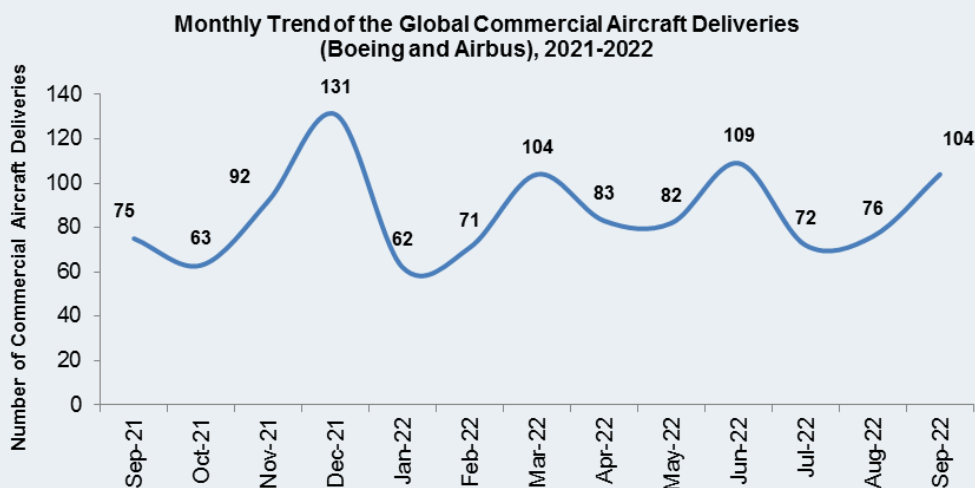


### Composites Market Update for September, 2022

The composites market in September maintained roughly the same daily sales trend from August, but was ultimately down roughly 4% from a year-over-year perspective. Housing and construction remained steady overall; multi-family and hospitality were up slightly, but single family products were down slightly. RV was way down from a YoY perspective, and Marine was only slightly down on a YoY basis, but still maintained a steady demand with a good short-term backlog. Raw material prices have stabilized and even softened slightly over the last 1-2 months, which is shifting some of the negotiating power dynamic on pricing. It should be noted that raw material prices still remained high overall, but the short-term trend is encouraging, and prices are expected to remain relatively stable in October/November. Geo-political concerns with regards to China and the ongoing war in Ukraine remain significant external factors that could disrupt some of the recent improvements in the supply chain. The European Union composites sector is facing more significant challenges than the US, and that could impact the global value chain. In addition, inflation continues to be a risk factor and challenge to the business dynamics in the composites sector and will impact all levels of the value chain. The main variables are ‘how long will the inflation continue?’ and ‘how will it impact investment and consumer behavior?’

### Aerospace

Commercial aircraft (Boeing and Airbus) deliveries increased from 76 aircraft deliveries in August 2022 to 104 aircraft deliveries in September 2022.



Some of the highlights of September 2022 are as follows:

- **Cotesa to Manufacture Dronamics Long-Range Cargo Drones in Europe.** Dronamics, a middle-mile cargo drone developer and operator, announces a strategic manufacturing partnership with Cotesa, a European manufacturer of high quality composite components for

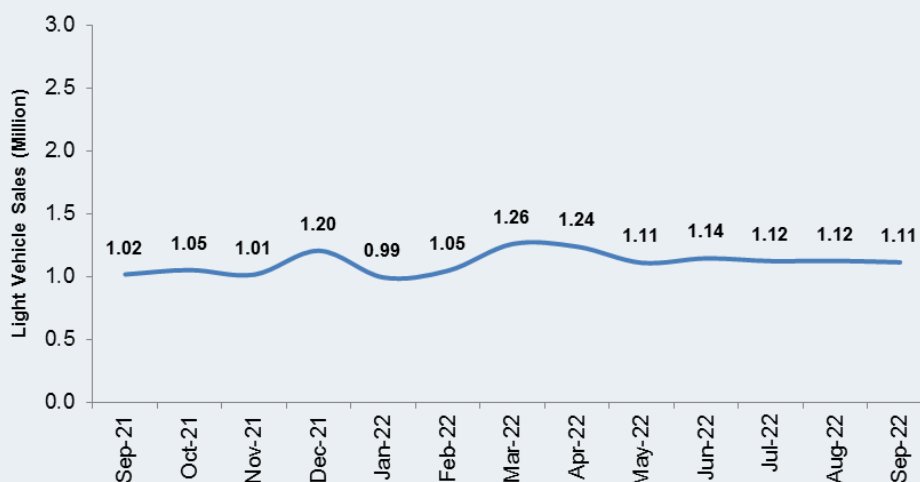
aerospace and automotive companies. The agreement aims to ensure production of Dronamics' cargo drones supports the demand for the commercial routes to be launched in Europe in 2023. The Black Swan, reportedly the only cargo drone that can carry 350 kilograms (770 pounds) up to 2,500 kilometers (1,550 miles), will be manufactured at Cotesa's facilities in Germany.

- LMS Unveils Versatile Carbon Fiber Probe for Aircraft Fuel Tanks.** The new onboard processing probe (OPP) is said to use the same carbon fiber tube design as conventional LMS fuel gauging probes, making it lightweight, durable, crash-resistant and virtually immune to corrosion, cracking, dents and extreme field conditions, according to the company. The OPP as a safer, more accurate, higher reliability solution for small aircraft.

### Automotive

The U.S. new vehicle sales of 1,112,245 units in September 2022 represented an increase of 9% as compared to 1,015,935 units in September 2021.

Monthly Trend of Light Vehicle Sales in the US, 2021-2022



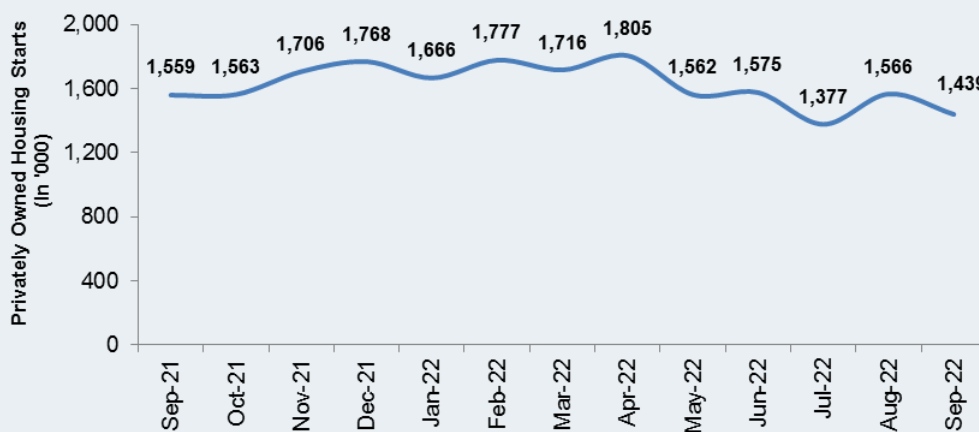
One of the highlights of September 2022 is as follows:

- 3D Knitted Hybrid Thermoplastic Composite Structures.** The MAPICC 3D project replaces steel seat support in heavy-duty vehicle with a 3D knitted composite made from thermoplastic hybrid yarns comprising the matrix and reinforcing components. The seat reinforcement plate was made in one shot using a knitting technique. At 1.3 kilograms, it weighs 2.7 kilograms less than its steel predecessor a reduction of 67.5%. The project included the development of thermoplastic hybrid yarns comprising both matrix and reinforcing fibers. The resulting manufacturing procedure can precisely steer the fibers in three dimensions, tailoring them to the component's load paths with minimal raw material waste.

### Construction

Privately-owned housing starts in September were at a seasonally adjusted annual rate of 1,439,000. This is 8.1% below the revised August estimate of 1,566,000 and is 7.7% below the September 2021 rate of 1,559,000. Single-family housing starts in September were at a rate of 892,000; this is 4.7% below the revised August figure of 936,000. The September rate for units in buildings with five units or more was 530,000.

Monthly Trend of Privately Owned Housing Starts in the US, 2021-2022



One of the highlights of September 2022 is as follows:

- Creative Composites Group Introduces Product Upgrades to Combat Extreme Weather and Climate Change.** Creative Composites Group, the leading manufacturer of Fiber Reinforced Polymer (FRP) composites now offers the option to upgrade utility, waterfront, cooling tower, and light pole products with StormStrong technology. This offering provides added resiliency for extreme weather conditions such as hurricane-force winds, blizzards, and deep freezes. Products available for the StormStrong upgrade include pultruded utility poles, utility crossarms, light poles, waterfront sheet piles, waterfront pipe piles, and FRP cooling towers. StormStrong products offer resiliency, durability, and corrosion resistance for both grid and shoreline hardening and are sustainable and environmentally friendly solutions containing no chemicals or additives that can harm humans or the environment.

### Wind Energy

According to the latest "Energy Infrastructure Update" report from the Federal Energy Regulatory Commission's Office of Energy Projects, the cumulative installed capacity of 31 units during January – August, 2022 was 7,514 MW as compared to 8,132 MW of 48 units during January – August, 2021. With a total installed generating capacity of 141.10 (GW), wind constituted 11.24% of the total installed generating capacity of 1,255.61 (GW) among all energy sources.

One of the highlights of September 2022 is as follows:

- **Nordex Introduces the N175/6.X Wind Turbine.** The new turbine uses the proven technical concepts of the Delta4000 series, such as the control system, flexible power rating and much of the nacelle from the sister model, the N163/6.X, which has already been proven in the field. As a result, in addition to the highly efficient development process, already proven and existing production capacities and suppliers can also be used for the new turbine. Nordex also offers a wide range of options for the N175/6.X to meet various permitting and economic requirements. Among other things, the turbine can be equipped with a bat module and night marking on demand. In addition, and like the rest of the Delta4000 series wind turbines, it offers different operating modes to reduce noise emissions. A cold weather variant is also available which ensures operation in -30°C environments.

### **Marine**

The US marine industry is anticipated to experience good growth in 2022.

One of the highlights of September 2022 is as follows:

- **Prefabricated Composite Panels to Build Boats.** The specialist in composite sandwich panels offers a wide range of products for the manufacture of boats, from bulkheads to hull planks, with all the cores for a simple and efficient construction. The Duflex brand has made a specialty of prefabricated composite panels. Laminated with high performance resin and multiaxial glass fabric of 300g/m<sup>2</sup> or 2x300g/m<sup>2</sup> and protected by a removable layer that avoids contamination and reduces surface preparation time, Duflex panels are offered with different core materials depending on the use.

### **Consumer Goods**

New orders for manufactured durable goods in September, up six of the last seven months, increased \$1.0 billion or 0.4% to \$274.7 billion, according to the U.S. Census Bureau. This followed a 0.2% August increase. Excluding transportation, new orders decreased 0.5%. Excluding defense, new orders increased 1.4%. Transportation equipment, up five of the last six months, drove the increase, \$1.9 billion or 2.1% to \$95.4 billion.

One of the highlights of September 2022 is as follows:

- **Mubea to Collaborate on Production of Carbon Fiber Exoskeletons.** Automotive supplier Mubea has entered into a cooperation agreement to commence production of robotic exoskeletons for smart power suits developer German Bionic. German Bionic's Cray X power suits, which feature carbon fiber composite frames, aid workers when lifting heavy loads by actively amplifying their movements and thus protecting the lower back from excessive strain.

### Recent Development in Materials

- SABIC to Launch New LNP THERMOCOMP AM DC0041XA51 Compound at InnoTrans 2022.** SABIC will introduce at InnoTrans 2022 in Berlin, Germany, LNP THERMOCOMP AM DC0041XA51 compound, a novel carbon fiber-reinforced, flame-retardant (FR) compound well-suited for pellet-fed additive manufacturing (PFAM) that complies with E.U. and U.S. rail fire safety standards. The innovative new compound can help the rail industry advance from building traditional tools for part production from thermosets to utilizing on demand 3D printing which can potentially lower system costs by reducing inventory levels of large tools and replacement parts. This breakthrough material is an ideal solution for CAF and the entire transportation industry.
- Xenia Thermoplastic Specialties Introduces New Range of Supertough Carbon Fiber Composites.** Xenia Materials, a global leader in thermoplastic specialties, has introduced XECARB ST, a new family of supertough carbon fiber composites custom-engineered to close a performance gap in the market and provide superior impact strength performance. XECARB ST thermoplastic composites are based on selected polyamide matrix materials – PA66, PA6, PA11, PA12, PA6.10, PA6.12 and PA4.10 – addressing different mechanical, thermal and physical requirements.
- Solvay Unveils LTM 350 Low-Temperature Prepreg.** Solvay introduces LTM 350, a next-generation carbon fiber epoxy prepreg tooling material designed to deliver significant time and cost savings for the industrial, aerospace, and automotive and race car markets. The carbon fiber epoxy tooling material offers an industry leading fast, low-temperature cure cycle (3 hrs at 60°C) and can also be cured at temperatures as low as 45°C with an extended post-cure. Tools built from LTM 350 can be continuously cycled at temperatures up to 150°C delivering highly accurate composite parts.

### Recent Product Launches in the Composites Market

The following table represents new product launches in the composites market in September 2022.

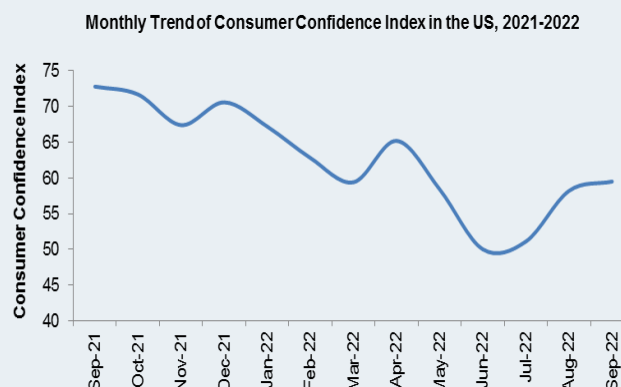
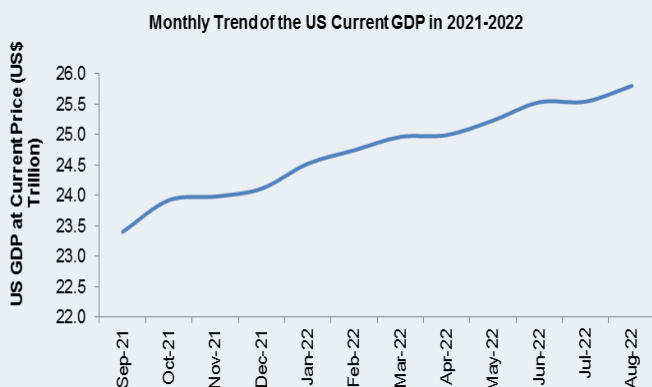
Product	Company Name	Description
SABIC PP Compound G3430X	SABIC	The two new short-glass fiber-reinforced polypropylene (PP) compounds offering enhanced performance and processing for demanding automotive under-hood, exterior and interior applications. The two advanced grades surpass high-performing standard short-glass fiber materials in melt flow, tensile and flexural strength, and flexural modulus. SABIC PP compound G3430X and G3440X grades give customers new opportunities to raise the performance bar for automotive structural components such as brackets, seat structures and center consoles.
SABIC PP Compound G3440X		

### The US Economic Overview – September 2022

The US Consumer Confidence Index increased to 59.5 in September 2022 as compared to 58.2 in August 2022. The GDP at current price of the US increased from US \$25.54 trillion in July 2022 to US \$25.80 trillion in August 2022.

**Real gross domestic product (GDP)** increased at an annual rate of 2.6% in the third quarter of 2022, according to the "advance" estimate. The increase in real GDP reflected increases in exports, consumer spending, non-residential fixed investment, federal government spending, and state and local government spending that were partly offset by decreases in residential fixed investment and private inventory investment. Imports, which are a subtraction in the calculation of GDP, decreased.

The price index for gross domestic purchases increased 4.6% in the third quarter as compared with an increase of 8.5% in the second quarter. The personal consumption expenditures (PCE) price index increased 4.2% as compared with an increase of 7.3%. Excluding food and energy prices, the PCE price index increased 4.5% as compared with an increase of 4.7%.



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