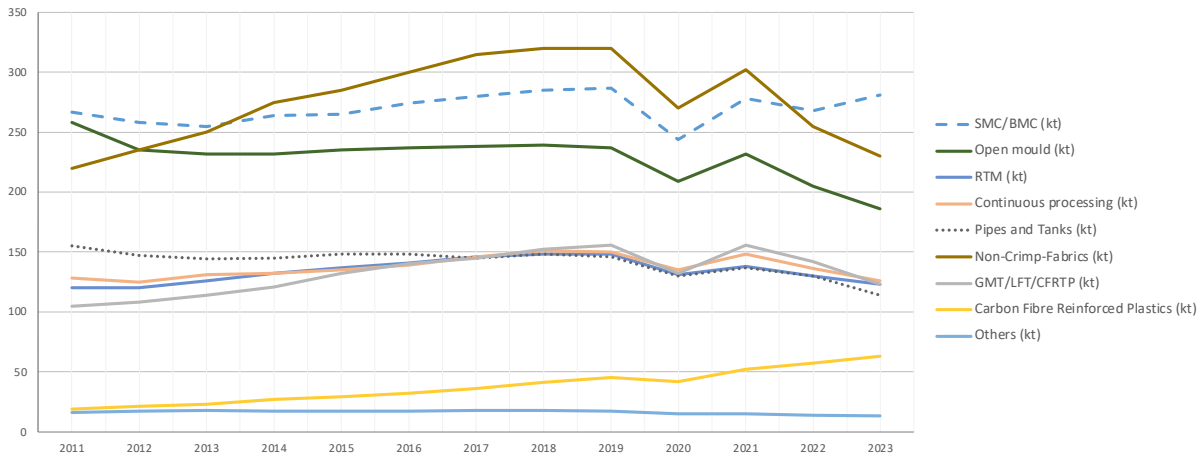


**Figure 8: Long-term development of the market segments (in kt)**

It is clear to see that SMC/BMC now once again represent the largest single segment in the European composites market. These are often used in large series applications in the electrical/electronics and transportation sectors, as well as in the construction and infrastructure sectors. Non-crimp fabrics are the second largest group. Applications here are mainly in the wind energy/rotor blade sector and in boat building. In third place are the so-called open processes, which are often strongly characterized by craftsmanship. In terms of volume, the other processes mentioned here are almost at a similar level. The above-average growth of CRP over the past few years is clearly evident.

The following is an individual assessment of the segments covered here.

## 5.1 SMC/BMC

With a processing volume of 281,000 tons, the production of SMC (sheet molding compound) and BMC (bulk molding compound) components is the largest market segment in the thermoset GRP industry. The semi-finished products/compounds are processed using pressing and injection molding processes.

SMC/BMC are primarily used in (large-scale) series production. Both materials have been successfully established in the electrical/electronics and transportation sectors for many years. Together, these two application segments account for an estimated 90% of the market volume in this segment, with the transportation sector accounting for over 60% of the total volume.

Typical applications include headlight systems, lamp housings, control cabinets, housings and exterior components in the commercial vehicle and automotive sectors as well as in public transportation. In recent years, applications in the e-mobility sector have increasingly been added, particularly in the area of battery housings and covers, as well as the charging infrastructure.

The latter applications and the positive development in the commercial vehicle sector as well as a fairly stable electrical/electronics market are also likely to have been the decisive factors for the positive development in 2023.

The increase in SMC/BMC in 2023 was 4.9% with an overall market decline of 5.8% in the thermoset segment. Alongside CRP, this market segment is the only one that is not affected by the general market weakness and is even growing. In addition to the general material properties, the main advantage is that it is already linked to existing (automotive) mass production.

SMC is the significantly larger of the two market segments, with a volume of 202 kilotons (kt). The market volume for BMC is 79 kt. SMC will grow by 6.3% compared to 2023 and BMC by 1.3%.

.

## 5.2 NCF - Non-Crimp Fabrics

This area has seen above-average growth in recent years. While the market level was still at 220 kt in 2011, it reached a volume of 302 kt in 2021. In 2022, this market segment has already declined significantly by 15.6% to a volume of 255 kt. In 2023, there will be a further decline of 9.8% to a total volume of 230 kt. NCFs are therefore disproportionately affected by the decline in the thermoset sector. The main areas of application are the wind industry and boat and shipbuilding. However, there are also individual applications in the transportation/local public transport, sport and leisure and construction and infrastructure sectors.

Despite the current weakness in Europe, a very positive future market trend is generally expected for NCF. The main driver here is wind energy. The trade association Composites Germany (www.composites-germany.com) surveys its members every six months regarding their qualitative market assessment. The expectations regarding future growth drivers are clear. The participants in the last composites market survey see the wind industry, alongside aviation, as a clear driver for future development (see Fig. 9).

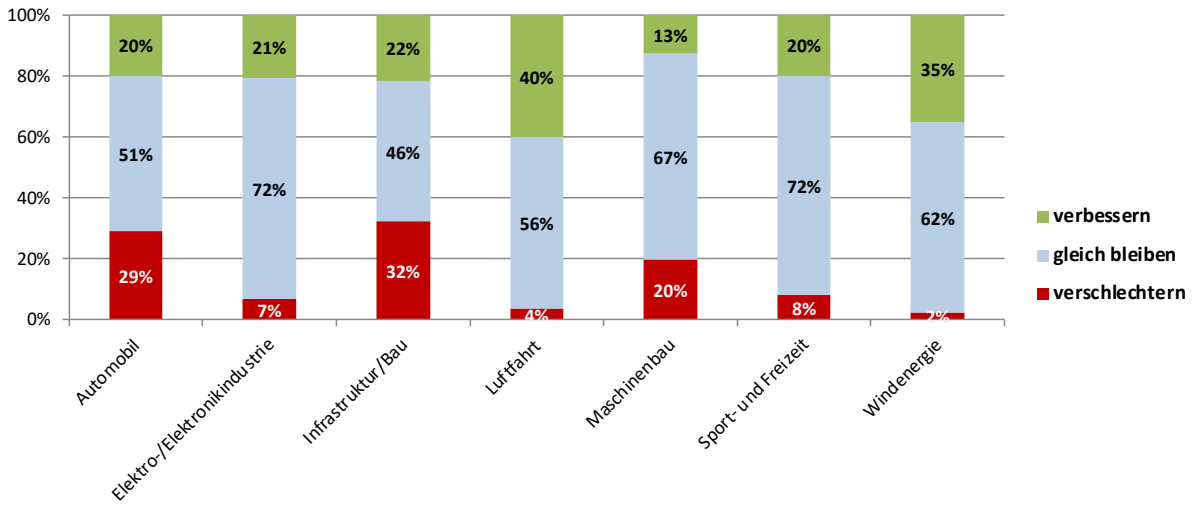


**Figure 9: Composites Germany - Composites market survey (1st half of 2024): Growth drivers in the composites industry**

This assessment is underpinned above all by political measures: political framework conditions, such as the "Green Deal", are currently leading to greatly increased pressure to act, including in the wind energy sector. With the European Green Deal, the 27 EU member states want to become climate-neutral by 2050. As a first step,

greenhouse gas emissions are to be reduced by at least 55% by 2030 compared to 1990 levels.

The self-imposed targets for wind energy are high, but the implementation of the necessary measures is still lagging behind, in some cases considerably. According to WindEurope, the EU built 17 GW (gigawatts) of new wind farms in 2023: 14 GW on land and 3 GW at sea. These figures are slightly higher than in 2022 and are the highest the EU has ever achieved in one year. However, they are far below the 30 GW per year that the EU needs to build to meet its new climate and energy security targets for 2030. Wind energy accounted for 19% of total electricity generation in Europe last year. Hydropower accounted for 13 %, solar energy for 8 % and biomass for 3 %. The share of renewable energies in total electricity generation amounted to 44%.[8]

The massive decline in a market that should actually be growing significantly and could therefore also boost the composites industry is due to the current situation. All major plant manufacturers in Europe are in the red. There are many reasons for this. They include costly repair measures, slow approval procedures, high costs, especially for materials, raw materials and plant components, as well as enormous competition from Asia. This is not just about the plant components themselves, many of which are already manufactured in non-European countries, but also about the bidding processes. Chinese manufacturers, for example, are currently starting to undercut European manufacturers on the cost of new plants and win orders in Europe.

The wind industry, and with it the NCF, must make significant progress if the targets it has set itself are to be achieved. The wind industry could actually guarantee future growth in the European composites market. However, this will only be the case as long as it is possible to serve the markets from Europe and install secure supply chains. Against the background of decreasing dependence on foreign markets and companies in sensitive sectors, it would be desirable to strengthen the European industry. However, there is currently a lack of political leverage here.

[8] https://windeurope.org/newsroom/press-releases/the-eu-built-a-record-17-gw-of-new-wind-energy-in-2023-wind-now-19-percent-of-electricity-production/

## 5.3 Open procedures

The open process segment - hand lay-up and fiber spraying - remains one of the largest segments in the GRP market in Europe with a production volume of 186 kilotons. However, this market segment also declined significantly in 2023, by a total of 9.3 %.

For many years, the share of open procedures in the overall market has steadily declined. In the course of the coronavirus pandemic, however, it was individual, special applications that significantly increased demand. Due to the lockdown and the associated travel restrictions, swimming pool construction, for example, has developed very positively in many cases. The corresponding willingness of private households to invest was very high. However, this exceptionally positive effect now appears to be waning. The general trend of open procedures losing market share has now continued. While the market share of open procedures was still at 20% in 2011, it has now fallen to 14.8%. In absolute figures, the production volume has fallen in the same period from 258 kt to the 186 kt now reported.

In general, open processes will nevertheless make an important contribution to GRP production volumes in the coming years. Due to their low investment costs, these processes are often the method of choice, particularly in the areas of special production, one-off production or small batch sizes. Fiber spraying and manual lamination, as the most original forms of GRP processing, are still very well suited for the production of large components or products with a high degree of complexity.

However, the ongoing and increasing tightening of the legal framework for the processing of unsaturated polyesters/styrene in particular and adjustments to the limits for other raw materials are making production in Europe increasingly difficult and costly. In addition to the tightening of the legal framework, which in some cases necessitates costly renovations/conversions of production facilities, the industry reports that it is becoming increasingly difficult to find suitable or well-trained workers. This makes production even more difficult.

## 5.4 RTM

In this report, the RTM (Resin Transfer Molding) segment includes all processes in which resin is infused/injected into a closed cavity. In addition to the various injection

processes (HP-RTM, P-RTM, RTM-Light, etc.), this also includes infusion processes. Not included here are those RTM processes in which the above-mentioned NCFs are used.

In recent years, many different variations of the RTM process have been developed. What all processes have in common is that dry fibers/semi-finished fiber products are used. The coated mold (in addition to the corresponding fiber products, core materials can also be used, for example) is then sealed or closed and the resin flows through the cavity in the closed mold either with the help of pressure and/or vacuum. The fibers and corresponding additional products/semi-finished products are flowed around or through.

After a phase in which RTM processes were able to develop continuously, the European production volume here also fell by 5.4% to a total of 123 kt. This means that the decline is roughly the same as that of the entire thermoset composites market. Overall, it is noticeable that the market share has remained almost the same over the past few years, fluctuating at most in the decimal range (see Fig. 10).

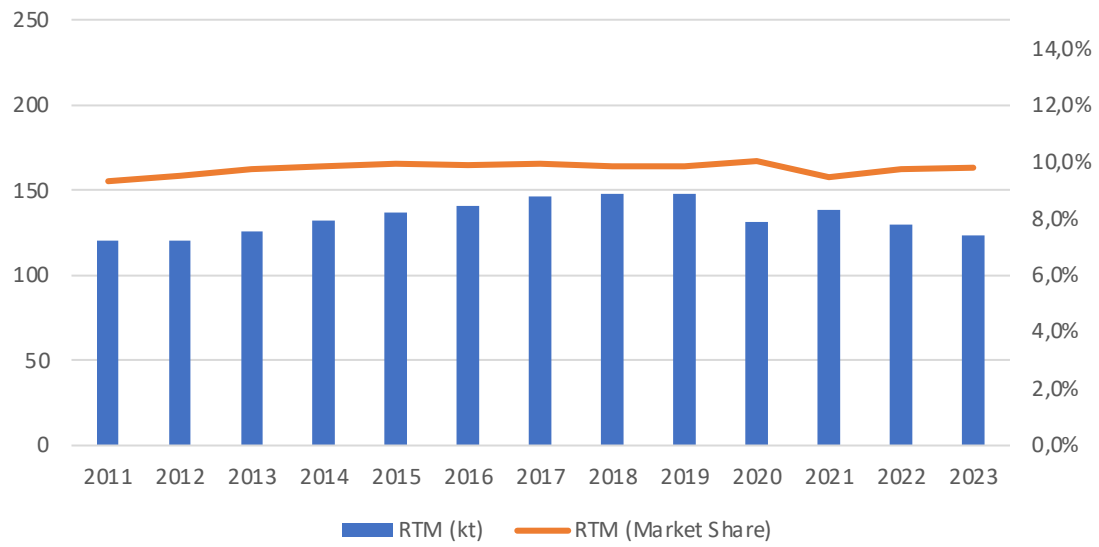


**Figure 10: Market development RTM process (in kt)**

The production spectrum of this technology is very broad and the process variants diverse. In addition to small quantities, larger series can also be produced. It is possible

to produce both small components and larger products. In addition, a variety of different fiber and matrix systems can be used. Appropriate preforms are also typically used.

The areas of application are correspondingly broad, ranging from vehicle construction, public transport, boat and shipbuilding to the sports and leisure sector and aviation.

### 5.5 Continuous processes

The production of GRP components using the so-called continuous processes (pultrusion and production of flat sheets) will see a 7.4% decline in production volume in 2023. Overall, the production level for pultrusion will fall by 3.8% to a volume of 50 kt. For flat sheets, there will be a decline of 9.5% to a volume of 76,000 tons.

Panels have been produced for years, primarily for vehicles, e.g. for truck side panels, caravan superstructures or for the conversion of commercial vehicles. There are also applications in the façade sector. Like swimming pool construction, the caravan industry has also benefited from an exceptional market environment since the start of the coronavirus pandemic. Following the announcement of the corresponding record figures, these special effects are now beginning to be adjusted.

For the first three quarters of 2023, the ECF (European Caravan Federation) reports a significant decline for both vehicle classes it manages. From January to September 2023, a total of 51,961 caravans were registered in Europe (-13.2% compared to 2022). In the same period, 119,984 caravans were newly registered (-3.6% compared to 2022). This results in a decline of 6.7% for the market as a whole, which is now also reflected in the composites market figures. The increase in commercial vehicle figures does not appear to be able to offset the corresponding losses at present.

Pultrusion is used to produce continuous profiles. Like SMC/BMC technology and thermoplastic processes, pultrusion is often considered to have an extremely promising future due to its process specifics. This is also shown by the aforementioned survey by Composites Germany and the Composites Index.

When asked about their assessment of the development of specific processing methods, almost half of the participants expect pultrusion processes to develop positively (see Fig. 11).

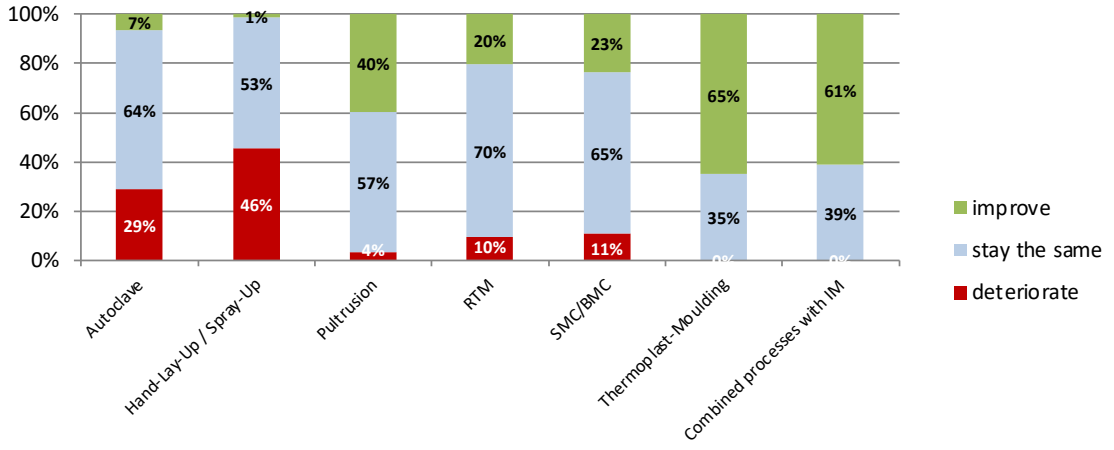


**Figure 11: Composites Germany - Composites market survey (2nd half of 2022): Development of the processing methods**

The construction and infrastructure sector in particular has been seen as a potential major future market in pultrusion for a number of years. These include, for example, reinforcement systems in bridge and building construction, window and staircase/ladder profiles, as well as antenna systems (keyword 5G network). In addition to lightweight construction, other specific material properties play a key role in these areas in particular. These include, for example, the permeability of radio waves, corrosion resistance, extensive freedom from maintenance, the possibility of load-compliant design and the non-conductivity of current and temperature.

In many cases, however, there is still a lack of corresponding general approvals and norms/standards that would further promote their use. This lack of "safety" still leads to great reluctance on the part of many architects and material decision-makers. In addition, many decision-makers are still not sufficiently aware of the positive properties of GRP compared to other building materials.

Existing applications in the construction and infrastructure sector are currently facing major challenges due to a weakening construction industry. Although the order books are still well filled, new orders are often failing to materialize. High interest rates and material costs coupled with the high cost of living are having a particularly negative impact on private construction, but public construction is also currently unable to achieve the targets it has set itself. The ZDB's poor forecast has already been described in detail on page 5.

## 5.6 Pipes and tanks

The market segment of GRP pipes and tanks, manufactured using centrifugal or winding processes, fell by 12.3% in the year under review, thus showing the largest decline. The production volume in 2023 totaled 114 kt, with 60 kt attributable to the winding process and 54 kt to the centrifugal process.

The main areas of application for GRP pipes and tanks are plant construction, public and private pipeline construction and the oil/gas and chemical industries as users. This segment is currently dominated by a relatively small number of large producers who have a comparatively large amount of material in their operational throughput for the GRP industry.

GRP pipe/tank and plant construction is a typical area in which GRP materials have numerous advantages. These include, for example, excellent resistance to aggressive media, such as salting or others. In addition, the maintenance intervals when using GRP and the service life of the systems can be significantly extended. The load-bearing design is also an enormous advantage in many areas of application.

There is still great potential for growth, both in the pipe sector and, above all, in tank and plant construction, which can be exploited by further improving the general perception of materials, for example. There are also numerous research activities, particularly in the field of winding technology. For example, hydrogen tanks are currently being wound (using carbon fibers) that can withstand a pressure of several 100 bar and are also very light. Very interesting potential fields of application are emerging here, for example in the automotive sector for the future, which do not yet account for a significant market share.

Despite these generally positive future prospects, this sector is also particularly affected by the weaknesses in the construction and infrastructure sectors and the generally difficult economic situation. In particular, there are currently no major new investments in plant construction. Although maintenance and repairs are still being carried out, new orders are largely lacking. A lack of willingness to invest in both the public and private sectors is leading to a pessimistic, short-term forecast for this area. Only an increase in new orders could counteract this, but this is not to be expected in the short term due to the tight budget situation and reluctance to invest. Due to the low

market volume, the areas of innovation mentioned (such as wound pressure tanks) are currently unable to offset the losses from other segments.

## 5.7 LFT/GMT/CFRTP

In the following presentation, short glass fiber reinforced plastics are considered separately from the long and continuous fiber reinforced thermoplastics LFT/GMT/CFRTP. The latter group has similar issues with regard to material properties, areas of application and, in some cases, processing as long and continuous fiber-reinforced thermoset materials.

Materials with a short fiber reinforcement (less than 2 mm fiber length) differ from LFT/GMT/CFRTP in terms of the influence on the material properties and the (load-compliant) design.

Figure 12 below provides an overview of the development of this market segment. The market for GMT declined by 8% to a total volume of 23 kt in 2023. It is therefore somewhat more robust than the overall market for thermoplastic materials, which declined by 10.3 %.

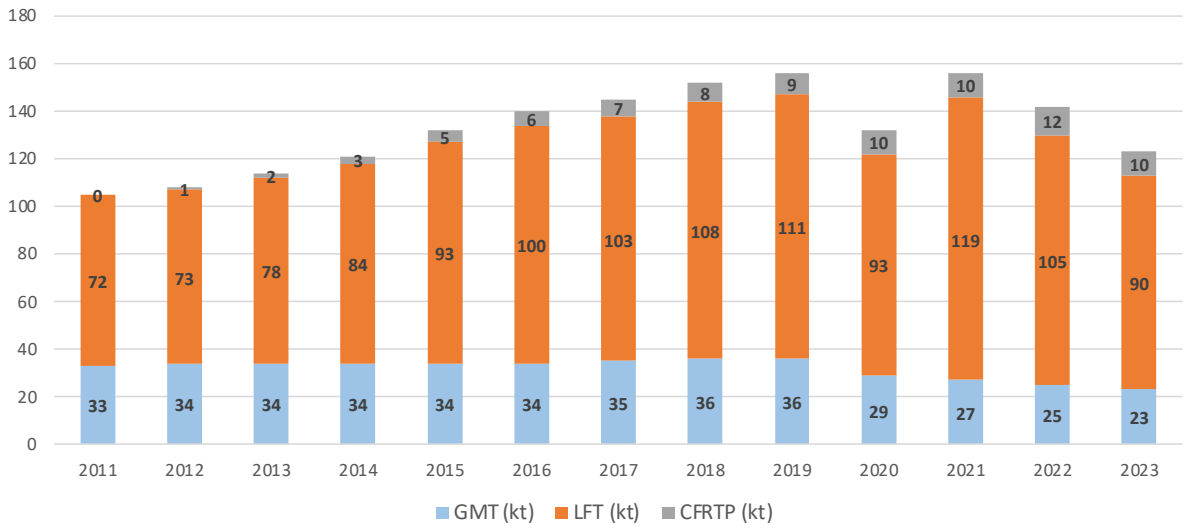


**Figure 12: Market development LFT/GMT/ CFRTP (in kt)**

LFT (long fibre reinforced thermoplastics) will lose 14.3% overall in 2023 after 11.8% in the previous year, reaching a production volume of 90,000 tons. CFRTP (continuous fiber-reinforced thermoplastics) are still a niche product. The decline here was even more pronounced at 16.7%. The market segment reached a volume of 10 kt.

This market segment in particular is highly dependent on the transportation sector. Almost the entire volume recorded here is likely to flow into the transportation sector. The improved figures for new registrations currently show no effect on composites production. This can only be explained by the fact that fewer vehicles are being produced in which thermoplastic composites are used, or that production has been relocated to non-European countries.

## 5.8 Short glass fiber reinforced thermoplastics

Even though the properties of short glass fiber-reinforced materials sometimes differ significantly from those of long and continuous fiber-reinforced systems - as mentioned above - this important group of materials is still classified as composites. This is not least because it is a plastic reinforced with fibers. The glass fibers contained are generally less than 2 mm in length. Nevertheless, they significantly increase the level of properties compared to non-reinforced materials. In particular, there is a positive influence on the modulus of elasticity and the stiffness of the materials. With increasing fiber length, there is also an increase in strength and impact strength.

The European market for thermoplastic short glass fiber reinforced materials will decline by almost 10% in 2023, following a 4% decline in 2022. The production level will fall to 1,300 kt (source: AMAC).

Nevertheless, short glass fiber reinforced thermoplastics remain by far the largest single segment in the composites industry. The production level falls significantly behind the pre-corona level (see Fig. 13).

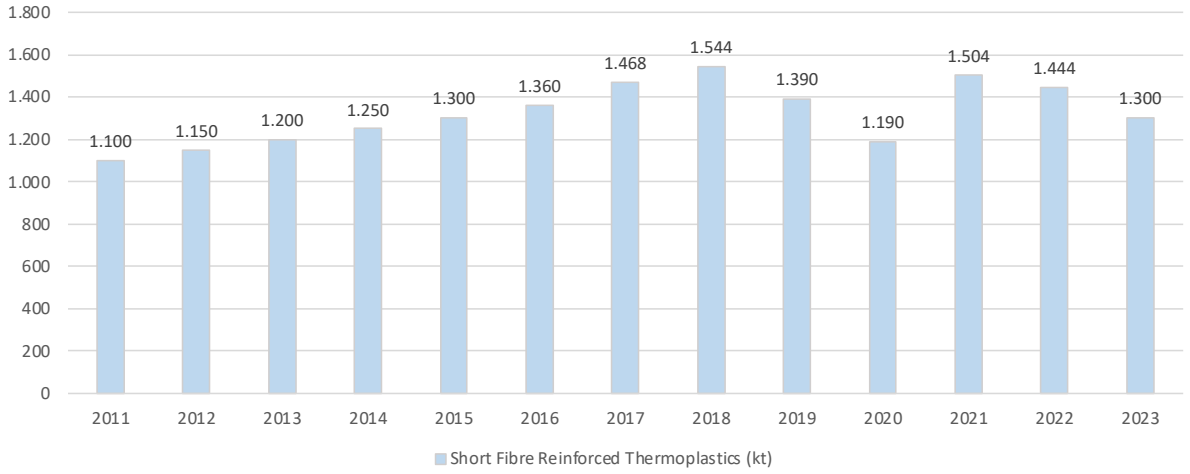


**Figure 13: Market development of short glass fiber reinforced thermoplastics (in kt)**

In terms of materials, the market described here is dominated by polyamide (PA). The second largest group is polypropylene (PP). Together, these two material systems account for over 80% of the resin systems used. A different picture emerges in the LFT sector mentioned above. Here, PP is used for the most part.

Overall, as with the other thermoplastic systems, the significant decline is probably due to the structural changes in the vehicle and commercial vehicle sector, as discussed above.

# 6 Regional market development

The regional market distribution within Europe is analyzed below. In contrast to previous figures, NCFs were added as a large product group to the corresponding figures last year, which is why it is initially not possible to look at a long period of time. Nevertheless, there are clear parallels to the previous surveys. Even though the absolute figures are now higher due to the change in the database, there have been no significant changes in the order of importance of the respective markets.

The underlying data includes all long and continuous fiber-reinforced thermoset materials. Thermoplastics are not included in the regional analysis, as there is currently no regional breakdown of these material volumes.

The percentage shifts by regional focus have changed only slightly in 2023 compared to 2022. However, the absolute market figures are lower by the aforementioned

declines. Overall, all regions covered were affected by declines. The German thermoset market reached a volume of 208 kt in 2023. With a share of 19.4%, Germany is currently the largest market within the regions surveyed, as in the previous surveys (see Fig. 14).

The Eastern European countries follow in second place with a market share of 19% and a volume of 204 kt. This region comprises the following countries: Poland, the Czech Republic, Hungary, Romania, Serbia, Croatia, Macedonia, Latvia, Lithuania, Slovakia and Slovenia. It is not always possible to clearly allocate individual volumes/material flows, which is why these countries are grouped together here in a fairly large group.

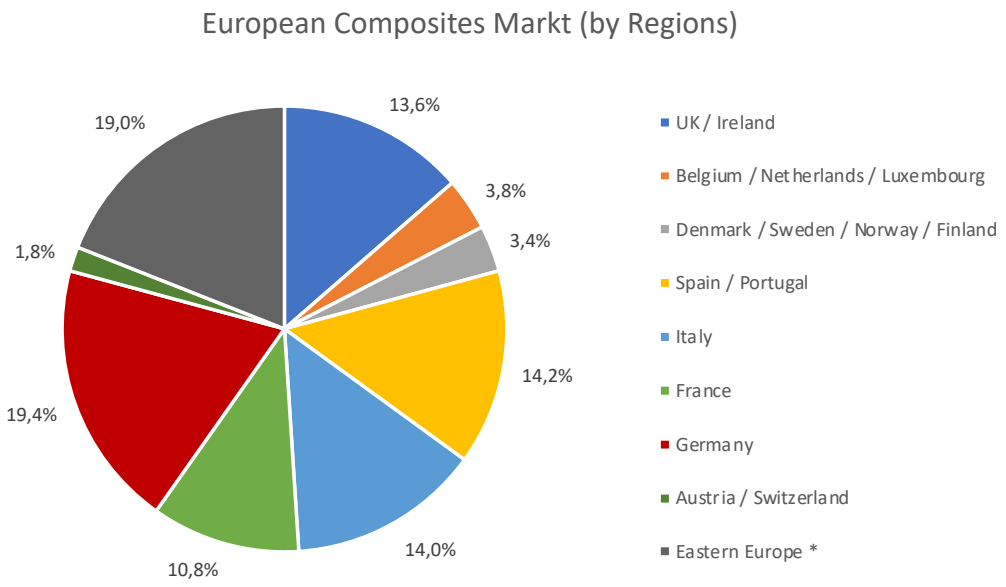


**Figure 14: Regional distribution of the European thermoset market**

With a processing volume of 152 kt, Spain/Portugal is the third largest group. Their market share is 14.2%. Just behind Spain/Portugal is Italy, with a market share of 14% and a composites processing volume of 150 kt. Together, these four regions account for almost two thirds of the European composites market.

The next largest processing region within Europe is the UK/Ireland with a market share of 13.6% and a volume of 146 kt. France is well behind with a market share of 10.8% and an associated production volume of 116 kt.

The remaining three, smaller processing regions are led by the Benelux countries. A volume of 41 kt was produced in these countries in 2023. This region therefore accounts for a share of 3.8%. The volume in the Northern European countries (Denmark, Sweden, Norway and Finland) was slightly lower. This region accounts for a volume of 36 kt of composites and a 3.4% share of the overall European thermoset market. Austria/Switzerland accounts for the lowest percentage and therefore also the lowest volume share. A total of 19 kt of thermoset composites were produced there in 2022. This leads to a market share of 1,8 %.

In addition to this pure volume analysis, it is also important to bear in mind that the composites industry has very different focuses in almost all regions. Accordingly, the various countries/regions are often affected by macroeconomic developments in very different ways. A pan-European analysis can therefore only ever provide a rough indication of developments or give an indication of fundamental trends. In detail and depending on the specific core markets and primary applications within the countries, very different developments often emerge. In Turkey, for example, pipe and tank systems have dominated the market in terms of volume for many years, with a share of almost 50%. In Germany, on the other hand, they play a rather subordinate role. Here, automotive applications and the electrical and electronics industry tend to dominate. In the Scandinavian countries of Norway/Sweden, on the other hand, applications in the oil and gas industry dominate.

The market figures for the Turkish composites market have also been presented here for several years. Due to a very small database, they are still shown separately here. For Turkey, the Turkish trade association TCMA reports a total volume of 330 kt for 2023. This would make Turkey by far the largest single market in Europe. As in previous years, it can be assumed that around half of the production volume will be used for the construction sector and for the manufacture of pipes and tanks. The automotive and transportation sectors account for around a third of the production volume. The third largest area of application is the wind industry.

# 7 Other composites materials - CRP and NRP

In addition to the material groups discussed in detail in the previous report, carbon fiber-reinforced plastics (CRP) and natural fiber-reinforced plastics (NRP) are the most important material groups in terms of volume.

The CRP market volume developed very dynamically in 2023. Growth compared to 2022 is 10.5%. The total volume in Europe will increase to 63,000 tons (source: Composites United). This makes the CRP market segment significantly more dynamic than all other areas mentioned here.

No new information is currently available for NRP. According to a survey conducted by AVK in 2020 within this special composites segment, thermoplastic materials are predominantly used in this market, although thermosets are also used. Unfortunately, no current data is available on the exact processing volume.

The largest area of application is the automotive sector, followed by the consumer goods industry. Mainly flax, hemp, jute and kenaf are processed. On the processing side, compression molding dominates production. Injection and extrusion processes are also used. In regional terms, Germany, France and some Eastern European countries (Poland, the Czech Republic and Slovenia) dominate processing.

Natural fiber-reinforced plastics are mostly used due to their special material properties (low weight, low costs, sound insulation, good mechanical properties). However, they can also help to positively influence the ecological balance of a product. There are numerous opportunities for future market development in this area in particular.

# 8 Outlook

**A German perspective on the question of whether and how the composites industry in Europe can be saved**

How will the composites market develop in the medium and long term? It has always been difficult to answer this question, not least because of the great heterogeneity of materials and applications. Quantitative statements in this regard were/are associated with enormous uncertainty. Over the past few years, markets have changed in ever faster cycles. In addition, there have been numerous individual effects that have often

rendered existing forecasts invalid. Overall, uncertainty regarding possible future scenarios has increased significantly, not only in the composites industry, but for the economy in general. However, in order to derive possible scenarios, it often helps to take a closer look at various economic indicators and their influence. Possible development scenarios for individual market segments can then be derived from this. These are also affected by corresponding imponderables, but are often more meaningful in the medium term than developments in individual markets due to their generalist nature.

The previous market report has shown that the European composites industry is currently going through a difficult phase. But what is the situation in Europe as an industrial location and, as a trade association for the German market, is this question of particular interest to us, what is the situation in Germany as an industrial location? How sustainable is the European composites industry?

The German Economic Institute (IW) summarizes the development for the German economy as follows in a so-called economic traffic light dated 29 December 2023:

"The IW economic traffic light provides a miserable picture of the state of the German economy at the end of 2023. Not a single one of the economic indicators shown there is colored green - which would signal an improvement in the last three months (...). This finding is also confirmed by the IW association survey at the turn of the year 2023/2024. 30 of the 47 participating business associations rate the current situation as worse than a year ago. This is a cause for concern, as the energy crisis and fears of a gas shortage meant that the mood in the German economy was not good back then either (...) Despite falling inflation, the economy has not been able to break out of its state of shock in the current year.

Global trade is suffering from the wars and geopolitical turmoil, which is weighing on German exports. High interest rates and cost handicaps are having a negative impact on investment activity in industry. The bleak outlook for the German economy is exacerbated by the European Central Bank's interest rate hikes in response to cost shocks and high inflation rates, as well as the uncertainty among companies and households as a result of the uncertainties surrounding the federal budget. (...). No economic progress for 2024 can be derived from this pessimistic overall impression. With economic output expected to fall by almost 0.5% in 2023, a contraction of a similar magnitude

can also be expected for the new year. In the past seven decades, the German economy has only been in recession for two consecutive years in 2002 and 2003. However, the deterioration and uncertainty in the framework conditions and the loss of price competitiveness are home-made burdens on investment in Germany."[9]

The GKV - Gesamtverband Kunststoffverarbeitende Industrie e.V. - came to a similar critical assessment at its annual business press conference: "The plastics processing industry in Germany recorded shrinking sales in 2023. The industry's turnover fell by around six percent compared to the previous year to EUR 72.5 billion. Companies' business expectations for the current year are also subdued. The association sees the current unfavorable conditions for German industry as the reason for the decline in turnover. Companies are also currently reluctant to invest. This is also due to the uncertain future prospects for the industry in Germany. The President of the German Plastics Processing Industry Association (GKV), Dr. Helen Fürst, is calling for a growth agenda for Germany. "The causes of the current economic crisis in Germany are predominantly structural in nature. That is why we need a future-oriented growth agenda so that the industry in Germany can pick up speed again in two to three years' time".[10]

Both associations provide an extremely critical view not only of the current situation, but also of the future viability of German/European industry against the backdrop of the current economic conditions.

Looking at the above economic forecast, it is fair to ask whether German industry can still be saved and where the reasons for the current poor valuations lie.

The importance of the manufacturing industry, which includes the production of composite components, is traditionally greater in Germany than in the other major EU economies. In 2022, the manufacturing industry in Germany generated 24% of total gross

[9] https://www.iwkoeln.de/presse/in-den-medien/michael-groemling-ein-miserables-bild.html

[10] https://www.gkv.de/de/service/presse/kunststoff-verarbeitende-industrie-fordert-wachstumsagenda.html

value added. In the EU-27, this figure was 20.6%.[11] The German economy is therefore particularly dependent on industry.

The producer price index is a key indicator for assessing/illustrating the current economic situation from the manufacturer/producer perspective. The index of industrial producer prices measures the monthly gross change in the retail prices of industrial products. It records price changes from the perspective of the producers/manufacturers of a product. In this respect, it differs from consumer price indices, which measure prices from the perspective of consumers/buyers. This indicator illustrates the scale of price increases in recent years (see Fig. 15). In addition to a generally strong increase, the main driver of the trend, energy costs, is also clearly recognizable. Even though the massive increase has currently been halted and the trend is clearly declining, the values remain well above the 2021 level.

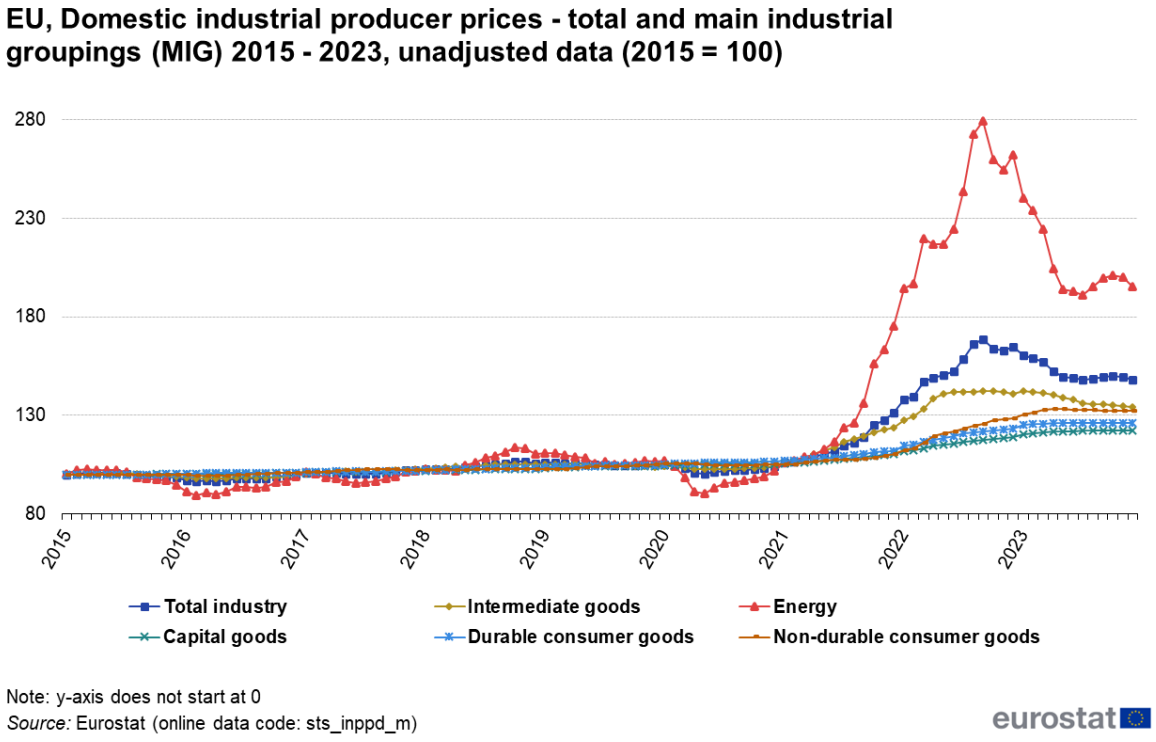


**Figure 15: Industrial producer prices - total and main industrial groups (MIG) 2015 - 2023, unadjusted data (source: eurostat)**

[11] https://www.destatis.de/Europa/DE/Thema/Basistabelle/Uebersicht.html#396790

The rise in energy costs and the associated price increase for both private and industrial customers is often attributed to a significant increase in purchase prices on the exchanges.

Following a rapid rise triggered by an uncertain economic situation in the wake of the coronavirus pandemic and then significantly exacerbated by Russia's war of aggression against Ukraine, they have now settled back at a relatively low level. According to the Federal Network Agency, pure wholesale electricity prices are now almost back to pre-crisis levels (see Fig. 16).

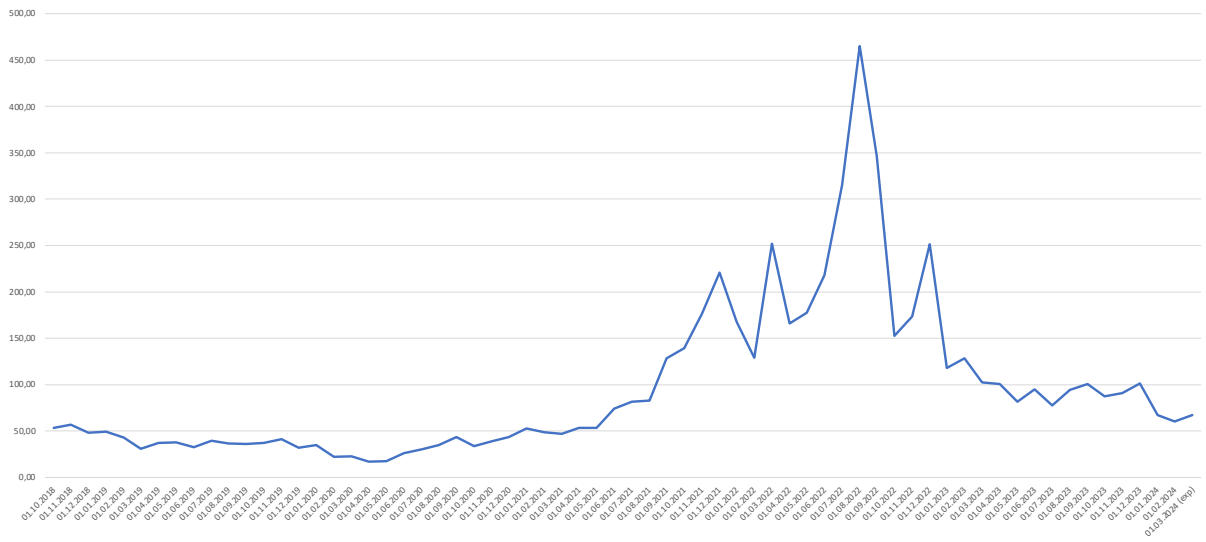


**Figure 16: Wholesale prices Germany/Luxembourg [€/MWh] (Source: SMARD Federal Network Agency)**

Based on the short-term purchase prices on the exchanges, the corresponding price reductions by suppliers could be even more significant for customers than has been the case retroactively in some cases. However, these cost reductions are not yet being passed on in full to industrial customers and private households due to the sometimes very strong fluctuations in purchase prices. In addition, only 52% of the total electricity price is attributable to procurement and sales, 27% to taxes, levies and charges and 21% to legally regulated grid fees.

The development of electricity prices and the general price level vary greatly across Europe. According to recent reports, the average electricity price in 2023 for household customers in Europe was 28.9 cents per kilowatt hour.

Customers in the Netherlands had to pay the most within the EU. Here, the average price for an annual consumption of between 2,500 and 5,000 kilowatt hours was 47.5

cents per kilowatt hour of electricity. The price in Germany was also relatively high at 41.2 cents per kilowatt hour (4th place within the EU). In comparison, Spanish households paid less than half this amount. Electricity prices in Poland (17.7 cents), France (23.2 cents) and Austria (26.5 cents) were also well below the German level.[12]

This shows great potential for the future, not only to create uniform regulations, but above all to enable a uniform competitive standard. Furthermore, this illustrates the scope for corresponding price reductions in order to strengthen Germany as an industrial location once again.

In addition to manufacturing and energy prices, logistics prices are also very important in the highly internationalized composites market. This applies to the import of raw materials and goods as well as the export of corresponding goods. Overseas trade plays an important role in this respect.

Here, too, there is a general easing after container freight rates increased almost tenfold in the course of 2021. Individual routes were still significantly more expensive than in previous years. However, prices calmed down significantly, partly due to a decline in trading momentum (see Fig. 17).

[12] https://strom-report.com/strompreise/strompreisentwicklung/

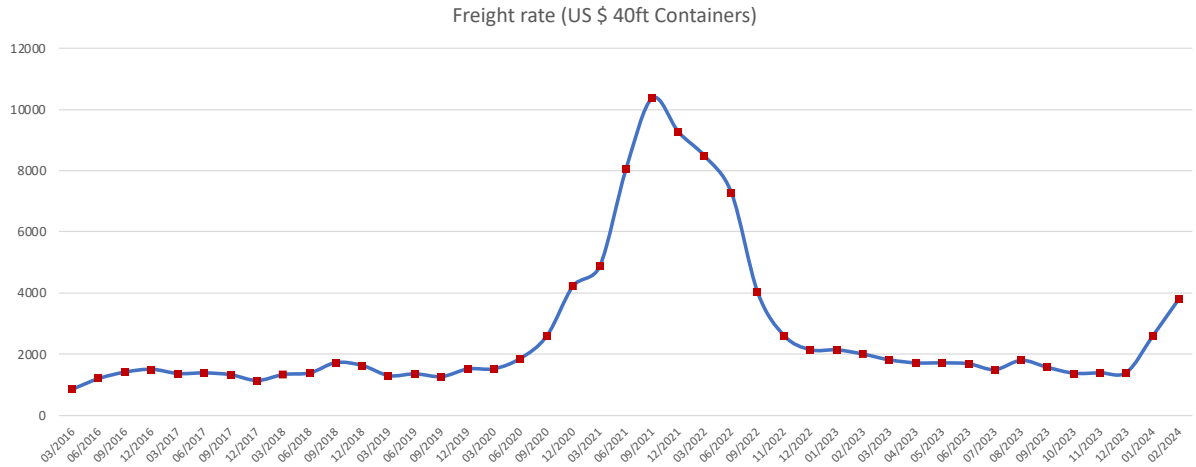


**Figure 17: World Container Index (assessed by Drewry)[13] - own Figure**

The interruption of the important shipping route in the Red Sea has had a negative impact for several weeks. Despite the Prosperity Guardian naval task force, the Houthi attacks continue. Recent escalations include an attack on a Maersk ship, which triggered an increased response from the US and considerations by the UK to attack Huthi positions in Yemen. The entry of Iranian warships into the Red Sea and the ongoing Huthi missile attacks are further exacerbating regional tensions.

There are interruptions in global freight traffic as container freighters leave the Suez Canal, delivery times are extended or ships have to pause in ports. Freight rates are currently soaring. Prices for Asia-Mediterranean traffic, for example, have doubled and carriers have imposed surcharges of between 500 and 2,700 US dollars per container. Ships currently have to be diverted or take longer routes in many cases.[14] Experts assume that the disruptions will nevertheless have a longer-term impact on routes if the attacks end. Prices could therefore remain at a higher level in the short and medium term.

[13] https://www.drewry.co.uk/supply-chain-advisors/supply-chain-expertise/world-container-index-assessed-by-drewry

[14] https://www.freightos.com/freight-blog/shipping-delays-and-cost-increases/

Freight costs on the road also remain high at present. There is high cost pressure due to the new emission charges, relatively high diesel prices and the general rise in costs, as well as a continuing shortage of drivers. This area shows the peak in price development, with a price increase of almost 40% in the second quarter of 2022 compared to 2019. After a significant decline until the second quarter of 2023, prices are currently rising again. Average prices are currently around 20% higher than in 2019.

Due to significant price increases, the above indicators show a clear burden for Germany as an industrial location and in many cases also in other regions of Europe. However, the developments mentioned also have an impact on other economic sectors. An important indicator in this context is private consumption. In this respect, there is clear uncertainty among consumers. "Both economic and income expectations as well as the propensity to buy are showing noticeable declines. After rising in the previous month, the consumer climate is falling again significantly. It drops to -29.7 points in the forecast for February 2024 - that is a fall of 4.3 points compared to the previous month."[15] While the index was still at 10 points at the start of 2020, the value has only improved to -29.7 points in recent months since reaching a historic low in October 2022 (-42.8 points). The negative sentiment is being fueled above all by high consumer prices. Although the corresponding trend has also slowed in recent months, the overall level is still significantly higher than in 2020 (see Fig. 18).

[15] https://www.gfk.com/hubfs/website/editorial_ui_pdfs/20240126_PM_Konsumklima_Deutschland_dfin.pdf

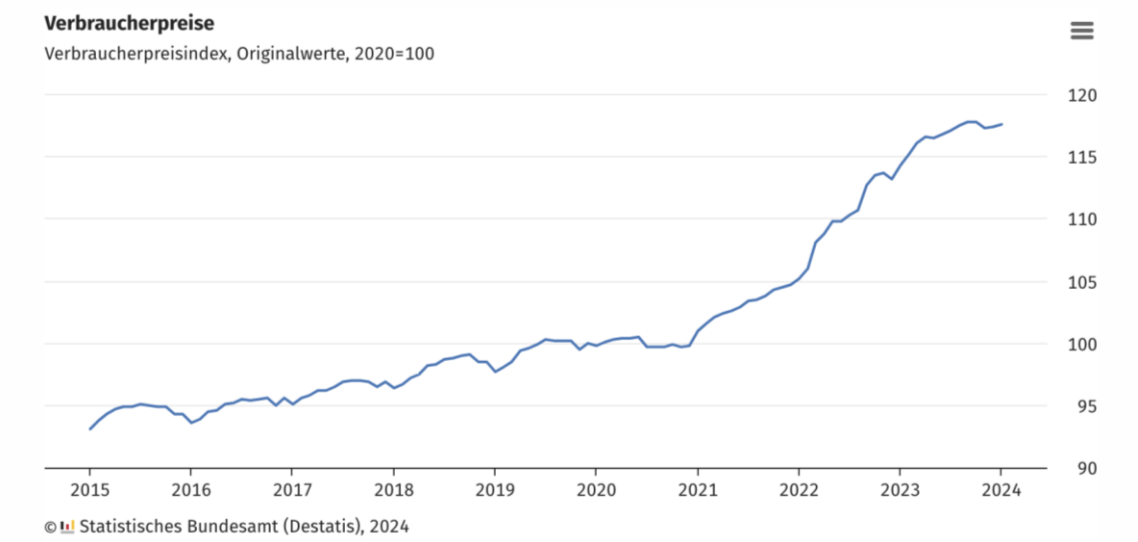


**Figure 18: Consumer prices in Germany (Source: Federal Statistical Office – Destatis – only available in German)**

The propensity to consume and consumer expectations are therefore likely to remain at a low level for the time being. Here, too, negative influences are intensifying in many cases.

For the composites industry, the transportation sector and the infrastructure/construction sector are important customers in B2B business. Together, these two sectors account for almost 70% of the market volume. Here too, the forecasts are rather gloomy.

The still difficult situation of composites in the mobility sector has already been discussed. It is to be hoped that the high profits will provide the impetus for further structural change towards new drive concepts and support this important market segment and make it fit for the future, even in the face of international competition. There is also hope that composites as a material group will succeed in securing new fields of application in addition to existing markets. The positive effects that electromobility, for example, is having on the SMC/BMC market have already been explained above.

As another key application segment, the construction/infrastructure sector reacts much more slowly to macroeconomic developments than many segments of the transportation sector due to the often long-term planning and implementation processes, which is why fluctuations are more likely to occur in the medium term.

Even though this area in particular is often seen as a promising market for the future, problems are currently emerging. Although the order books of companies in this sector

are still well filled at the moment, this is often maintenance and repair work. Orders for new systems and projects are increasingly coming to a standstill, which can have a negative impact on medium-term development in particular. This perception is confirmed by current statistics from the Federal Statistical Office (see Fig. 19). These show a clear downward trend in incoming orders since the start of 2022.

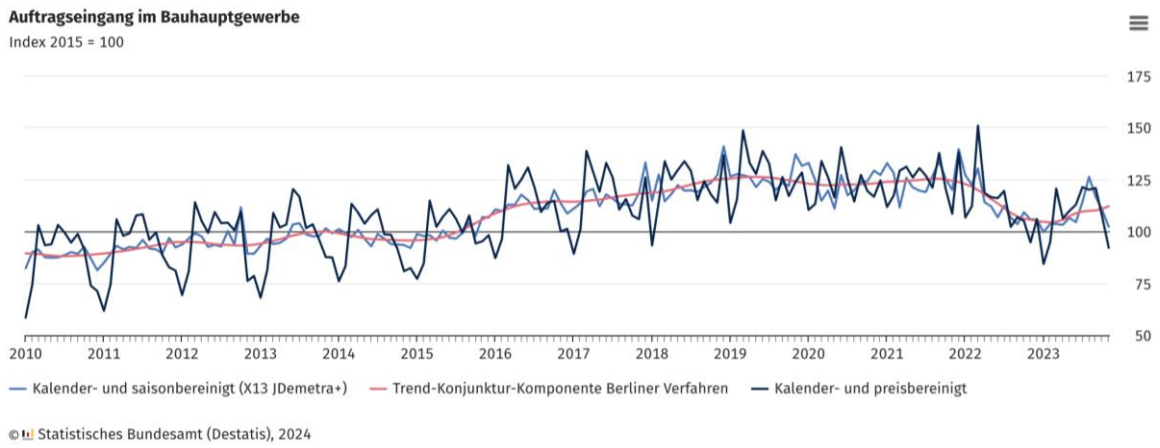


**Figure 19: New orders in the main construction sector (Source: Federal Statistical Office – Destatis – only available in German)**

Almost all of the indicators listed above currently speak against Germany/Europe as an industrial location and, due to the close links with the economy as a whole, also against composites production in Germany. Nevertheless, an important core message remains, even from the past year: Composites are well positioned for the future despite the challenges mentioned!

On the one hand, composites have a unique set of properties that predestine them for use in many areas of application. In addition, the composites industry was and still is a market segment that is strongly driven by innovation. Since the development of the first materials in the 1920s, composites have succeeded in opening up continuous applications and making innovations, such as in the wind industry, possible in the first place.

Europe and Germany are currently facing key challenges in international competition. The macroeconomic environment has changed radically in recent years. This relates not only to the many negative individual effects, but also to general economic shifts,

triggered primarily by strong markets in Asia and strong protectionist measures in many countries/world regions. In addition, there are structural upheavals in the transportation sector, for example. In some cases, these did not arise, but were politically initiated. In many cases, however, the corresponding foundations for overcoming the challenges have not yet been created or implemented with vigor. The composites industry is strongly characterized by SMEs and micro-enterprises. Many of the current requirements are almost impossible to meet. There needs to be better help and support here.

However, this can only come from a strong Europe, also as a single market. National solo efforts will inevitably come to nothing in an increasingly international environment. There is no need to return to national strategies or subsidize the domestic economy. What is needed is a coordinated, supportive economic policy that enables trade and production on an international level and a return to our own strengths. A European wind power industry, for example, should not have to face price dumping from other regions. The principle here should be to secure the supply of electricity and reduce dependencies. This is only possible by creating the appropriate political foundations.

If the current crisis can be overcome, there is much to suggest that the fundamentally positive development of the composites industry in recent years can continue. The structural changes in the mobility sector will often open up opportunities for composites to gain a foothold in new applications in the medium term. The construction and infrastructure sectors also offer great opportunities. Here, composites offer enormous opportunities due to their unique properties, which predestine them for long-term use in particular. Durability with virtually maintenance-free use and the possibility of implementing corresponding lightweight construction concepts, as well as often a positive impact in terms of sustainability, clearly speak in favor of using these materials.

The headline read: Can the composites industry in Europe still be saved? We say: yes! But the reactions must be decided quickly and, above all, free of dogmatic and (party) political sensitivities. A strong Europe can have a future as an industrial location. The basis, a strong industry, already exists. Let us work together to strengthen this basis.