COMPOSITES UNITED

MARKET REPORT 2025

THE GLOBAL MARKET FOR CARBON FIBERS AND CARBON COMPOSITES

Market Developments, Trends, Forecasts and Challenges

– freely accessible short version –

SHORT VERSION

Michael Sauer

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About Composites United

Composites United e. V. (CU) is one of the world's largest networks for fiber-based, multi-material lightweight composites. Around 350 members have joined forces to form this powerful industry and research association with the aim of jointly developing lightweight construction solutions of the future. Several regional clusters and specialist networks support the association's activities throughout the DACH region, as well as international representative offices in Japan, South Korea, China, and India.

The CU was created with effect from January 1, 2019 from the merger of the two existing associations Carbon Composites e. V. and CFK Valley e. V. The CU is based in Berlin, and the association is also represented at locations in Augsburg and Stade, as well as by local representatives at numerous other locations. Further information on the activities of the CU can be found at: www.composites-united.com.

About the author

Michael Sauer studied materials science at the University of Augsburg. After working at OSRAM AG and Premium Aerotec AG, he currently works as a senior business developer at Fraunhofer IGCV. In Parallel, he is currently working on his doctorate at the Technical University of Munich in the field of recycling carbon fibres. He has been working for Composites United in the Market Report department since 2017 and has been the first author of the annual market report since 2018.

Important Note: Published short report version

Composites United e. V. expressly points out that this version of the Composites Market Report 2024 is a published shortened version. It can be quoted without restrictions.

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For further questions, please contact:

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1 General

Now in its sixteenth edition, the Composites United e. V. (CU) market report – The Global Market for Carbon Fibers and Carbon Composites – has been published annually since 2010 as an overview of current market developments in the field of carbon fibers (CF) and carbon composites (CC). The information and data for this report were provided by CU members or collected by CU employees and were verified and supplemented with the help of external market data.

CU expressly points out that, due to the complex and dynamic nature of market developments with individually differing data sources, the information presented here can never provide a completely comprehensive overview of actual market conditions. CU's goal is to provide an overview of current trends and overarching developments based on the sources indicated. All information is provided without obligation, non-binding and without guarantee, meaning that no claims can be made against the CU for its use in a commercial sense. It should also be noted that for direct comparisons with previous report versions or external market reports, the applicable framework conditions and any assumptions must be taken into account in each individual case. In order to achieve the best possible comparability, the CU attempts to present its publications in a uniform and consistent manner based on the available data. Although new content is continuously being added, a structure that is as consistent as possible is chosen for this purpose.

The sometimes highly dynamic developments, combined with economic and political measures that are difficult to predict in the short term, make it even more difficult to make reliable forecasts. This is particularly true with regard to forecasts for specific areas. In this respect, it should be noted that the figures, diagrams, and data shown can only represent one possible scenario for future developments. The exact nature of the underlying influencing factors must be continuously monitored. However, it is of course a clear concern of the CU to achieve the most robust informative value possible on

the basis of the given data. We are happy to assist you with the optimal evaluation, use, and interpretation of the data shown, as well as individual factors, at:

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In order to improve comparability with other market reports and to ensure better traceability of the data shown, the two most common growth rates and their calculation are listed below:

Averaged Annual Growth Rate (AAGR) = Arithmetic Mean Return (AMR) = Arithmetic mean of n annual growth rates (AGR):

$$AAGR(t_1, t_n) = \frac{AGR(t_1) + AGR(t_2) + \cdots + AGR(t_n)}{n} = \frac{1}{n}\sum_{i=1}^{n} AGR(t_i)$$

Compound Annual Growth Rate (CAGR) = annual growth rate between n years, assuming constant growth in percentage terms:

$$CAGR(t_1, t_n) = \left(\frac{A(t_n)}{A(t_1)}\right)^{\frac{1}{n}} - 1 \quad \leftrightarrow \quad A(t_n) = A(t_1)(1 + CAGR)^n$$

2 Carbon fiber: Global market overview

2.1 Carbon fiber demand worldwide

In the current reporting year 2025, global average carbon fiber demand was determined to be approximately 148.500 tons. For a period since 2010, this corresponds to an average annual growth rate of +10,55 % (CAGR 2010-2025). For a shorter development period over the past five years, the growth rate is +10,79 % (CAGR 2020-2025), and in a direct year-on-year comparison, growth can be seen at approx. +17,39 % since 2024.

Thus, a comparatively dynamic development can be observed in the current reporting year, with both short-term and longer-term CAGR growth rates exceeding the average of previous years. This year's estimate for demand is therefore also at the upper end of the range estimated in last year's forecast. New investment cycles with large-scale capacity expansion projects can be cited as an important factor influencing this development. Due to the high market concentration and the scale achieved in the meantime, such expansions are gradually becoming visible in the corresponding calculations. Against this backdrop, individual location decisions and local conditions are already of great importance for the overall market environment in the current situation. The overall development in the reporting year can therefore be assessed as continuing to be positive, and a longer-term growth phase has set in over the past few years. It should be explicitly noted that different developments are possible with regard to individual fiber qualities or product groups, and that this chapter provides a summary of all product groups. The investments made to date will largely be covered by catch-up effects since 2020 as well as real market growth. For the high expansion volumes in the preliminary forecast, an increasing distinction must be made between real growth, i.e., demand development, and capacity expansion.

Particularly with regard to predicting future developments, there are various framework conditions that cause a range of variation. In order to increase the quality of the forecast and limit the individual dispersion variables, two different scenarios are considered with regard to the further forecast:

- **Scenario 1** is based on a demand estimate utilizing available production volumes. This means that, in simplified terms, it is assumed that all fibers requested can also be produced and, conversely, that all fibers produced will also be purchased on the market. In this respect, this indirectly reflects the expansion situation of the production capacity of CF manufacturers. Expansion measures in the CF market environment are long-term and capital-intensive projects, meaning that it takes a considerable amount of time to respond to real market demand, or that this demand is even assumed in advance based on expectations. On the other hand, these extended investment periods result in improved traceability and data collection.
- **Scenario 2** is based on continued market development with an annual growth rate (Ø-CAGR5) that remains constant compared to the base year (2025). For a shorter observation horizon along CAGR 2021-2025, a slightly enhanced development would be given in the color-highlighted area (see Figure 1).

Of course, numerous other scenarios are conceivable. However, the selected variants already reveal perspectives that can be interpreted in a wide range of ways. It should be noted that, for example, external factors could cause short-term setbacks or upturns in market development. However, these are unpredictable and therefore cannot be reliably presented as part of the above scenarios. Due to the high market concentration in the CF environment, even a change in a single market player or production location can have a significant impact, both positive and negative.

The two development forecasts shown are therefore by no means to be understood as upper and lower limits, but represent two independent variants

of numerous possible curve trajectories, which, however, illustrate quite different assumptions. It should therefore be noted that the trajectory shown in Figure 1 is subject to numerous influencing factors. The determination method chosen here is based on the evaluation of existing production capacities and associated utilization rates. Compared to direct market demand, this provides a more comprehensive data basis. However, this results in an important assumption that can only outline one possible market situation and should therefore be taken into account in the assessment.

The forecast shows a continued positive development along both selected scenarios. Large expansion projects in the short term are clearly visible in this calculation method. The extent to which the relationship between demand development and capacity expansion will play out in the future must be assessed in detail in coming reporting years and cannot be conclusively determined in a preliminary forecast. For a more detailed assessment, please refer to the explanations in the following chapters, which focus in particular on the expansion capacities of CF manufacturers and the development of product portfolios.

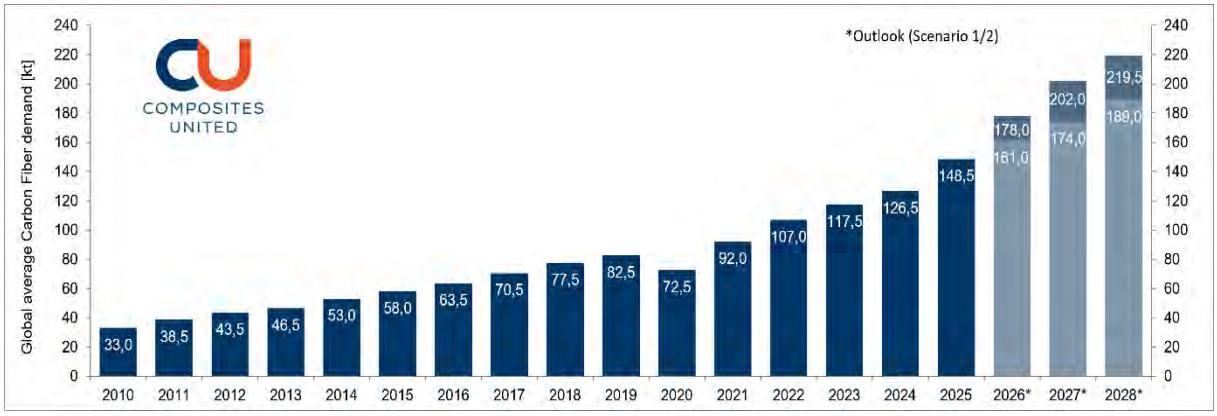

Figure 1: Development of global average CF demand volume from 2010 to 2028 (*estimates; 03/2026)

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Status: March 2026