Kimiaki Tanaka President

ZEON CORPORATION（4205）

Company Information

Market	TSE 1st Section
Industry	Chemicals
President	Kimiaki Tanaka
HQ Address	Marunouchi 1-6-2, Chiyoda-ku, Tokyo
Year-end	March
HOMEPAGE	http://www.zeon.co.jp/

Stock Information

Share Price	Shares Outstanding (including treasury shares)		Total market cap	ROE Act.	Trading Unit
¥1,375	237,075,556 shares		¥325,978 million	7.2%	100 shares
DPS Est.	Dividend yield Est.	EPS Est.	PER Est.	BPS Act.	PBR Act.
¥21.00	1.5%	¥100.69	13.7x	¥1,172.40	1.2x

* Share price as of closing on November 26, 2019. Shares Outstanding, DPS, and EPS are based on the results in the second quarter of March 2019. ROE and BPS are from the last year-end.

Earnings Trend

Fiscal Year	Sales	Operating Income	Ordinary Income	Net Income	EPS	DPS
Mar. 2016	295,647	29,856	32,153	18,079	79.86	15.00
Mar. 2017	287,624	30,767	31,805	23,152	104.31	16.00
Mar. 2018	332,682	38,881	40,893	13,056	58.81	17.00
Mar. 2019	337,499	33,147	36,319	18,458	84.06	19.00
Mar. 2020 Est.	330,000	30,000	32,000	22,000	100.69	21.00

*Unit: million yen, yen

*Estimates are those of the Company. Net income is net income attributed to parent shareholders. The same shall apply hereafter.

This Bridge Report presents ZEON CORPORATION's earnings results for the first half of the fiscal year ending March 2020, and more.

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Key Points

- **The sales for the second quarter of the fiscal year March 2020 were 163.4 billion yen, down 5.7 billion yen year on year. The sales of elastomers declined 8.3 billion yen. Amid the slowdown of the global economy, the sales of synthetic rubber and chemicals were sluggish. The sales of specialty materials increased 3.1 billion yen. The performance of optical plastics, optical films, and battery materials was healthy. Operating income was 15 billion yen, down 3 billion yen year on year. The profit from elastomers declined 3.6 billion yen due to the decrease in sales volume of synthetic rubber, etc., and the profit from specialty materials increased 400 million yen thanks to the growth of sales volume of optical films and battery materials, etc. Both sales and profit exceeded the respective initial estimates.**

- **There is no revision to the earnings forecast for the fiscal year March 2020. It is estimated that sales will decline 2.2% year on year to 330 billion yen and operating income will drop 9.5% year on year to 30 billion yen. Specialty materials are expected to see the growth in sales and profit, as the performance of battery materials will keep growing and the performance of optical films will bottom out. Elastomers are projected to see the drop in sales and profit due to the yen appreciation. The dividend amount is to be 21.00 yen/share, up 2 yen/share from the previous term. The estimated payout ratio is 20.9%.**

- **The progress rate towards the full-year forecast at the end of the first half term is about 50% for both sales and operating income, which the number keeps almost the same as usual. It is said that the company plans to secure revenue steadily while assessing the market environment, as there remain uncertainties over the global economy due to the lingering trade friction between the U.S. and China, Brexit, etc. How much profit the company can generate, and how close it can be to achieve their sales goal of over 500 billion yen in the fiscal year March 2021 can be the main point to take a look on.**

1. Company Overview

ZEON CORPORATION is a petrochemical manufacturer that maintains numerous products with a large share of the global markets including synthetic rubber used in automobile parts and tires, synthetic latex used in surgery-use gloves, and other products. The Company's strengths include its creative technology development function, R&D structure, and high earnings generation capability. Many of the products and materials manufactured by Zeon are used in a wide variety of products including automobile parts and tires, rubber gloves, disposable diapers, cell phones, LCD televisions, perfumes and other products commonly used in everyday life. The Zeon Group is comprised of the parent company, 62 subsidiaries and 8 affiliated companies. Zeon also has manufacturing and marketing facilities in 16 countries around the world.

（Source: the company）

1-1 Company Name and Management Vision

The company name "Zeon" is derived from the Greek word for earth "geo" (phonetically pronounced "zeo" in Japanese) and the English word reflecting eternity "eon," and reflects the Company's principle of **"deriving raw materials from the earth and perpetually contributing to human prosperity"** through the development and application of creative technologies.

(Zeon's original name "Geon," used at the time of its establishment, was derived from the trademark acquired for the vinyl chloride plastics "Geon" from B.F. Goodrich Company in the United States, with which it had capital and collaborative technological agreements. The company name was changed to "Zeon" when the capital agreement was dissolved in 1970.)

1-2 Corporate History

Zeon was established as a joint venture company formed by the Furukawa Group of companies: Nippon Light Metal Co., Ltd., Furukawa Electric Co., Ltd., and Yokohama Rubber Co., Ltd. in April 1950 to acquire and use the vinyl chloride resins technology from B.F. Goodrich Chemicals Co.

In 1951, Goodrich acquired 35% of the shares of Zeon for full-scale technological and capital partnership, and in 1952 mass production of vinyl chloride resins began in Japan for the first time.
In 1959, Goodrich transferred synthetic rubber manufacturing technologies to Zeon, which, in turn, started Japan's first mass production of synthetic rubber. Manufacturing facilities were also expanded to match the growing demand for automobile parts.

In 1965, use of the Company's unique technology called Geon Process of Butadiene (GPB) for the efficient manufacture of butadiene (main raw material of synthetic rubber) from C_4 fraction was operational.
Goodrich transferred its specialty synthetic rubber business to Zeon along with the shift in its main business focus toward vinyl chloride resins. Capital ties were dissolved in 1970. Along with these changes, the Company name was changed from Geon to Zeon in 1971.
Also, in 1971, Zeon developed a unique technology called Geon Process of Isoprene (GPI) and began using it to manufacture raw materials including high-purity isoprene, Petroleum plastics, and synthetic perfume ingredients from C_5 fraction.

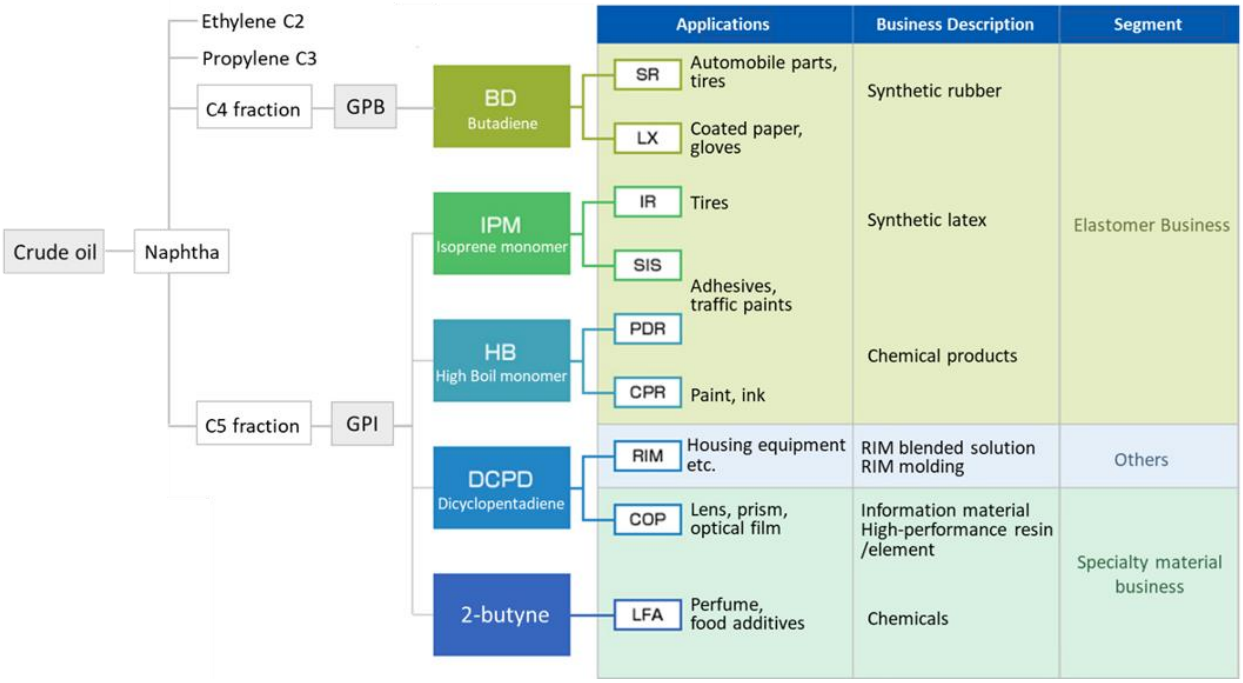
After entering the 1980s, Zeon aggressively launched new businesses in various fields including photoresists and other information materials, and medical-related applications in addition to its main synthetic rubber business.
In 1984, production of hydrogenated nitrile rubber Zetpol®, which currently has top share of the worldwide market, began at the Takaoka Plant.
In 1990, manufacture of cyclo olefin polymer (COP) ZEONEX®, which is the main product of the specialty material business using the GPI method to extract and synthesize products, was started at the Mizushima Plant.
In 1993, Zeon entered China with its electronics materials business.
In 1999, Zeon Chemicals L.P. (Consolidated subsidiary in the United States) acquired the specialty rubber business of Goodyear Tire & Rubber Company of the United States to become the world's top manufacturer of specialty rubber.

In 2000, Zeon discontinued production of vinyl chloride resins at the Mizushima Plant, and thus withdrew from the Company's founding

business.
Since the 21st century came, the company has been operating business actively. For example, by releasing ZeonorFilm®, an optical film for LCD, strengthening global production and sales systems, starting the commercial operation of solution-polymerized styrene-butadiene rubber(S-SBR) in Singapore, upgrading the equipment for optical films for LCD in Himi-shi, Toyama Prefecture, starting the operation of the world's first mass-production factory for super-growth carbon nanotubes, and establishing a joint venture for manufacturing and selling S-SBR in cooperation with Sumitomo Chemical.

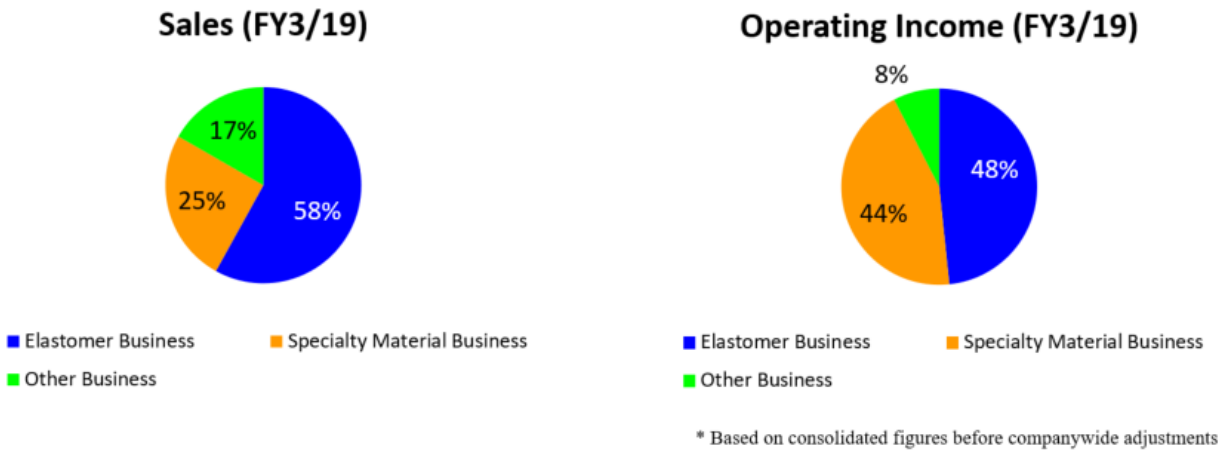
1-3 Business Description

Zeon's main products use various extracted from naphtha, which is extracted by distillation of crude oil.
Zeon uses **butadiene** extracted in the GPB method developed in-house from C_4 fraction, **isoprene monomer, piperylene, dicyclopentadiene,** and **2-butyne** extracted from C_5 fraction using the GPI method, as raw materials to be processed into synthetic rubber, synthetic latex and various other materials.



（Source: the company）

Zeon has three business segments: 1) the **elastomer business**, where manufactured basic materials are sold to customers; 2) the **specialty material business**, where basic materials are submitted to primary processing for sale to customers as processed materials, and 3) the **other business**.



* Based on consolidated figures before companywide adjustments

Elastomer Business

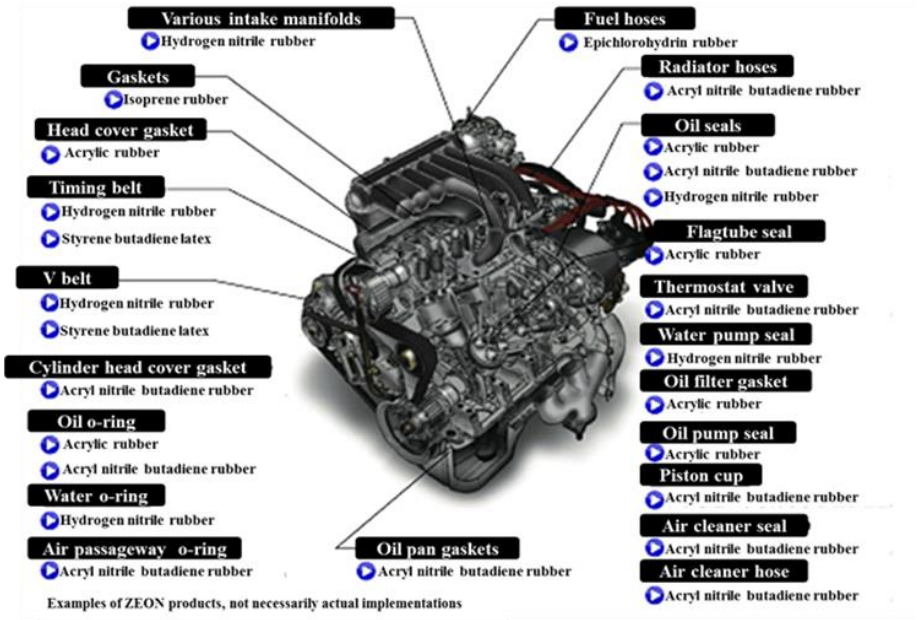
Elastomers are “high molecular compounds that have rubber-like elastic properties,” an example of which is synthetic rubber. As described in the corporate history section of this report, in 1959 Zeon became the first company in Japan to mass-produce synthetic rubber, which became the foundation underlying all of Zeon’s businesses. This business includes the segments of synthetic rubber, synthetic latex, and chemical products (Petroleum resins, thermoplastic elastomers) businesses.

1) Synthetic Rubber Business

Example of final product: Tires

Zeon provides the world’s leading tire manufacturers with the world’s highest-quality synthetic rubber for use in tires. Among the various types of synthetic rubber manufactured are styrene butadiene rubber (SBR), which promotes superior abrasion resistance, aging resistance and mechanical strength properties, butadiene rubber (BR), which includes a superior balance between elasticity, wear and low-temperature properties, and isoprene rubber (IR), which features similar properties as natural rubber but with higher quality stability.

Example of product: Automobile Parts



（Source: the company）

Radiator hoses, fuel hoses, fan belts, oil seals, and various other car engine parts use specialty synthetic rubber that has superior oil resistance and heat deterioration-resistant qualities.

Zeon is the world’s number one manufacturer of specialty synthetic rubber and features high quality levels and high market share of specialty synthetic rubber automobile parts. In particular, Zeon’s Zetpol® hydrogenated nitrile rubber, used for timing belts, displays superior heat and oil resistance and claims high share of the worldwide market.

Furthermore, a new grade of Zetpol® has vastly improved the performance of products using the original versions of Zetpol®.

Products using the new grade of Zetpol® are heat resistant at temperatures that exceed the limits for the original version of Zetpol® by 10 degrees centigrade, thereby extending the life of seals and gaskets, and are in strong demand for use in next generation bio-fuel engines. The new grade of Zetpol® is well suited to extrusion processing which is being leveraged to expand its usage in various hoses. Products using Zetpol® have also been well received by customers, and are being used increasingly as a replacement material for more expensive competitive rubber in Japan, Asia, Europe and North America.

2) Synthetic Latex Business

Synthetic latex is liquid rubber that synthetic rubber dispersed in water. It is used to manufacture gloves, paper coating, textile processing, adhesives, paints, and cosmetic puffs, etc. Zeon has high share of NBR latex used in cosmetic puffs in the world.

3) Chemicals Business

Zeon produces C_5 fraction by its unique in-house GPI method, and turn it into materials for adhesive tapes and hot melt adhesive traffic paint binder and a wide variety of other products.

Specialty Material Business

Zeon deals in high value-added materials and parts that are created using its unique technologies including polymer design and processing technologies.
This is composed of the specialty plastics business, including optical plastics-related products and optical films, the specialty chemicals business, including specialty chemicals, electronic materials, toners, and battery materials, and the medical devices business.

1) Specialty material Business

◎ Optical plastics-related products and optical films

Cyclo olefin polymer is thermoplastic polymer developed using raw material extracted from C_5 fraction using GPI methods and synthesized with Zeon's own unique technologies. The commercial products are ZEONEX® and ZEONOR®.
ZEONEX® leverages its high transparency, low water absorption, low absorptive and chemical resistance properties for use in camera and projector lenses and other optical applications, and in medical use containers including syringes and vials.
ZEONOR® leverages its high transparency, transferability, and heat resistance properties for use as transparent general use engineering plastics used in light guide plates, automobile parts, semiconductor containers and a wide range of other product applications.

ZeonorFilm® is the world's first optical film by the melt extrusion method from the cyclo olefin polymer. It is excellent in optical properties, low water absorption / low moisture permeability, high heat resistance, low outgassing and dimensional stability. Not only for displays for LCD TV, smartphones and tablets, is it expected to be used in a wide range of applications such as OLED displays.

（Source: the company）

"Diagonally-stretched optical film" is also Zeon's world first development.
The OELD application as anti-reflection film is progressing, and demand for small- to medium-sized flat panel display applications is growing. In addition to the current plants in Takaoka and Himi (an annual output of 15 million square meters for optical film in total), the construction of a plant in Tsuruga, Fukui Prefecture was completed in October 2013.

ZEOCOAT® is organic insulation material used in electronic devices such as cellphones, smartphones, and LCD televisions.
ZEOCOAT® was successful in improving both the picture quality and reliability of displays because of its high transparency, extremely low water absorption and low gas generation properties. Zeon will aggressively expand its marketing efforts for OELDs, which will be thinner displays than LCD, thin-film transistors using new semiconductors, and flexible displays.

◎ Battery Materials

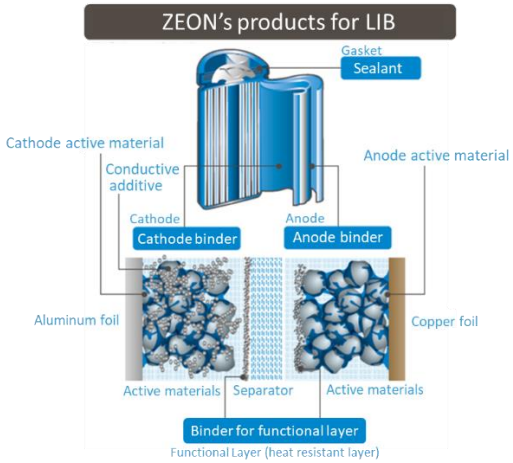
Zeon provides materials for Li-ion battery in this segment; anode / cathode binders, binder for functional layer (heat resistant separator), and sealant.

Currently, Li-ion batteries are widely used as a power source for mobile devices such as mobile phones and notebook computers. Due to the rapid popularization of smartphones, there is a strong demand for batteries with higher capacity. Adoption for electric vehicles, including hybrid and plug-in hybrid cars, and industrial power sources (such as smart grids, etc.) also have begun, since it is lightweight, compact and can store a lot of energy. On the other hand, there was a problem that lifetime tends to decrease under high temperature usage.

The company has advanced the function of Li-ion battery binder and succeeded in developing an aqueous cathode binder, which greatly contributes to longer battery life. In addition, Zeon succeeded in commercializing anode binder, which can raise the storage capacity of Li-ion battery by 5% to 15%.

Zeon believes that its materials contribute to the safety, the longer life and the more capacity of Li-ion batteries and lead to the widespread of hybrid and electric cars.

The company focused on the promising future of Li-ion batteries and worked on it for a long time. In this business segment for 2020, Zeon seeks to keep its top share in the Li-ion battery binder market, aims to expand the diffusion of new material functions that meet the needs of the application and propose functional materials to realize the next generation of new batteries.



（Source: the company）

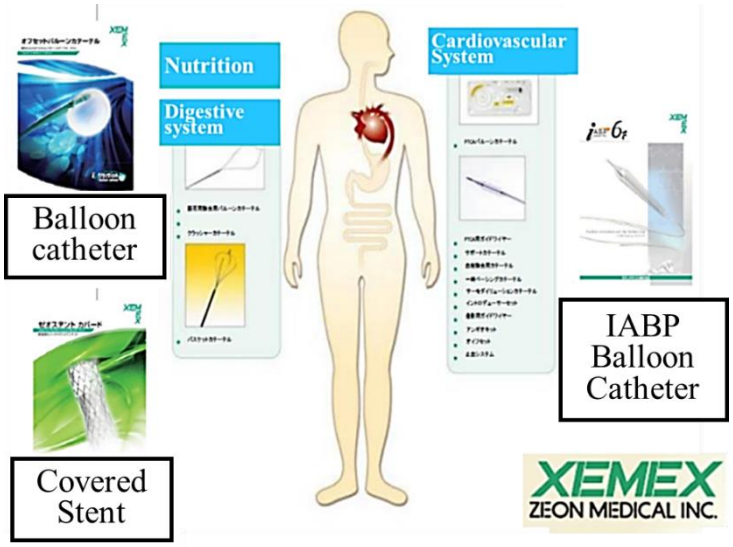
◎ Specialty Chemicals

Zeon deals in specialty chemicals that use derivatives from C_5 fraction, such as synthesized fragrances for cosmetics and flavor used in foods, solvents and plant growth regulator. The Company holds the world's top share of the synthesized fragrances in green note. They provide a wide range of specialty products including ingredients for intermediary bodies used in medical and agricultural chemicals, alternative solvents to CFCs, cleaning agents, urethane expanding agent, and functional ether agents.

2) Medical Devices Business

The medical device market is relatively well insulated from fluctuations in the economy, and is anticipated to grow with the aging society in Japan and expansion in developing countries. Furthermore, medical device companies are subject to strict laws and regulations, and they need to submit approval applications to regulatory bodies. In addition, the need to develop relationships with healthcare professionals is critical and the subsequent high barriers to entry makes this a highly attractive market.

Along with the start of development of artificial kidneys in 1974, Zeon aggressively promoted its medical device business. In 1989, a subsidiary Zeon Medical Inc. was established to conduct development, manufacturing, sales and all other functions of the medical field for the Zeon Group. Zeon has shown bountiful development track record both in gastroenterology and cardiovascular area. The Offset Balloon Catheter as a means of differentiation in the gallstone removal process and with Japan's first biliary covered stent Zeostent Covered in the area of gastroenterology products, and the world's smallest diameter XEMEX IABP Balloon PLUS as a device to aid the heartbeat at times of acute myocardial infarction in the area of cardiovascular products.

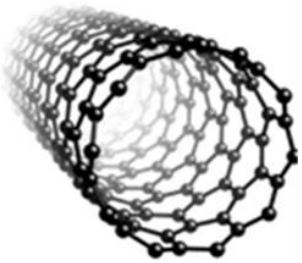


（Source: the company）

Currently Zeon is focusing efforts in the development of the biliary stone removal devices that eliminate pain. Zeon has a lineup of products for extracting biliary stones ranging from extremely large stones to sludge and sand with products such as XEMEX Crusher Catheter, XEMEX Basket Catheter NT, Extraction Balloon Catheter, and is aiming at a 50% share of the gallstone removal market.
In March 2016, the Company launched the world's first optical sensor FFR device as a type of guide wire. Because it uses an optical fiber sensor, mistaken readings of blood pressure measurements rarely occur. The operability as a guide wire has also gained a high evaluation and Zeon is gaining its share in the Japanese market.

【New Specialty Materials Development: ~Carbon Nano Tube (CNT)~ 】
Aggressive R&D activities have allowed Zeon to launch various new materials into the market, and particularly high expectation is in the development of "single-wall carbon nanotubes (CNT)".

1) What is Single-Walled CNT?
Carbon Nanotubes (CNTs) are cylindrical nanostructure formed by hexagonal lattice of carbon atoms. In 1993, Sumio Iijima, Ph.D., head of the Applied Nanotube Research Center of the National Institute of Advanced Industrial Science and Technology (AIST), discovered this structure for the first time in the world and named *Carbon Nanotubes (CNTs)*. CNTs are categorized into single-walled and multiple-walled CNTs. Multiple-walled CNT is relatively easy to manufacture and the developments for commercial applications already started.


Single Wall Carbon Nanotube

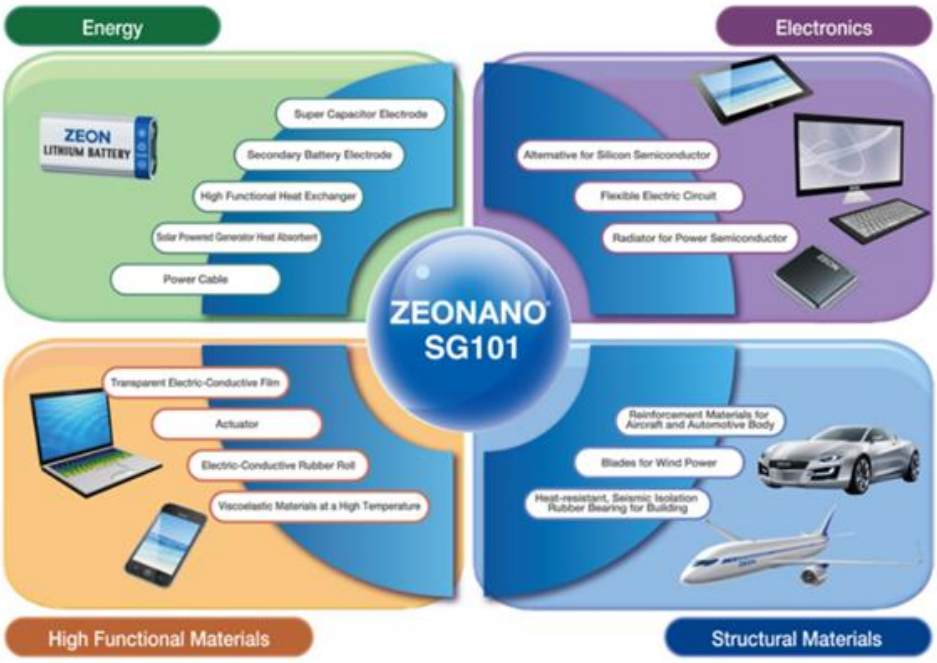
（Source: the company）

At the same time, single-walled CNT exhibits the following properties and is superior to multiple-walled CNT:
- 20 times stronger than steel
- 10 times more heat conductive than copper
- Half as dense as aluminum

- 10 times the electron mobility of silicon
- lightweight but highly flexible
- has extremely high electric-and heat-conductivity properties

Possible CNT applications are electrical conductivity assistance agent in Li-ion batteries, transparent conductive film used in electronic paper and ultra-thin touch panel because of its high elasticity and strength, and as a thermal interface material. Because of its ability to absorb a wide spectrum of light, practical applications of single-walled CNT are being promoted in the area of electromagnetic wave absorbing materials for use in a wide range of fields including energy, electronics, structural materials, and other specialty materials.

ZEONANO®SG101 is applicable to diverse uses in wide range of fields because of excellent properties of SWCNT



(Source: Homepage of Technology Research Association for single Wall Carbon Nanotubes)

Conventional single-walled CNT has several major issues including high levels of impurities, low levels of productivity and high manufacturing costs, which are about several tens of thousands to hundreds of thousands of yen per gram.

2) Zeon's Efforts and Position

Against this backdrop, the company aims at establishing technologies that are necessary for the commercialization of new products using single-walled CNT developed in Japan with its numerous superior qualities in response to the worldwide social demands to realize a low-carbon society.

Using the synthesizing technology *super growth method* developed by Dr. Kenji Hata (Ph.D.) of the AIST as a base, Zeon has been conducting R&D for mass production and application development for compound materials at a validation plant that was established in December 2010 on the premises of the Tsukuba Center of the AIST. Among the main reasons that the AIST Nanotube Application Research Center selected Zeon to become its partner were the impressive track record and results obtained by Kohei Arakawa, Zeon's former Managing Director, as a researcher in CNT R&D. The company is very important to realize commercial applications of this new material.

3) Future Endeavors

Having established the mass production technology based on the *super growth* method, Zeon completed the CNT production facility and started mass production, the first in the world in November 2015 in its Tokuyama plant at Shunan-city, Yamaguchi Prefecture.

Zeon is the only company in the world that has established mass production technologies for single-wall CNT. About 100 companies

around the world request for its product samples. Consequently, shipments of samples have already begun. Zeon has also begun to propose practical applications of this product.

At the same time, single-wall CNT is a type of nanomaterial that is extremely small and fiber shape. Therefore, there is a concern that it may have some impact upon biological processes depending upon its size and shape. Currently, the AIST is conducting standardization of the evaluation process, and activities for the OECD endpoint measurement are being conducted, with global standardization and legal and regulatory aspects being considered.

Other Business

The combination liquid for Reaction Injection Molding (RIM) using the ingredient dicyclopentadiene (DCPD) as a raw material.

1-4 ROE Analysis

	FY Mar. 14	FY Mar. 15	FY Mar. 16	FY Mar. 17	FY Mar. 18	FY Mar. 19
ROE (%)	**11.7**	**9.8**	**8.6**	**10.3**	**5.3**	**7.2**
Net income margin (%)	6.63	6.20	6.12	8.05	3.92	5.47
Total asset turnover (times)	0.82	0.80	0.75	0.72	0.78	0.79
Leverage（x）	2.15	1.98	1.86	1.77	1.71	1.69

Since the ratio of net income to sales and leverage are showing a declining trend, ROE was below the 8% that Japanese companies are told to aim for.
The company is expected to improve the profitability by focusing on the growth of the specialty materials segment.

1-5 Characteristics and Strengths

1. World's Leading Creative Technology Development Capability

The GPB method used to manufacture butadiene from C_4 fraction is the most important development in Japan's postwar history of chemicals, and is licensed to 49 plants in 19 countries around the world.
In addition, the Mizushima Plant is the world's only plant with GPI method to extract high-purity isoprene and other effective substances from C_5 fraction. This Zeon's GPI method is a completely unique technology, which is not provided to other companies.
These two technologies represent the creative technological capabilities that are among the strengths of Zeon. They also are highly regarded and have received numerous awards in the global markets. With regard to technologies, Zeon has received 48 awards since 1960 including the GPB and GPI methods, in addition to 26 awards since 1982 for its environment conservation and safety efforts.

2. High Worldwide Share

Zetpol®, ZEONEX®, and ZEONOR® are representative of the products born from Zeon's highly creative technologies, which have allowed it to acquire high shares of worldwide markets. In addition, their Leaf alcohol for in cosmetics and food flavorings and NBR latex for cosmetic puffs have the world's top share.

3. R&D Structure that Continues to Yield Creative Technologies

Zeon seeks to conduct R&D activities based upon its basic corporate philosophy of "developing creative technologies in special fields of strength that enables Zeon to contribute to society by generating the world's leading businesses."
The Company's main R&D center is located in Kawasaki City, Kanagawa Prefecture. Zeon has also established the Precision Optics Laboratory and Medical Laboratory at the Takaoka Plant, the Specialty Chemical Product Research Facility at the Yonezawa Plant, the Toner Research Facility at the Tokuyama Plant and C_5 Chemicals Laboratory at the Mizushima Plant for more efficient R&D activities to be conducted closer to the manufacturing sites. The technical support bases are in the U.S., Germany, Singapore, and China.

The R&D personnel are never satisfied with the current conditions, and always keep conscious of the threat that their competitors pose in their research activities. Furthermore, Zeon bases its valuation on a positive point awarding system that places high priority on speed and creativity. R&D expenses were formerly measured as a percentage of sales, but now it has established an annual value amount of ¥16.0 billion as an investment budget to ensure that stable R&D activities can be maintained in the future.

2. The First Half of Fiscal Year ending March 2020 Earnings Results

2-1 Consolidated Earnings

	1H FY 3/19	Ratio to sales	1H FY 3/20	Ratio to sales	YoY	Compared with the initial forecasts
Sales	169,031	100.0%	163,358	100.0%	-3.4%	+2.1%
Gross profit	49,286	29.2%	47,361	29.0%	-3.9%	-
SG&A	31,307	18.5%	32,341	19.8%	+3.3%	-
Operating Income	17,979	10.6%	15,020	9.2%	-16.5%	+3.6%
Ordinary Income	20,273	12.0%	16,045	9.8%	-20.9%	+3.5%
Net Income	14,549	8.6%	11,550	7.1%	-20.6%	+5.0%

*Unit: million yen.

Sales and profit dropped.

Sales were 163.4 billion yen, down 5.7 billion yen year on year. The sales of elastomers declined 8.3 billion yen. Amid the slowdown of the global economy, the sales of synthetic rubber and chemicals were sluggish. The sales of specialty materials increased 3.1 billion yen. The performance of optical plastics, optical films, and battery materials was healthy.

Operating income was 15 billion yen, down 3 billion yen year on year. The profit from elastomers declined 3.6 billion yen due to the decrease in sales volume of synthetic rubber, etc., and the profit from specialty materials increased 400 million yen thanks to the growth of sales volume of optical films and battery materials, etc. Both sales and profit exceeded the respective initial estimates.

2-2 Trends by Business Segments

	1H FY 3/19	1H FY 3/20	YoY
Sales			
Elastomer Business	100,224	91,920	-8.3%
Specialty material Business	42,411	45,471	7.2%
Other Business	27,565	27,015	-2.0%
adjustment	-1,169	-1,048	-
Total	**169,031**	**163,358**	**-3.4%**
Operating Income			
Elastomer Business	9,545	5,967	-37.5%
Specialty material Business	8,745	9,189	5.1%
Other Business	1,265	1,170	-7.5%
adjustment	-1,577	-1,305	-
Total	**17,979**	**15,020**	**-16.5%**

*Unit: million Yen

【Elastomers】

Sales and profit declined.

Sales were 91.9 billion yen, down 8.3 billion yen year on year. Due to the slowdown of the global economy, the performance of synthetic rubber for the automobile industry and the general industry was sluggish for the domestic market, export, and overseas subsidiaries. The sales of chemicals were stagnant, because Mizushima Factory underwent regular inspection and production output decreased, while petroleum resins was affected by the downturn of the Asian market.

Operating income decreased 3.6 billion yen year on year to 5.9 billion yen. Cost decreased, but profit was affected by the decline in shipment amounts of synthetic rubber and chemicals, the drop in prices due to the raw material formula, etc. Operating income rate decreased 3 points year on year from 9.5% to 6.5%.

Among synthetic rubber, the demand for general-purpose rubber for tires was weak, but BR and S-SBR grew, and sales volume increased 3% year on year.

The sales volume of specialty rubber for the automobile industry declined 9% year on year, because demand weakened globally and the market floundered.

【Specialty Materials】

Sales and profit grew.

Sales were 45.4 billion yen, up 3.1 billion yen year on year. As for plastics, optical plastics and optical film-related products sold well. As for specialty chemicals, battery materials performed well.

Operating income was 9.1 billion yen, up 400 million yen year on year. Despite the drop in prices and the augmentation of SGA, the sales volume of optical films, battery materials, etc. increased, and the use of optical films increased, contributing to business performance.

Operating income rate declined 0.4 points year on year from 20.6% to 20.2%.

Among battery materials, which performed well, the sales volume of the battery materials for EVs increased 23% year on year. The sale to the domestic market and European and U.S. automakers was healthy. The sales volume of the battery materials for others rose 9% year on year. The models for which the company's battery materials have been adopted for power tools increased.

【Others】

Sales and profit decreased.

The sale of the trading division and the RIM business were sluggish. Operating income rate decreased 0.3 points year on year from 4.6% to 4.3%.

2-3 Financial standing and cash flows

◎Main Balance Sheet

	End of 3/19	End of 9/19	Increase/ decrease		End of 3/19	End of 9/19	Increase/ decrease
Current Assets	227,238	208,580	-18,658	Current liabilities	130,039	107,716	-22,323
Cash	37,534	35,193	-2,341	Payables	82,414	61,978	-20,436
Receivables	78,352	73,145	-5,207	ST Interest-Bearing Liabilities	12,125	12,125	0
Inventories	71,125	67,768	-3,357	Noncurrent liabilities	35,742	36,266	+524
Noncurrent Assets	197,700	202,503	+4,803	LT Interest-Bearing Liabilities	12,000	12,000	0
Tangible Assets	102,323	108,380	+6,057	Total Liabilities	165,781	143,982	-21,799
Intangible Assets	3,197	3,057	-140	Net Assets	259,156	267,101	+7,945
Investment, Others	92,179	91,066	-1,113	Capital	256,167	264,003	+7,836
Total assets	424,937	411,083	-13,854	Total Liabilities and Net Assets	424,937	411,083	-13,854

* Unit: million yen. Receivables include electronically booked receivables; likewise, payables include electronically booked payables.

Current assets decreased 18.6 billion yen from the end of the previous term, due to the decline in cash & deposits, receivables, and inventories, etc. Total noncurrent assets grew 4.8 billion yen from the end of the previous term due to the increase of optical film production equipment, etc., and total assets declined 13.8 billion yen from the end of the previous term.

Total liabilities decreased 21.7 billion yen from the end of the previous term, because payables dropped 20.4 billion yen as the end of the term fell on a holiday.

Net assets grew 7.9 billion yen due to the increase in retained earnings, etc. As a result, capital-to-asset ratio rose 3.9 points from the end of the previous term to 64.2%. D/E ratio was 0.09, unchanged from the end of the previous term.

◎Cash Flow

	FY 3/19 1H	FY 3/20 1H	Increase/decrease
Operating Cash Flow	19,656	11,164	-8,492
Investing Cash Flow	-7,296	-10,616	-3,320
Free Cash Flow	12,360	548	-11,812
Financing Cash Flow	-18,811	-2,356	+16,455
CF	33,195	32,718	-477

The surplus of operating CF shrank due to the decrease in net income before taxes and other adjustments and the end of the term falling on a holiday.
As the purchase of property, plant and equipment augmented due to the increase of optical film production equipment, etc., the deficit of investing CF expanded and the surplus of free CF shrank. The deficit of financing CF declined due to the decrease in the expenditure for redemption of corporate bonds and acquisition of treasury shares.
The cash position was nearly unchanged.

3. Fiscal Year ending March 2020 Earnings Forecasts

【Full Year Earning】

	FY 3/19 Act.	Ratio to sales	FY 3/20 Est.	Ratio to sales	YoY	Progress rate
Sales	3,375	100.0%	3,300	100.0%	-2.2%	49.5%
Elastomer	1,981	58.7%	1,900	57.6%	-4.1%	48.4%
Specialty Materials	851	25.2%	860	26.1%	+1.1%	52.8%
Others	567	16.8%	565	17.1%	-0.4%	47.8%
Eliminations	-25	-	-25	-	-	-
Operating Income	331	9.8%	300	9.1%	-9.5%	50.0%
Elastomer	177	5.2%	144	4.4%	-18.6%	41.0%
Specialty Materials	161	4.8%	170	5.2%	+5.6%	53.5%
Others	-7	-	-14	-	-	-
Non-Operating Income	32	0.9%	20	0.6%	-37.5%	50.0%
Ordinary Income	363	10.8%	320	9.7%	-11.9%	50.0%
Net Income	185	5.5%	220	6.7%	+19.2%	52.3%

*Units: 100 million yen. Segment income share can be considered to be the same as operating income to sales ratio (Operating margin)

【Various Assumptions】

	FY 3/19 Act.	FY 3/20 Est.	YoY
Yen/ US Dollar	110.7	105.0	-5.1%
Yen/ Euro	128.7	120.0	-6.8%
Domestic Naphtha Price (¥/ kiloliter)	49,500	39,000	-21.2%
Asia Butadiene Price (US $/ ton)	1,372	1,250	-8.9%

There is no revision to the earnings forecast. Sales and profit are estimated to decrease.

There is no revision to the earning forecast. Sales are estimated to decrease 2.2% year on year to 330 billion yen while operating income is projected to decline by 9.5% to 30 billion yen. As for specialty materials, the battery materials are expected to continue growing, while optical films are forecasted to bottom out, thus sales and profit are predicted to increase. The sales and profit from elastomers are predicted to drop due to the impact of the strong yen.
In order to enrich shareholder return, the interim dividend was set at 11 yen/share, up 1 yen/share. The annual dividend is to be 21.00 yen/share. The estimated payout ratio is 20.9%.

4. Progress of “Mid-term Management Plan SZ-20 Phase III”

Progress of “Mid-term Management Plan SZ-20 Phase III” covering a four-year period beginning from fiscal year March 2018 is as follows.

Groupwide Strategy

Growth	1	**Reinforce** the combined strengths of the Zeon group. **Explore** ways of going beyond boundaries and collaborating with external players to provide **solutions** globally as a contribution to society.
	2	Accelerate the pace of new businesses creation and product development in **key development areas**: global environment, smart devices, and health and living.
Corporate Culture	3	Cultivate a corporate culture that places value on taking proactive action by harnessing diverse idea and trying them.

As for the key development areas, the company applies for “global environment (e.g. energy conservation, automobile-related, power generation and storage)”, “health and living (e.g. self-driving cars, medical devices/materials, daily necessities)” and “smart devices (IoT-related),” which are estimated to have a high growth rate and probability of innovation.

Under the themes of “speed,” “dialogue,” and “social contribution,” the company fosters more mutual trust with its group members. As the way it wants to be in FY 2020, the company pursues “Zeon makes the future today with the power of chemistry” and aims to achieve consolidated sales of more than 500 billion yen.

Overall performance

Sales hit records high consecutively in the fiscal year March 2018 and the fiscal year March 2019 after entering SZ-20 Phase III. For the fiscal year March 2020, the performance of elastomers for the automobile industry, the general industry, etc. is estimated to slow down, seeing the decline in sales and profit. On the other hand, the specialty material business is projected to have record-high sales and operating income, thanks to the good performance of optical plastics, optical films, and battery materials. Total sales are estimated to decline slightly, but the company thinks that it can earn sales in the order of 330 billion yen stably.

ROE, which is recognized as an important management indicator, is forecasted to recover to the order of 8% this term, because there is no longer impairment loss at the subsidiary in Singapore. The company aims to recover it to the level at SZ-20 Phase II of the previous mid-term management plan.
As for shareholder return, the company aims to pay dividends stably and continuously, and the dividend amount is to be increased this term for the 10th consecutive term.

Strategies by Business Segment

Elastomer Business	Specialty Materials Business
☆ Reinforce competitive business by responding globally to growth markets and raising cost effectiveness. ☆ Explore new opportunities and achieve growth based on the trust built in the market and relationship with customers.	☆ Expand business in step with the speed of market growth and technological progress through focused investment of resources and stronger collaboration with outside players.

① Elastomer Business

◎ Investment Situation

The company invested in increasing the production output of the dry products of the specialty cross-linked type Zetpol® at Kawasaki Plant, and the construction was completed in September 2019. The production output grew 1.5 times.
In the plant in Thailand, the company is constructing a factory for manufacturing acrylic rubber, and it is scheduled to be completed in the spring of 2020. The production output is to be 5,000 tons per year.

◎ **Specialty Rubbers**

To cope with environmental issues, EVs and fuel-cell vehicles are expected to be distributed, but the sales volume of internal combustion engine vehicles is estimated to be at a certain level from the viewpoints of cost and efficiency.
The importance of specialty rubber, which is broadly used in the automobile industry, will remain significant, and the company plans to support the industry by supplying it stably.

The sale of the specialty cross-linked type of Zetpol® is steadily growing.
As for acrylic rubber, the company is increasing production output in Thailand as mentioned above.
Asia Technical Support Laboratory, which was established in 2017, continues attending to clients, selling rubber, and so on.

◎S-SBR (Solution-polymerized styrene-butadiene rubber)

By combining the polymer modification and production technologies of Zeon and Sumitomo Chemical, the company is committed to providing products that meet Tire customers' requirements such as "good wet grip," "low fuel consumption" and "good abrasion resistance". It is scheduled to be released in 2021.
It is aiming to seize the leading position in the world. The sales volume of S-SBR is estimated to grow about 1.2 times between 2017 and 2021.

② Specialty Material Business

◎Investment Situation

The company is increasing the production output of raw films at Takaoka Plant, and the operation of the new production line is scheduled to be started in the spring of 2020.
In addition, the company is constructing a new line for optical films for large-sized TV sets at Tsuruga Plant, and its operation is scheduled to be started in April 2020. Production output is 50 million m^2 per year. Furthermore, the company is investing for enhancing the production output of COP at Mizushima Plant, and it is scheduled to be completed in July 2021. Annual production capacity is 4,600 tons.

◎Strengths of the Optical Film Business

The company considers that this business has the following 4 strengths:

Strength	Outline
Strength of the raw material	Applicability of dicyclopentadiene obtained with the original GPI method
Strength of the plastics	Characteristics of the plastics synthesized from raw materials obtained with the GPI method, such as heat resistance, moisture resistance, and workability
Strength of the processing technology	The melt extrusion and film stretching technology is unique to the company.
Strength of the integrated production	With the integrated production, including polymer design, manufacturing, and processing, it is possible to reflect the needs in the market in polymer design swiftly.

◎Specialty Plastics

(The highly heat-resistant cyclo olefin polymer ZEONEX®T62R adopted for in-vehicle sensing cameras)

ZEONEX®T62R is a plastics product developed for lenses of in-vehicle sensing cameras for which heat resistance is required.
Sensing cameras, which are important devices mounted on the cutting-edge driving support system of automobiles, are used at high temperatures for a long period of time. The plastics that have been used for lenses turn yellow and are deformed by long-term heat, so they are not suited for sensing cameras, which require high visibility.
The conventional cyclo olefin polymer (COP) can have heat distortion resistance if the glass-transition temperature is raised, but it turns yellow easily at high temperatures. Meanwhile, ZEONEX®T62R, which was developed by ZEON CORPORATION, has high heat distortion resistance and does not turn yellow easily at high temperatures.
As these features were highly evaluated, it was adopted for sensing cameras.

(Emphasis on the characteristics as plastics for medical and pharmaceutical use)

"Prefilled Syringe," a syringe already filled with medicine, is being distributed, because it is possible to reduce the risk of infection, human error at the time of preparation as the syringe has been filled with an accurate volume of injectable solution in advance, and administer medicine swiftly at the time of emergency.

The company explained the characteristics of COP as plastics for syringes to Food and Drug Administration (FDA) in May 2019, with the aim of distributing it in the huge U.S. market.

In October 2019, the company gave presentations about COP properties; "Transparency, low impurity concentration, moisture exclusion, and chemical stability comparable to those of glass," "Mechanical strength higher than that of glass, and very little absorption and aggregation of proteins," etc. at the academic conference regarding prefilled syringes held in Sweden.

◎Battery materials

Along with the increase in capacity of Li-ion batteries and applications in automobiles, the use of separators with functional layers are rapidly expanding to improve safety.

As for the company's battery materials, the sealing materials contribute to preventing leakage of electrolyte and help increase batteries life spans. Additionally, since the launch of binders for batteries' functional layers in 2015, its use has been expanded especially for automobiles and is greatly improving safety. Furthermore, the cathodes and anodes binders do not only contribute to the safety and long life of batteries by reducing the expansion and contraction resulted by charging and discharging, but also catalyze the chemical reaction that occurs on the surface of the active materials enabling more power output.

The sales growth of the company's battery materials is expected to significantly exceed the growth of the overall Li-ion batteries market.

◎ Electronic Materials

The company released ZEP530A, an electron beam resist for next-generation electronic parts.

ZEP530A, an ultra-high-resolution electron beam resist, is a main-chain-broken positive electron beam resist that is excellent in resolution and dry etching resistance, has significant process margin, and enables the formation of thin films.

This is suited for the compound semiconductor process, including 5G semiconductors for high frequencies and power semiconductors for high voltages. As the distribution of the fifth-generation mobile communication system (5G) is drawing closer, the company estimates that the sales of electron beam resists will double between 2015 and 2025, and CAGR (compound annual growth rate) will reach 11%.

◎Medical devices

The domestic market of less-invasive medical devices has continued to grow at 2.2% year-on-year, especially the FFR* is a high growth market, which grew more than 20%.

As for the cardiovascular business, the company aims to increase its market share by improving the accuracy and reliability of optical sensor FFR which started being sold in 2016.

As for the endoscopic business, the company is focusing on providing minimally invasive devices. It launched a new balloon catheter for extracting biliary stones and a new model of biliary stents in the fiscal year March 2018. The company aims to launch new models of hemostatic forceps and clips in the fourth quarter of fiscal year March 2020 focusing on the endoscopic business.

The company's sales of medical devices are planned to increase 2 times between FY 2017 and FY 2020.

* FFR (functional flow reserve measurement)

This indicator measures how much blood is obstructed in the case of lesion-caused stenosis in the coronary artery.

<CSR activities>

The company's basic policies for CSR are "to ensure compliance and meet society's needs for safety and security," "to contribute to sustainably developing society and protecting the global environment through our corporate activities," and "to ensure that each and every Zeon person is aware of CSR and acts accordingly." The company takes the following concrete actions, in order to attain sustainable development goals (SDGs).

Signed the United Nations Global Compact (UNGC)

The company will conduct corporate activities while respecting the global standards, in order to follow the Ten Principles of UNGC and actualize a sustainable society.

Continuation of volunteer activities in Tohoku

After the Great East Japan Earthquake, a volunteer event has been held 66 times in 7 years from October 2012, and a total of 520 employees have participated. Currently, the company is giving support for agriculture, fisheries, etc.

Construction of a corporate dormitory with the CLT method

CLT stands for Cross Laminated Timber, which is a wooden material produced by piling and bonding them so that their fiber directions can be perpendicular to each other. There are some merits, including speedy construction and excellent heat resistance, and it is being distributed rapidly for the effective use of forest resources.

The company used timber from forest thinning in an area of 4.9 million m^2 in Okayama Prefecture, for constructing the corporate dormitory of Mizushima Plant.

LNES solar card-type lamp

In project LNES, which is an open innovation project of the company, a solar card-type lamp was commercialized.

Project LNES pursues the possibilities of plastic solar cells. In such project, the company has been developing various products by using the solar card based on the nanocarbon technology as a core technology, and the solar card-type lamp is the first step.

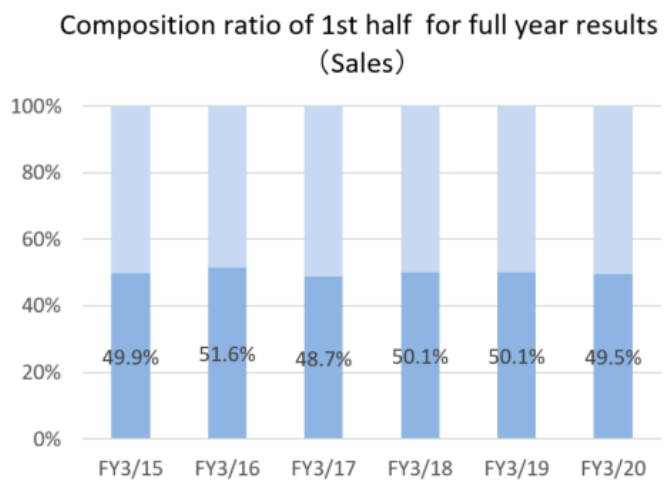
The solar card-type lamp is a lighting device that recharges itself with daylight and lights up at night with the lamp connected to the solar card. Funds were raised through crowdfunding.

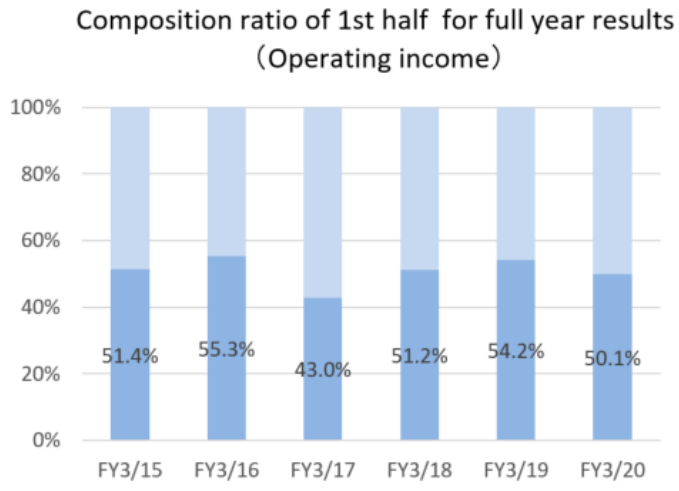
5. Conclusions

The progress rate towards the full-year forecast at the end of the first half term is about 50% for both sales and operating income, which the number keeps almost the same as usual.

It is said that the company plans to secure revenue steadily while assessing the market environment, as there remain uncertainties over the global economy due to the lingering trade friction between the U.S. and China, Brexit, etc.

How much profit the company can generate, and how close it can be to achieve their sales goal of over 500 billion yen in the fiscal year March 2021 can be the main point to take a look on.





*FY 3/20 is a composition ratio for the full-year forecast. Other than that, Full-year results.

<Reference: Regarding Corporate Governance>

◎Organization type, and the composition of directors and auditors

Organization type	Company with an audit and supervisory board
Directors	10 directors, including 3 external ones
Auditors	5 auditors, including 3 external ones

◎Corporate Governance Report

Last update date: : July, 4, 2019

Basic policy

Our company respects the interests of a broad range of stakeholders, including shareholders, and aims to earn revenue and continuously improve our corporate value while adjusting the relations of interests. To do so, we will make continuous efforts to establish a system for realizing efficient, sound business administration through corporate governance.

In addition, we will make decisions and execute business operations swiftly after clarifying the functions and roles of each institution and each in-company organization by developing internal control systems. We will properly monitor and disclose its progress and results and strive to improve the transparency of our business administration.

Reasons for Non-compliance with the Principles of the Corporate Governance Code (Excerpts)

(All principles are stated based on the code before the revision in June 2018.)

Our company follows the principles of the corporate governance code.

Disclosure Based on the Principles of the Corporate Governance Code (Excerpts)

Principles	Disclosure content
【Principle 1-4 The so-called strategically held shares】	・Before strategically holding shares of any other companies, we consider carefully if the strategically held shares of a company strengthen the relationship between us and our business partners, the society and other stakeholders and will eventually enhance our corporate value in a medium- to long-term perspective. ・As for shares held based on these considerations, the company will annually verify the appropriateness of holding shares of each company by considering the appropriateness of its holding purpose and whether the benefits, risks, etc. that come along are commensurate with the capital cost. Most recently, the Board of Directors made the verification in their meeting, which was held on October 31, 2018, and will decide whether to reduce shares of companies that are acknowledged to have lost their holding purpose. ・We will determine when to exercise our voting right of strategically held shares based on a medium- to long-term viewpoint on enhancement of the corporate value of the company that we invest in.
Principle 5-1 Policy on constructive dialogue with shareholders	・In our company, the Department of Corporate Communications is in charge of interacting with our shareholders, and the executive responsible for CSR manages the office. ・The Corporate Communication Dept. appropriately exchanges information with the Corporate Planning Dept., the Accounting & Finance Dept., the General Affairs Dept., the Legal Affairs Dept., etc. and provides precise and unbiased information to our shareholders. ・Our company will continuously strive to enrich methods of dialogue

	other than individual interviews, such as holding information sessions for investors on a quarterly basis, improving explanatory materials for our financial results disclosed on our website, and participating in company information sessions for individual investors. ・The Corporate Communications Dept. collates and analyzes opinions obtained through interaction with our shareholders when necessary and report them to the Representative Director. ・Our company thoroughly manages unreleased important facts in accordance with the "Insider Trading and Timely Disclosure Management Rules", and communicates with our shareholders to prevent information leak.

<Appendix：Fact Sheet>

Fact Sheet

<Major Shareholders>

Shareholder	Number of Holding Shares (thousand)	Rate (%)
Yokohama Rubber Co., Ltd.	22,682	10.38
Mizuho Bank, Ltd	9,600	4.39
Japan Trustee Services Bank, Ltd. (Trust Account)	9,481	4.34
The Master Trust Bank of Japan, Ltd. (Trust Account)	8,745	4.00
National Mutual Insurance Federation of Agricultural	8,200	3.75
Asahi Mutual Life Insurance Company	7,679	3.51
BNY GCM CLIENTACCOUNT JPRD AC ISG (FE-AC)	6,674	3.05
Asahi Kasei Corporation	6,438	2.95
The Norinchukin Bank	4,000	1.83
Zeon Corporation Client Stock Ownership Association	3,648	1.67
	87,147	**39.87**

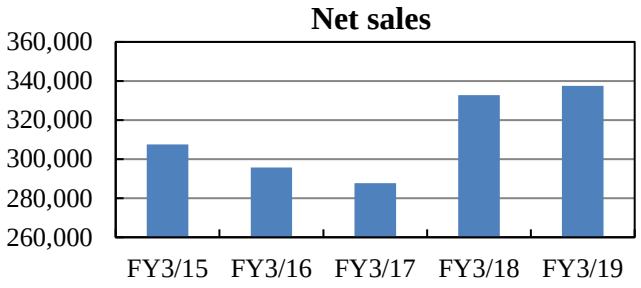
＊Total number of shares issued at the end of the term common stock 237,075,556shares

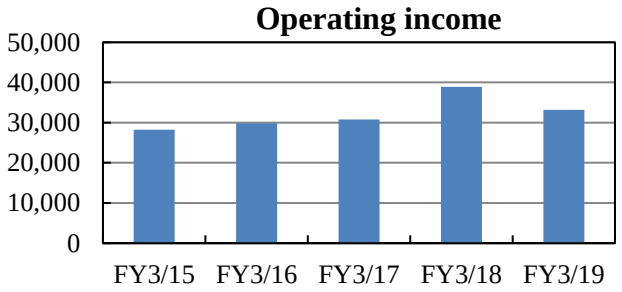
As of Mar. 31, 2019

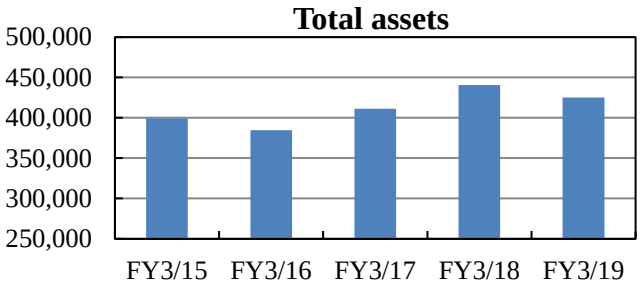
<Selected Financial Data>

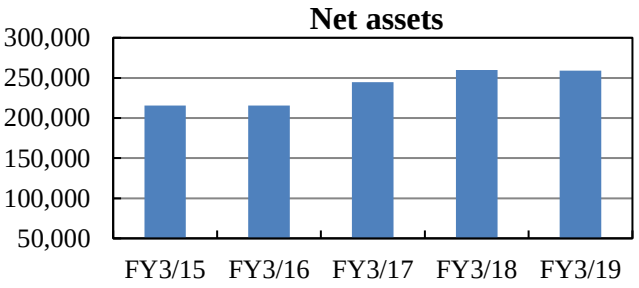
(Units: Million Yen)

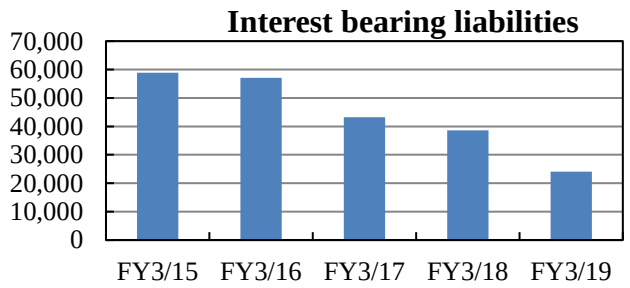
	FY3/15	FY3/16	FY3/17	FY3/18	FY3/19
Net sales	307,524	295,647	287,624	332,682	337,499
Gross profit	82,636	87,187	86,925	101,272	96,742
Operating income	28,245	29,856	30,767	38,881	33,147
Ordinary income	31,098	32,153	31,805	40,893	36,319
Net income	19,080	18,079	23,152	13,056	18,458
EPS (JPY)	84.1	79.9	104.3	58.8	84.1
DPS (JPY)	14.00	15.00	16.00	17.00	19.00
Total assets	399,512	384,753	411,415	440,519	424,937
Net assets	215,631	215,586	244,634	259,940	259,156
Interest bearing liabilities	58,889	57,064	43,177	38,573	24,125
Capital expenditures	28,516	27,650	22,122	14,568	14,640
Depreciation & Amortization	19,439	20,904	20,431	20,539	18,780
R&D Expenses	13,627	14,148	13,233	15,103	16,480

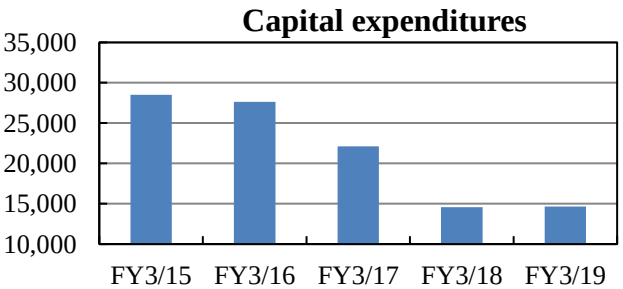


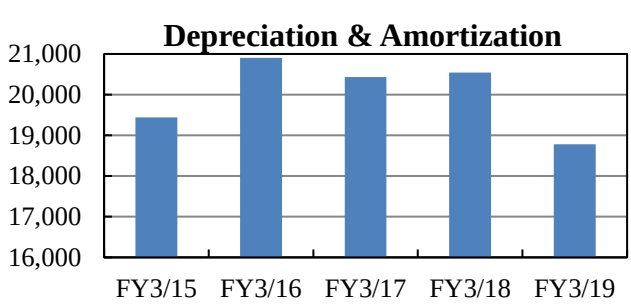


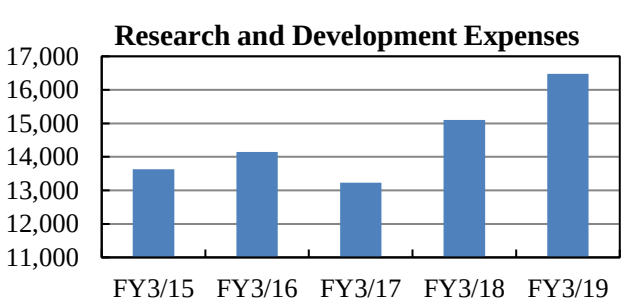








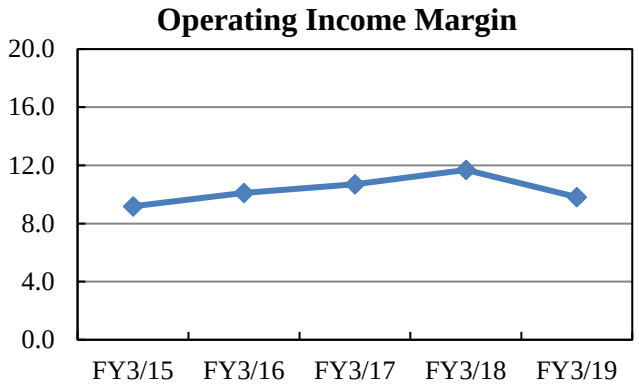


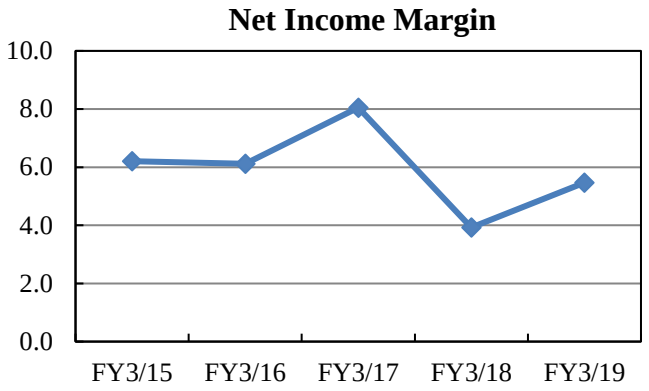


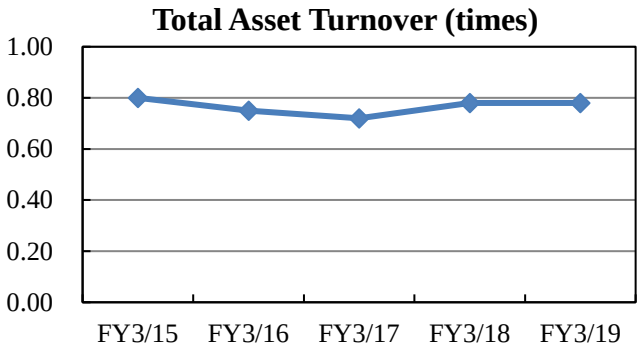
<Financial Summary>

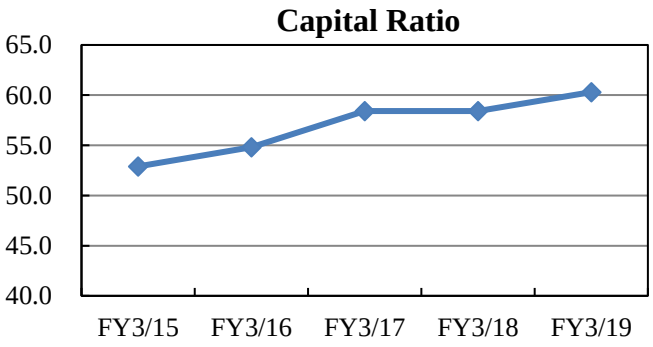
(%)

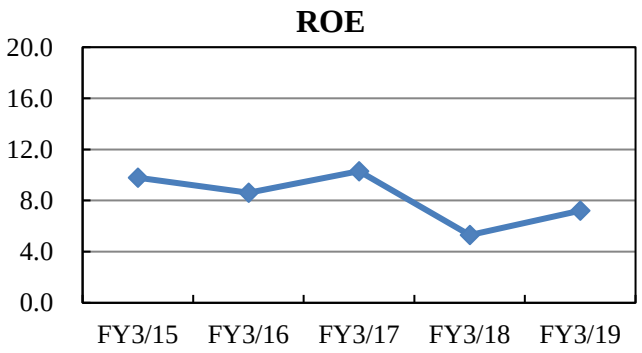
	FY3/15	FY3/16	FY3/17	FY3/18	FY3/19
Operating Income Margin	9.2	10.1	10.7	11.7	9.8
Net Income Margin	6.2	6.1	8.0	3.9	5.5
Total Asset Turnover (times)	0.80	0.75	0.72	0.78	0.78
Capital Ratio	52.9	54.8	58.4	58.4	60.3
ROE	9.8	8.6	10.3	5.3	7.2
R&D-to-Sales Ratio	4.4	4.8	4.6	4.5	4.9

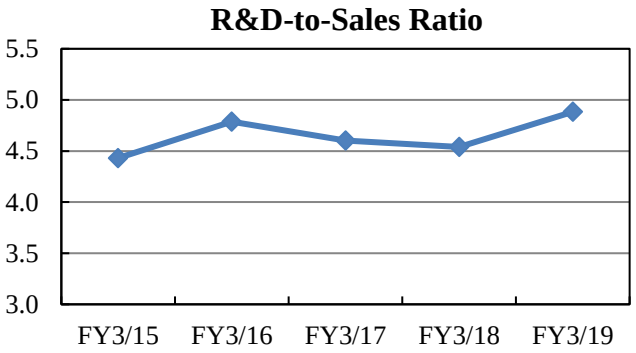










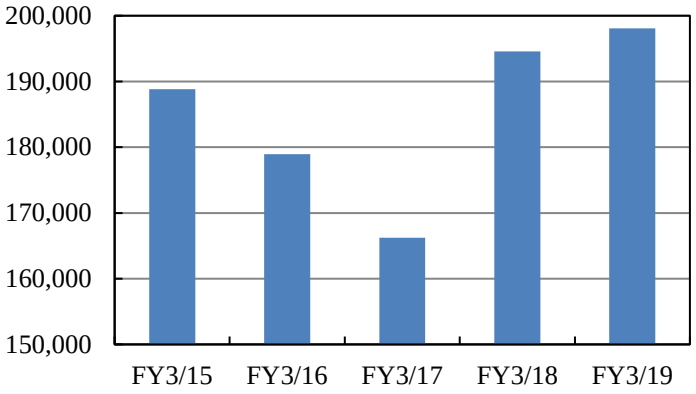


<Segment Information>

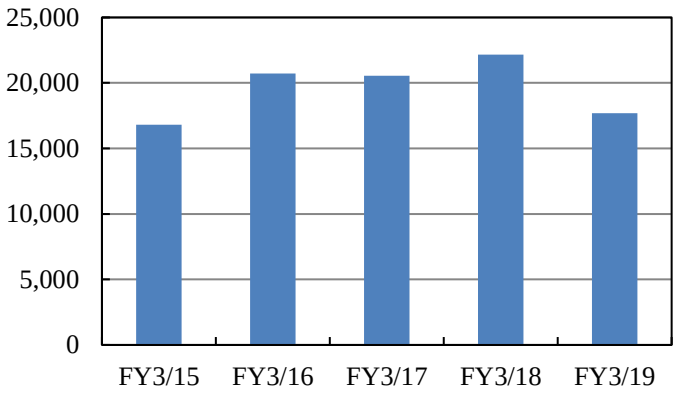
(Units: Million Yen)

	FY3/15	FY3/16	FY3/17	FY3/18	FY3/19
Sales					
Elastomer Business	188,829	178,940	166,243	194,570	198,087
Specialty Material Business	70,875	70,979	74,980	86,479	85,142
Others	50,049	47,950	49,038	53,928	56,733
Eliminations and corporate assets	-2,229	-2,222	-2,637	-2,295	-2,463
Consolidated	307,524	295,647	287,624	332,682	337,499
Operating income					
Elastomer Business	16,818	20,725	20,552	22,169	17,691
Specialty Material Business	9,446	8,221	9,832	16,742	16,115
Others	2,017	2,503	2,865	3,206	2,786
Eliminations and corporate assets	-36	-1,592	-2,482	-3,237	-3,446
Consolidated	28,245	29,856	30,767	38,881	33,147
Total assets					
Elastomer Business	196,115	193,560	201,054	213,137	209,089
Specialty Material Business	78,754	80,916	82,673	88,122	89,402
Others	26,919	27,873	29,165	30,907	32,907
Eliminations and corporate assets	97,723	82,404	98,523	108,353	93,539
Consolidated	399,512	384,753	411,415	440,519	424,937
Depreciation & Amortization					
Elastomer Business	8,902	9,693	9,929	10,208	8,864
Specialty Material Business	8,144	8,569	7,845	7,781	6,793
Others	278	316	353	326	302
Eliminations and corporate assets	2,114	2,326	2,304	2,223	2,822
Consolidated	19,439	20,904	20,431	20,539	18,780
Capital Expenditure					
Elastomer Business	13,906	15,665	11,166	7,998	5,744
Specialty Material Business	9,650	7,521	7,644	3,644	6,234
Others	355	395	342	362	359
Eliminations and corporate assets	4,605	4,069	2,971	2,564	2,303
Consolidated	28,516	27,650	22,122	14,568	14,640

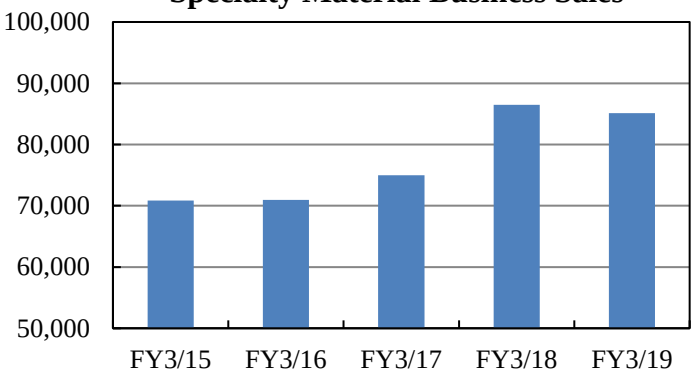
Elastomer Business Sales



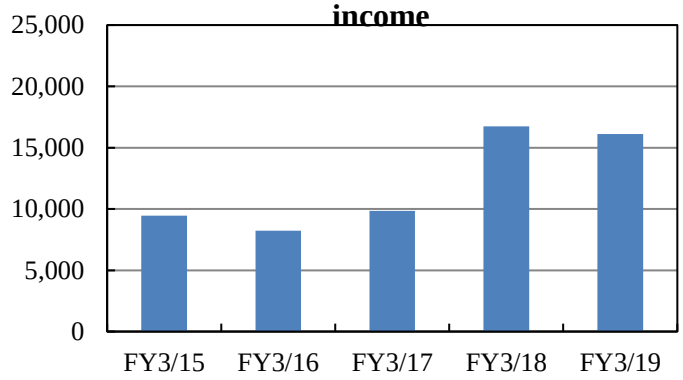
Elastomer Business Operating income



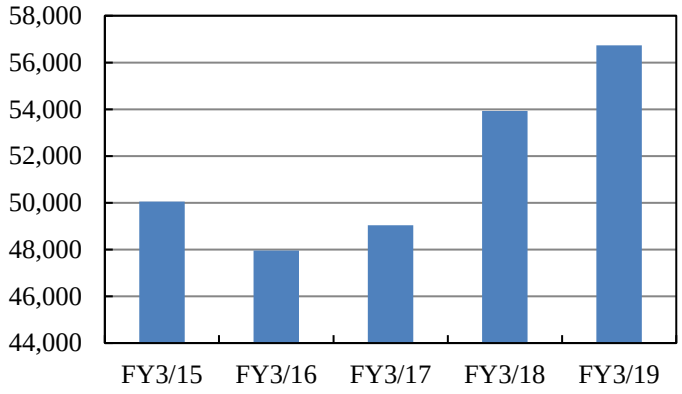
Specialty Material Business Sales



Specialty Material Business Operating income



Others Sales



Others Operating income