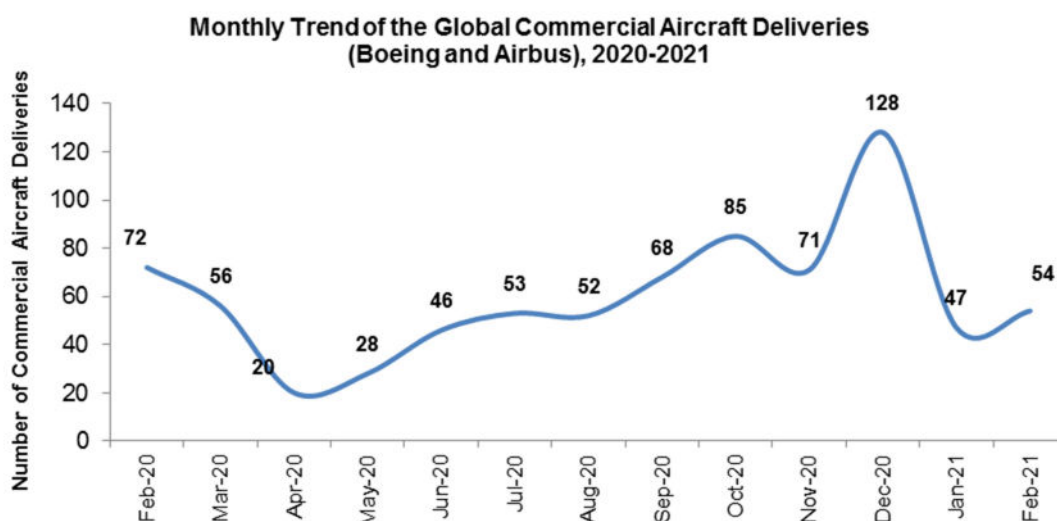


### Composites Market Update for February 2021

The US Composites Market in February started strong, continuing the solid trend that carried over from a strong January. However, while the trend in February was strong enough to potentially surpass the previous year's performance by as much as 8%, that strong trend ended due to a powerful winter storm that hit the US, and significantly impacted both production, and distribution. As a result, the year-over-year performance for February was roughly flat. Most industries performed well, despite the impact of weather conditions, but certain industries like marine, housing and infrastructure performed slightly worse. The winter storm in February has had a lingering impact on the industry, though it has also pushed certain deliveries back into March. Therefore, March is expected to be very strong in terms of orders (up to 10% Y-o-Y increase), but challenges with regards to freight and distribution were exacerbated by the storm. Another significant consequence of the storm was a significant increase in raw material prices, due to supply and freight challenges brought about by the force majeure in the supply chain as a result of the storm. These price increases are being passed to the customer, and more price increases are expected in the short term. The strong trend in March may also be bolstered by industry players trying to get ahead of the pricing increases in the short term. The impact of the February storm lingers, while the risk of a Covid resurgence and the potential for changes in corporate taxes are some of the external variables that companies are monitoring in February and March 2021.

### Aerospace

Commercial aircraft (Boeing and Airbus) deliveries increased from 47 aircraft deliveries in January, 2021, to 54 aircraft deliveries in February, 2021.



Some highlights of February, 2021, are as follows:

- AnalySwift Receives NASA Contract for Improving Simulation of Thin-Ply Composites Used in Spacecraft.** Sometimes big things come in small packages, and the new thin but strong materials AnalySwift, the University of Central Florida, and Purdue University are helping NASA develop are no exception.

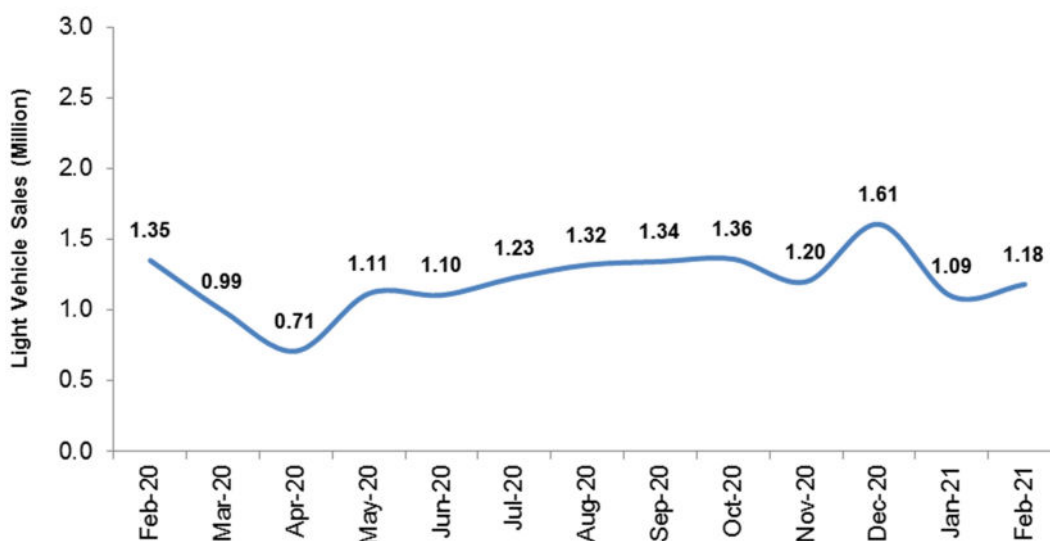
These materials, known as thin-ply composites, are as thin as carpenter's measuring tape but strong enough to support satellite payloads, such as solar sails for solar-powered space travel, or serve as supports for large spacecraft.

- **Contract Renewed between Pentaxia and Martin-Baker Aircraft Limited.** Pentaxia apprises of the renewal of its supply agreement with Martin-Baker Aircraft Limited. The agreement ensures consistent, long-term supply of high-performance yet lightweight components and assemblies into Martin Baker on a multi-year basis. These parts are in turn fitted to the latest generation of ejection seats and subsequent global fighter jet programs.
- **GKN Aerospace, NCC, and Partners Unveil ASCEND.** GKN Aerospace is leading a new UK industry consortium called ASCEND (Aerospace and Automotive Supply Chain Enabled Development) to develop and accelerate composite material and process technologies for the next generation of energy-efficient aircraft and future mobility.

### Automotive

The U.S. new vehicle sales of 1,180,506 units in February, 2021, represented a decrease of 12% as compared to 1,348,947 in February, 2020.

Monthly Trend of Light Vehicle Sales in the US, 2020-2021



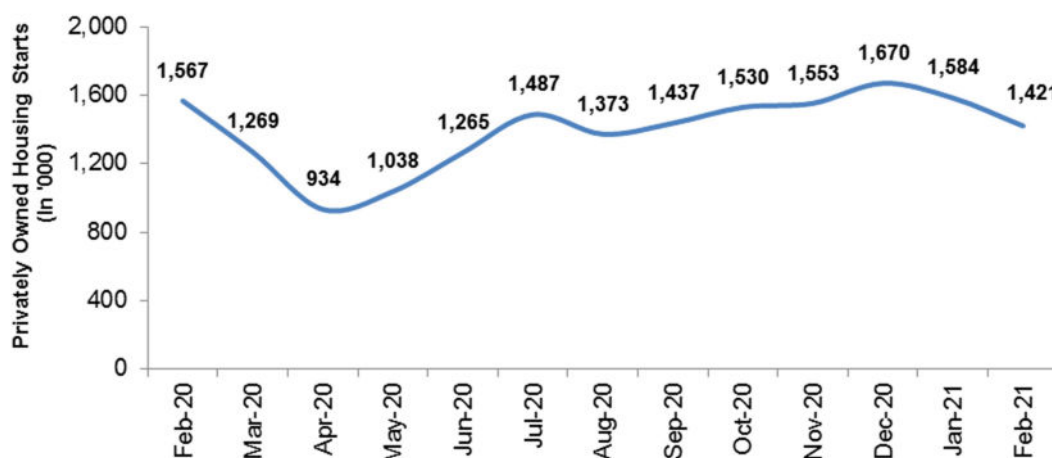
One of the highlights of February, 2021, is as follows:

- **Continental Structural Plastics' Materials Innovations Address Environmental and Safety Needs for Electric Vehicles.** Continental Structural Plastics (CSP), a Teijin Group Company, is introducing several new advanced composite formulations that meet the most stringent electric vehicle battery enclosure performance standards for flammability, thermal runaway and VOC emissions while offering design flexibility of sheet molding compound (SMC). These new composites include a low VOC formulation, an ATH filled system, an intumescent system, and a phenolic system.

### Construction

Privately-owned housing starts in February were at a seasonally adjusted annual rate of 1,421,000. This is 10.3% below the revised January estimate of 1,584,000 and is 9.3% below the February 2020 rate of 1,567,000. Single-family housing starts in February were at a rate of 1,040,000; this is 8.5% below the revised January figure of 1,136,000. The February rate for units in buildings with five units or more was 372,000.

Monthly Trend of Privately Owned Housing Starts in the US, 2020-2021



Some highlights of February, 2021, are as follows:

- **Teijin Carbon Fiber Used for 72 CFRP Hangers of Germany's Stuttgart Stadtbahn Bridge** . The Stuttgart Stadtbahn bridge in Germany is the world's first network arch bridge that hangs entirely on tension elements made of carbon fiber reinforced plastic (CFRP). The 72 hangers made of CFRP are produced with Teijin carbon fiber Tenax by Carbo-Link AG in Switzerland.
- **Teijin and Applied EV Develop Polycarbonate Solar Roof for Future Mobility**. Teijin Limited informed that the company and its joint development partner Applied Electric Vehicles (Applied EV) have developed a polycarbonate solar roof for future mobility applications. The green solution marks another major step toward the companies' shared vision of zero-emission mobility.

### Wind Energy

According to the latest "Energy Infrastructure Update" report from the Federal Energy Regulatory Commission's Office of Energy Projects, during January, the installed capacity of 2 units was 554 MW. as compared to 604 MW of 4 units during January 2020. With a total installed generating capacity of 21.78 (MW), wind constituted 9.83% of the total installed generating capacity of 1,226.57 (GW) among all energy sources.

One of the highlights of February, 2021, is as follows:

- **New HS2 pilot project swaps steel for retired wind turbine blades to reinforce concrete**. Worn-out wind turbine blades destined for the incinerator will instead be used to create carbon-friendly reinforced concrete on Britain's new high speed rail network, HS2 Ltd has said. The innovative project will swap steel rebar, traditionally used to reinforce concrete, with sections of glass fiber reinforced polymer turbine blades that have reached the end of their operational lives

generating low carbon electricity. By 2023, around 15,000 turbine blades will have been decommissioned across the UK and EU. Until now, expired blades have either been ground down to be used as building materials or sent to energy-from-waste incinerators. The innovation, believed to be a world first, will use suitable sections cut from decommissioned wind turbine blades in reinforced concrete instead of steel rebar.

- **Siemens Gamesa takes UK onshore wind to new heights with deal to install its market-leading SG 5.8-155 turbines in Scotland.** The turbines will be among the largest ever installed in the UK, with a rotor diameter of 155 meters to optimize power capacity

### Marine

The US marine industry is expected to recover in 2021 as compared to the declines of 2020.

Some highlights of February, 2021, are as follows:

- **Hoegh Autoliners Operates its First Carbon Neutral Voyage with Biofuel.** Using a combination of biofuel and carbon offsets, one of the company's large car carriers completed the voyage from Europe to South Africa as part of its route to Australia. The company reports that the successful trial demonstrated that biofuel is a viable choice for vessels in the fleet.
- **China to Build Largest, Electric Powered Research Vessel.** China State Shipbuilding Corporation (CSSC) and the Guangdong Institute of Intelligent Unmanned System announced that they plan to build their largest maritime scientific research vessel.

### Consumer Goods

New orders for manufactured durable goods in January increased \$8.5 billion or 3.4% to \$256.6 billion, the U.S. Census Bureau as per a recent announcement of the Bureau. This increase, up nine consecutive months, followed a 1.2% December increase. Excluding transportation, new orders increased 1.4%. Excluding defense, new orders increased 2.3%. Transportation, up eight of the last nine months, led the increase, \$6.1 billion or 7.8% to \$85.1 billion.

Some highlights of February, 2021, are as follows:

- **Carbon 1 MK II is World's First Phone with a Carbon Fiber Monocoque.** The Carbon 1 MK II is the world's first smartphone with a carbon fiber monocoque (this means that the external shell provides the structural integrity, there are no internal supports). This has made the phone very light (125g) and thin (6.3 mm).  
The key is the proprietary HyRECM technology – Hybrid Radio Enabled Composite Material – which was developed over four years. It combines high quality carbon fibers sourced from Germany with a composite material that allows radio waves to pass through.
- **Carbon Mobile Develops Carbon 1 MK II, World's First Carbon Fiber Smartphone.** A smartphone that sets new standards for lightness, slim design, and sustainability is making its debut on the market this March: the Carbon 1 MK II from Berlin-based start-up Carbon Mobile. "Designed and engineered in Germany, the Carbon 1 MK II reignites miniaturization and drives sustainability in connected devices by replacing plastics and aluminum with advanced composite materials for the first time", says Firas Khalifeh, CEO of Carbon Mobile. The base material for the production of the housing is a thermoplastic composite from the LANXESS Tepex dynalite product range. It is reinforced with fabrics of incredibly fine 1K continuous carbon fiber filaments.

- **BASF's Ultrason P for Bottles.** BASF has now expanded its Ultrason P portfolio so that it can be used to manufacture high-quality bottles by all three processing methods that are standard in the industry. The two polyphenylsulphone (PPSU) grades Ultrason P 2010 and P 3010 can be used in injection stretch blow molding, extrusion blow molding and injection molding to manufacture bottles for adults and babies that are safe to use, robust, and chemically resistant as well as available in numerous designs, shapes and colors. All three processing methods benefit from the customized properties of high-temperature thermoplastic.

### Recent Developments in Materials

- **PPG Acquires VersaFlex.** PPG completed its acquisition of VersaFlex from DalFort Capital Partners. VersaFlex specializes in polyurea, epoxy and polyurethane coatings for water and wastewater infrastructure, flooring, transportation infrastructure, and industrial applications. Financial terms were not disclosed.
- **Atkore Inc. Acquires FRE Composites Group.** Atkore Inc. has acquired FRE Composites Group, a leading manufacturer of fiberglass conduit solutions for the electrical, transportation, telecommunications, and infrastructure markets.  
"With several decades in the industry, FRE Composites has leading-edge products and a strong reputation for innovation," commented John Pregoner, President of Atkore's Electrical business. He added, "This acquisition expands Atkore's conduit product portfolio and enables us to serve customers better by offering more options to meet their various needs."
- **Composites One Acquires Process Materials Business from Solvay.** Composites One, the leading North American supplier of composites materials and value added services, has completed its purchase of the Process Materials business from the Solvay Composites Materials Global Business. The acquisition is a unique opportunity for the company to add international manufacturing and sales capabilities in specialized materials used in a variety of vacuum-assisted composite manufacturing processes.
- **Cabot Corporation Expands Engineered Elastomer Composites (E2C) Line.** Cabot Corporation has launched its latest Engineered Elastomer Composites (E2C) product, E2C DZ8650, part of the Durability series of solutions that is designed to reduce in-field failures and maximize operational uptime. DZ8650 is formulated to deliver breakthrough improvements in erosion and wet abrasion resistance, as well as mechanical strength in mining rubber applications including slurry pumps, hydrocyclones, and rubber pipes.
- **Luxfer Acquires Structural Composites Industries.** Luxfer Holdings PLC has acquired the Structural Composites Industries (SCI) business of Worthington Industries, Inc. for \$20 million in cash. SCI strengthens Luxfer's composite cylinder offering and aligns with recent investments to enhance its alternative fuel capabilities to capitalize on the growing compressed natural gas (CNG) and Hydrogen opportunities.
- **Worthington Industries Sells Its Structural Composites Industries Facility.** Worthington Industries, Inc. sold its Structural Composites Industries (SCI) facility in Pomona, Calif., to Luxfer Holdings PLC. Following the divestiture of the unprofitable operation, Worthington will continue to focus its investments and attention on the growing sustainable mobility markets in Europe and Asia where strict, mandated emission reductions are accelerating growth in hydrogen and compressed natural gas (CNG).
- **Decision SA and Carboman Group Launch New Direct Mold Tooling Technology for Aerospace.** Decision SA, part of the leading European composites consortium, Carboman Group, and a specialist in the development, prototyping and production of large composite structures, launch a new direct mold tooling technology for aerospace. Decision's latest tooling solution provides OEMs and manufacturers with short lead times for highly stable direct molds for series production both in and outside of the autoclave at temperatures of up to 180°C.

- Sumitomo (SHI) Demag and BASF Develop New Manufacturing Cell.** At the Injection Molding & Extrusion Pilot Plant of BASF in Ludwigshafen, Germany, the newest all-electric fully-automated injection molding cell from Sumitomo (SHI) Demag is delivering pioneering and repeatable results on over 4,000 test settings a year.  
 Pooling their engineering competences and technological resources, BASF's Performance Materials division in collaboration with Sumitomo (SHI) Demag and H + S Automatisierung have created an innovative manufacturing cell to produce a wide range of different test specimens for the product development and research activities of thermoplastic polymers and compounds.

### Recent Product Launches in the Composites Market

The following table represents new product launches in the composites market in February, 2021.

Product	Company Name	Description
New Carbon Fiber Intermediate Material Brands	Teijin	<p>Teijin Limited apprised of its new Tenax PW (power series) and Tenax BM (beam series) brands of carbon fiber intermediate materials for sports applications.</p> <p>Tenax PW is an advanced aircraft-quality material that helps to maximize power and speed due to its exceptional durability and toughness. It is made of high-tenacity, high-tensile-modulus resin. Tenax PW also suppresses and absorbs impact forces to minimize and localize damage after impact. In addition, its compressive strength is superior to that of Teijin's standard carbon fiber preregs. Utilizing these same superior features, sports goods made with Tenax PW enable powerful, speedy swings</p>

### The US Economic Overview – February, 2021

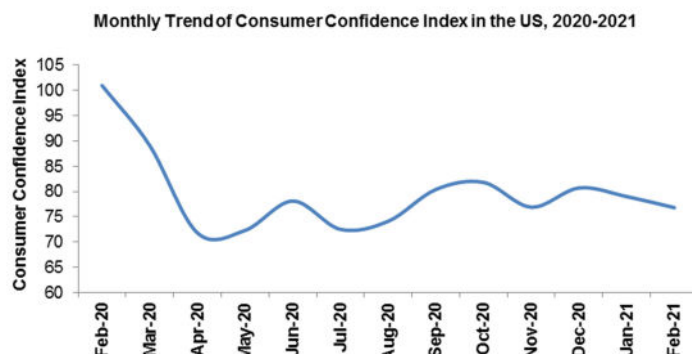
The US Consumer Confidence Index decreased to 76.8 in February, 2021, as compared to 79.0 in January 2020. The GDP at current price of the US increased from US \$21.5 trillion in December, 2020, to US \$21.8 trillion in January 2021.

**Real gross domestic product (GDP)** increased at an annual rate of 4.1% in the fourth quarter of 2020, according to the "second" estimate. The increase in real GDP reflected increases in exports, nonresidential fixed investment, personal consumption expenditures (PCE), residential fixed investment, and private inventory investment that were partly offset by decreases in state and local government spending and federal government spending.

The increase in fourth quarter GDP reflected both the continued economic recovery from the sharp declines earlier in the year and the ongoing impact of the COVID-19 pandemic, including new restrictions and closures that took effect in some areas of the United States. The full economic effects of the COVID-19 pandemic cannot be quantified in the GDP estimate for the fourth quarter of 2020 because the impacts are generally embedded in source data and cannot be separately identified.

The price index for gross domestic purchases increased 1.8% in the fourth quarter, compared with an increase of 3.3% in the third quarter. The PCE price index increased 1.6%, compared with an increase of 3.7%. Excluding food and energy prices, the PCE price index increased 1.4%, compared with an increase of 3.4%.





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