



## Materials Business Field

We are promoting the provision of high-value-added solutions through the development of high-performance materials and their composites by utilizing these materials' features. In this way, we are responding to requests for lower fuel consumption and longer product lifetime value that reflect the changes in the global environment as well as the increased awareness of disaster prevention. We are also answering the need for infrastructure renewal solutions to enhance safe, secure, and comfortable lifestyles.



**Toshiya Koyama**

Executive Officer, Member of the Board  
President, Material Business  
of Teijin Group

### Fiscal 2019 Performance

Amid a deteriorating business environment due to a decline in demand for automobiles in Europe and China, net sales in the Materials Business Field declined 5.6% year on year, to ¥633.8 billion, while operating income was down 9.3%, to ¥21.3 billion. These declines resulted from the impact of sluggish market conditions for polycarbonate resins, despite a firm earnings performance in the high-performance materials field. Also, as part of our efforts toward portfolio transformation, we transferred our subsidiaries engaged in the film business to Toyobo Co., Ltd. on October 1, 2019.

#### Aramid

For aramid fibers, mainstay *Twaron* para-aramid fibers saw a slight decrease in sales volume for automotive applications, such as friction materials and rubber reinforcements, due to the impact of a decrease in demand for automobiles. However, product mix and pricing efforts contributed positively to profits.

#### Resin and Plastic Processing

In resin and plastic processing, sales volume of our mainstay polycarbonate resins was mostly on a par with the previous fiscal year despite declining demand, mainly due to trade friction between the United States and China and the spread of COVID-19. However, sales and profits of general-purpose products were down overall due to the impact of falling sales prices.

#### Carbon Fibers

In carbon fibers, sales of *TENAX* carbon fibers were weak for use in aircraft, mainly reflecting inventory adjustments in the supply chain. In addition, sales volume of compound applications for automobiles and electronics decreased owing to continuous declines in demand since the final stretch of the previous fiscal year.

#### Composites

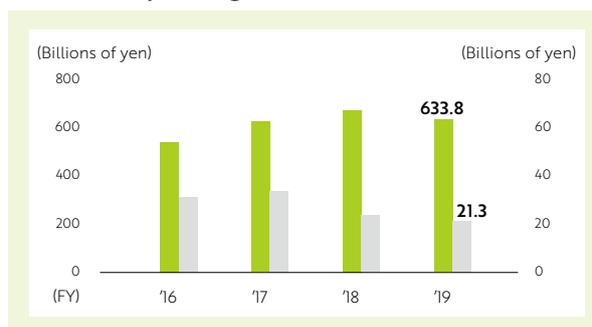
In composites, we recorded mostly firm sales of mass-produced automotive components by Continental Structural Plastics Holdings Corporation (CSP), acquired in January 2017. These firm sales reflected increased demand for automobile categories such as pickup trucks and SUVs in North America. However, production and sales have been adversely affected by the spread of COVID-19 since March 2020.

#### EBITDA/ROIC (based on operating income)



■ EBITDA (left scale) — ROIC based on operating income (right scale)  
Note: Includes Fibers & Products Converting

#### Net Sales/Operating Income



■ Net sales (left scale) ■ Operating income (right scale)  
Note: Includes Fibers & Products Converting

## Efforts under the Previous Medium-Term Management Plan

Under the previous medium-term management plan, we steadily executed investment, starting with M&As, with a view to expanding the composites business. In addition, we decided on and implemented large-scale capital expenditures for aramid and carbon fibers. As a result, we were able to carry out

strategic investments practically in line with the plan, thereby clarifying prioritized business areas for the future. On the other hand, issues remained in terms of profitability, despite a steady expansion in sales for automotive composites.



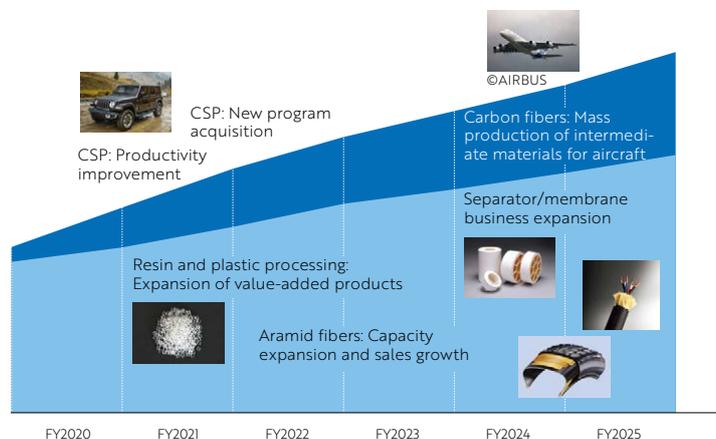
## Medium- to Long-Term Strategy

In the Material Business, we will further accelerate efforts to strengthen high-value-added product applications by increasing high-performance materials and pursuing the multi-materials strategy. For Strategic Focus fields, we will prioritize the development of automotive composites as well as carbon fiber intermediate materials for aircraft. At the same time, in Profitable Growth fields, we will aim to expand and promote high-value-added applications of our aramid fibers, resins, and carbon fibers. Specifically, we will work to steadily expand

profits through such efforts as enhancing productivity and boosting sales at CSP as well as bolstering production capacity and sales of aramid fibers. We are also proceeding with preparations for the prompt launch of our new North American carbon fiber manufacturing plant. Our aim is to have this plant commence the mass production of carbon fiber intermediate materials for aircraft from fiscal 2023, thereby contributing to profits.

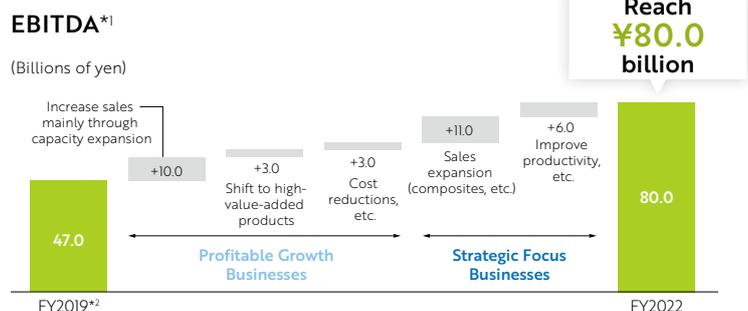
### Overview of Profit Growth (EBITDA)

<b>Strategic Focus Businesses</b>	<b>Development of high-value-added products; parts and intermediate materials, including multi-materials and modules</b> • Carbon fiber intermediate materials for aircraft • Automotive composites
<b>Profitable Growth Businesses</b>	<b>High-performance materials business expansion</b> • Aramid • Carbon fibers • Resin and plastic processing • Separators



### Changes in EBITDA during Medium-Term Management Plan 2020–2022

During the period of the current medium-term management plan, we forecast an increase in EBITDA as the expanded sales and improved profitability of automotive composites, as well as the increase in sales of aramid fibers, will likely cover a rise in costs associated with upfront investments (outlook as of February 5, 2020).



\*1 Does not include Fibers & Products Converting  
 \*2 Outlook as of February 5, 2020

**Business Strategy**  
**Materials Business Field**

▶▶ **Strategic Focus Business**      **Automotive Composites**

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>Outstanding composites technology with stable quality</li> <li>Solid partnership with major automakers in North America, customer-oriented business model</li> <li>Global business base, including in Europe and Asia</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>Securing profitability during a period of business expansion, controlling costs</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>Needs for reducing exhaust emissions and improving fuel efficiency by reducing automobile weight</li> <li>Advancement in information sharing with OEMs* due to digital transformation, thereby improving demand forecast accuracy</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>Decline in automobile demand</li> <li>Changes in material needs due to structural changes in the industry</li> <li>Intensifying competition from other industries</li> </ul>

\* In this section, OEMs refer to finished-car manufacturers to which the components of Tier 1 suppliers are supplied.

**Business Introduction**

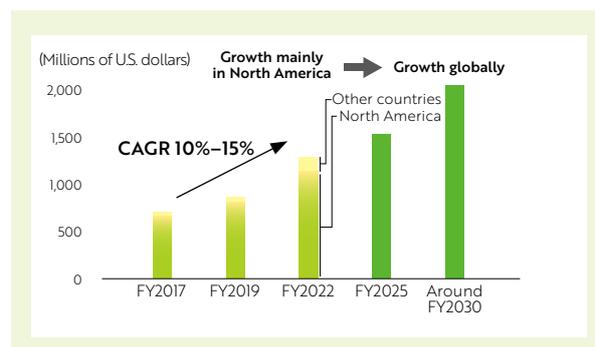
In the automotive composites business, the Teijin Group is engaging in the design of parts and provision of components to automakers centered on CSP, North America's largest Tier 1 automotive composites supplier, which it acquired in January 2017. In the automotive industry, there is a need for lightweight automotive parts that maintain strength and durability and can be mass-produced. To meet this need, the Group is strengthening its proposal-making capabilities in such ways as collaborating with its customers from the parts development stage. Furthermore, to comply with increasingly stringent environmental regulations from 2020 onward, the Group is expanding the materials it uses and collaborating with other manufacturers.



**Major Initiatives under the Medium-Term Management Plan**

As the top Tier 1 supplier of automotive composites in the United States, the Group aims to expand its leading share in the market while establishing a stable supply structure across the globe, including bases in Europe and China. At CSP, the Group is working to gradually improve profitability and, going forward, will promote a broad range of measures to return operating income after amortization to the black by fiscal 2022.

**Sales Target**



	Previous MTP 2017–2019	MTP 2020–2022
<b>North America</b>	<ul style="list-style-type: none"> <li>Continuously obtained new programs</li> <li>Started mass production of carbon fiber-reinforced composite <i>Sereebo</i></li> </ul>	<ul style="list-style-type: none"> <li>Start operations at the Texas plant</li> <li>Expand production and sales of <i>Sereebo</i></li> </ul>
<b>Europe</b>	<ul style="list-style-type: none"> <li>Acquired European operating companies</li> <li>Established application development base*</li> </ul>	<ul style="list-style-type: none"> <li>Expand in the European market through new production bases</li> <li>Promote multi-materials strategy</li> </ul>
<b>China</b>	<ul style="list-style-type: none"> <li>Made a decision to construct a second plant</li> </ul>	<ul style="list-style-type: none"> <li>Penetrate Chinese market through production at two plants</li> </ul>

\* Teijin Automotive Center Europe GmbH (Germany)

## FOCUS

# Aiming to Further Enhance Our Presence by Leveraging Our Advanced Technological Capabilities and Global Network

## Steve Rooney

Chief Executive Officer,  
Continental Structural Plastics Holdings Corporation



### Q1. What initiatives need to be taken for Continental Structural Plastics Holdings Corporation to achieve further growth?

While it is difficult to predict the specific impacts of the global pandemic on the automotive industry at this time, it is safe to say that glass fiber composites will continue to be a mainstay for Continental Structural Plastics Holdings Corporation (CSP). According to the global glass and carbon fiber composite market forecast, which was published just before the global pandemic, the market will reach US\$3.3 billion by 2024, with glass fiber making up more than US\$3.0 billion of that amount. Amid this growth, lightweight applications such as decklids, fenders, and bumpers will likely drive demand, with low-density sheet molding compounds (SMCs) becoming a key driver for this growth overall. In terms of our future growth, I believe that hybrid and multi-material approaches, as well as our ability to develop entire systems such as battery enclosures for electric vehicles, will play a significant role.

To be able to fully support global OEMs,\* it is critical that we continue to develop and expand our global footprint. Many of the components we manufacture are large, requiring our facilities to be relatively close to our customers' facilities. We are making good progress in Europe, adding the ability to compound our own SMCs at our CSP Europe facility in France, where we also conduct significant R&D activities. Teijin's

acquisitions of Inapal Plasticos SA in Portugal and Benet Automotive s.r.o. in the Czech Republic have given us much needed manufacturing capabilities in Europe, although further expansion will likely be needed as our business there grows. We see significant opportunities in Europe to serve the European-headquartered OEMs with Class A and battery enclosure applications.

In addition, we continue to expand our footprint in China, as our joint venture company is constructing a second manufacturing facility near Shanghai to serve domestic OEMs located in that part of the country.

As the Teijin Group aggressively pursues long-term, global environmental initiatives, CSP is supporting the Company's goals. As part of our participation in these initiatives, we have been engaging in numerous projects to address environmental issues, including the development of Life Cycle Analysis (LCA) for CSP products. In the United States, CSP is engaged in multiple R&D projects aimed at developing recycling technologies for its products, raw materials, and waste streams.

\* In this section, OEMs refer to finished-car manufacturers to which the components of Tier 1 suppliers are supplied.

### Q2. Could you please comment on the main management issues you currently recognize and the efforts you are making to resolve these issues?

Manufacturing efficiency and productivity are key to our success. Our Plant Operations team is implementing an automation and process improvement strategy that will optimize labor hours and make CSP more efficient. Specifically, over the past year we have developed an automation strategy centered on our Class A facilities with the aim of improving profitability, reducing manpower requirements in saturated markets, and creating process consistency.

To attract top talent, we must offer competitive wages and benefits. To that end, we conduct annual, local wage surveys to ensure we are market competitive with wages and benefits. We also take the well-being of our employees very seriously and have not hesitated to take every action necessary to protect them from COVID-19.

**Business Strategy**  
**Materials Business Field**

▶▶ Strategic Focus Business		Carbon Fiber Intermediate Materials for Aircraft	
<b>Strengths</b> <ul style="list-style-type: none"> <li>Technological capabilities for intermediate materials for aircraft, which are expecting future growth (thermoplastic prepreg, non-crimp fabric)</li> </ul>		<b>Weaknesses</b> <ul style="list-style-type: none"> <li>Limited track record for the supply of current mainstream intermediate materials (thermoset prepreg)</li> <li>Long timeframe from development to commercialization and profitability</li> </ul>	
<b>Opportunities</b> <ul style="list-style-type: none"> <li>Needs to reduce exhaust emissions and improve fuel efficiency by reducing aircraft weight</li> <li>Need to reduce manufacturing costs</li> </ul>		<b>Threats</b> <ul style="list-style-type: none"> <li>Decline in aircraft demand</li> <li>Intensifying competition, commoditization</li> </ul>	

**Business Introduction**

With 10 times the strength and only one-quarter of the weight of steel, carbon fiber is attracting interest as an environment-friendly material that will contribute to CO<sub>2</sub> emissions cuts and provide other benefits. This growing interest has driven expansion in demand particularly for aerospace and industrial applications. The Teijin Group's *TENAX* carbon fibers boast world-leading quality and high global market share, mainly in aircraft applications. Going forward, the Group will strengthen efforts toward the field of intermediate materials for aircraft.

	Japan, Germany, U.S.
Production Bases	
	Japan, Germany, U.S.
R&D Bases	

▶▶ Profitable Growth Business		Aramid	
<b>Strengths</b> <ul style="list-style-type: none"> <li>Top share of para-aramid fibers</li> <li>Cost competitiveness (integrated production structure from raw materials) and high barrier of entry</li> <li>Process management capabilities, stable quality</li> <li>Robust client relationships</li> </ul>		<b>Weaknesses</b> <ul style="list-style-type: none"> <li>High percentage of production in Europe</li> </ul>	
<b>Opportunities</b> <ul style="list-style-type: none"> <li>Needs for improving automotive fuel efficiency and durability, demand for replacing materials</li> <li>Dissemination of next-generation communications (5G)</li> <li>Needs for protective clothing and equipment to ensure safety and security</li> <li>Improvement in productivity through the digital transformation of production and sales</li> </ul>		<b>Threats</b> <ul style="list-style-type: none"> <li>Decline in automobile demand</li> <li>Emergence of competing manufacturers</li> </ul>	

**Business Introduction**

Aramid fibers possess outstanding features such as high strength and heat resistance. They can be divided into two broad categories: para-aramid fibers and meta-aramid fibers. Para-aramid fibers are particularly outstanding in terms of strength and heat resistance. Accordingly, they are mainly used as reinforcement for tires and friction material for automotive brake pads, as well as reinforcement for optic fiber cables. The market for para-aramid fibers is expected to grow at an annual rate of 3% to 5%. Meta-aramid fibers have outstanding long-term heat resistance and flame-retardant properties and are therefore used in heat-resistant filters and special environment uniforms such as those worn by firefighters, as well as in other industrial materials. The Teijin Group boasts a global presence in terms of aramid fibers, thanks to its high levels of quality and competitive costs.

	Para-aramid fibers: The Netherlands, Japan Meta-aramid fibers: Japan, Thailand
Production Bases	

**Major Initiatives under the Medium-Term Management Plan**

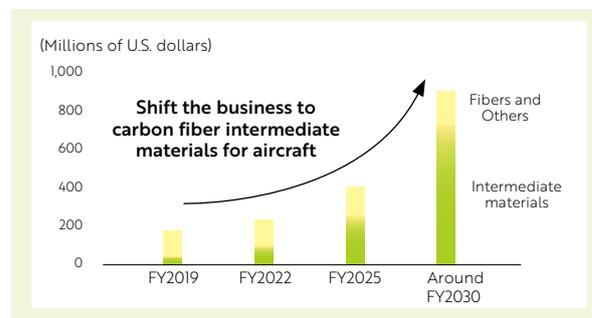
During the period of the previous medium-term management plan, the Group decided to increase its production capacity for para-aramid fibers, for which it boasts the top market share, at its two raw material and spinning factories in the Netherlands, with the aim of further expanding demand in Japan and overseas. Mass production of para-aramid fibers is slated to begin at these factories in fiscal 2022. Through this effort, the Group expects to increase production capacity by 25% or more compared with levels in fiscal 2017. This in turn should help the Group maintain an annual growth rate in net sales of 5% to 7%. In addition, the Group will further reinforce its application development, including through collaboration with customers, as it works to enhance environmental performance through lightweight materials and contribute to the realization of a circular economy.

	The Netherlands, Japan, China
R&D Bases	

## Major Initiatives under the Medium-Term Management Plan

In regard to intermediate materials for aircraft, there is a need for high levels of quality and competitive costs. For these materials, the Teijin Group will cultivate a competitive edge by accelerating the development of thermoplastic prepreg, non-crimp fabric and strive to expand sales. During the period of the current medium-term management plan, the Group will earn certification for structural components from major aircraft manufacturers at the carbon fiber manufacturing plant that it will newly establish in North America. At the same time, the Group will strive to expand sales of intermediate materials by focusing on the acquisition of several new large-scale aircraft programs.

## Sales Target



	Previous MTP 2017–2019	MTP 2020–2022
New North American carbon fiber manufacturing plant	• Made a decision to build the plant	• Start commercial production • Obtain certification for aircraft
Acquire new aircraft programs	• Obtained certification for next-generation primary structural materials for Boeing (thermoplastic prepreg)	• Acquire several new large-scale programs
Intermediate materials business expansion	• Acquired Renegade Materials Corporation of U.S. (high-temperature thermoset prepreg)	• Expand sales channels for state-of-the-art aircraft engine components

### ▶ Profitable Growth Business

### Resin and Plastic Processing

<b>Strengths</b>	<ul style="list-style-type: none"> <li>Technologies (interfacial property control for resin products, special design, etc.)</li> <li>World-leading, high-quality polycarbonate resins</li> <li>Marketing, sales, and customer support capabilities for a wide range of applications</li> <li>High-value-added product development capabilities</li> </ul>	<b>Weaknesses</b>	<ul style="list-style-type: none"> <li>High percentage of production and sales in Japan, China, and ASEAN</li> </ul>
<b>Opportunities</b>	<ul style="list-style-type: none"> <li>Dissemination of next-generation communications (5G)</li> <li>Need for high-performance materials in the EV and automated driving market</li> <li>Improvement in productivity through the digital transformation of production and sales</li> </ul>	<b>Threats</b>	<ul style="list-style-type: none"> <li>Deteriorating supply–demand balance due to the emerging trend of increased facilities in China</li> </ul>

## Business Introduction

With an impact resistance 200 times greater than glass, and only half the weight, polycarbonate (PC) resins possess a wealth of outstanding features, including heat resistance, dimensional stability, electrical characteristics, and transparency. These resins are now widely used in electronics, automobiles, precision machinery, and medical treatment, and the market for these resins is expected to grow going forward. The Teijin Group enjoys leading-class production capacity for PC resins in Asia and is working to promote a shift with these resins to high-value-added products.



Production Bases

Japan, China, Thailand



R&D Bases

Japan, China, Thailand

## Major Initiatives under the Medium-Term Management Plan

By concentrating on the development of high-value-added products for growing industries such as next-generation communications (5G), automated driving, and EV, the Group aims to further enhance its ratio of high-value-added products. Furthermore, the Group will take steps to further expand the resin and plastic processing business through a wide range of efforts, including strengthening its proposal-making capabilities to customers for high-performance compounds and strengthening business development in ASEAN, utilizing the newly established compound plant and technical center in Thailand.